





THE WORLD

ENCYCLOPEDIA AMERICANA MAP

BY HAROLD K. FAYE

ANTARCTICA

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FRONTISPIECE

The Big Four heads of government gather at Geneva, Switzerland, in July 1955 for the "Meeting at the Summit." Shown here on the lawn of the Palais des Nations on July 19 are (left to right): Soviet Premier Bulganin, President Eisenhower, French Premier Faure, and British Prime Minister Eden.

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1956

AN ENCYCLOPEDIA OF THE EVENTS OF 1955

LAVINIA P. DUDLEY

EXECUTIVE EDITOR OF AMERICANA PUBLICATIONS

JOHN J. SMITH

EDITOR OF THE AMERICANA ANNUAL



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Foreword . . .

LIKE AN IMPORTANT SECTION of a jigsaw puzzle, the record of 1955 represented in this volume falls into place in the larger pattern of world events which has been taking shape since World War II. Basic to this pattern, of course, is the continued cold war struggle between the East and the West—the latter intent in its efforts to build a permanent peace on the foundation of individual freedom and dignity; the former equally intent on its long-established goal of a twentieth century which (in the words of Soviet Deputy Premier Kaganovich) will see “the triumph of socialism and communism.” Between these two giant forces lay the so-called neutralist nations, notably those of the Asian-Arab world, which remained uncommitted to either side, but to win whose favor the USSR has launched a vigorous political and economic propaganda campaign.

Against this background of global conflict of interests, the year's major developments take on added significance. The Geneva “Meeting at the Summit,” which brought together the Big Four heads of government; the Asian-African Conference at Bandung, Indonesia; the Baghdad Pact, creating a defense organization loosely termed the Middle East Treaty Organization; the nationalist struggle in French North Africa; the Arab-Israeli conflict in the Middle East; the attainment of West German sovereignty without all-German unification; preparations for the launching of the first earth satellite; and the illness of President Eisenhower—all these assume a greater importance when viewed against a background of international power politics.

Unhappily the “new spirit” manifested at Geneva, notwithstanding President Eisenhower's dramatic proposals for international aerial inspection and exchange of armaments data, took on more of the aspects of an old and somewhat familiar ghost before the year was out. The sudden vision of a road to universal peace had made it difficult to accept the fact that the Soviet goal had not changed, however much the signposts along the way might have been altered.

For the valued assistance of the editorial and production staffs and well over two thousand contributors of articles, parts of articles, and specific information, whose combined efforts have made possible this thirty-fourth edition of *THE AMERICANA ANNUAL*, the editor wishes to express his most sincere gratitude.

J. J. S.



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- EATON, GEORGE T., Technical Staff Assistant, Kodak Research Laboratories: PHOTOGRAPHY
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- EVERY, DERNELL, Secretary, Kraft Paper Association, Inc.: PAPER INDUSTRY
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- RILEY, LYMAN W., University of Pennsylvania Library: FRIENDS, RELIGIOUS SOCIETY OF
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- SHERWOOD, GRACE M., State Librarian, Rhode Island State Library: RHODE ISLAND
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- WATSON, ROBERT C.**, Commissioner of Patents: PATENTS AND TRADEMARKS
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- WIRTH, CONRAD L.**, Director, National Park Service: NATIONAL PARKS
- WITTICH, FRED W.**, Secretary-Treasurer, American College of Allergists; President, International Association of Allergology: ALLERGIES
- WOOD, C. V., JR.**, Vice President and General Manager, Disneyland, Inc.: DISNEYLAND
- WRIGHT, QUINCY**, Professor of International Law, University of Chicago: FOREIGN POLICY OF THE U.S.; POLITICAL SCIENCE
- YOUNG, PHILIP**, Chairman, U.S. Civil Service Commission: CIVIL SERVICE, U.S.
- YOUNG, T. CUYLER**, Chairman, Department of Oriental Studies, Princeton University: IRAN
- ZAFRA, NICOLAS**, Dept. of History, University of the Philippines: PHILIPPINES, REPUBLIC OF THE
- ZELUFF, VIN**, Managing Editor, "Electronics": ELECTRONICS



CHRONOLOGY

the events of 1955



French troops search for rebels in the Atlas Mountains countryside of Morocco as native tribesmen launch a series of guerrilla attacks on French settlements in early October 1955.

WIDE WORLD

CHRONOLOGY . . 1955

PART 1 . . The Outstanding Dates of the Year

JANUARY

- 2—President José Antonio Remón of Panama is assassinated in Panama City.
- 6—President Eisenhower, in State of Union message, calls for interparty cooperation to strengthen nation's international role for peace.
- 6-10—U.N. Secretary General Dag Hammarskjöld confers with Chinese Communist Premier Chou En-lai in Peking on release of 11 American fliers held by China as "spies."
- 11—Costa Rican rebels seize northern border town of Villa Quesada; President José Figueres charges Nicaragua with aggression.
- 15—National Assembly of Panama dismisses President José Ramón Guizado for implication in assassination of former President Remón; Ricardo Arias Espinosa sworn in as president.
- 20—Costa Rica and Nicaragua accept Organization of American States plan for buffer zone.
- 25—Some 300 Costa Rican rebels cross into Nicaragua and surrender for internment.
- 29—President Eisenhower signs congressional resolution authorizing him to use armed forces if necessary to defend Formosa and Pescadores.
- 31—U.N. Security Council votes to invite Communist China to take part in talks to end fighting in Formosa Strait area.

FEBRUARY

- 3—Chinese Communist Premier Chou En-lai rejects United Nations bid to discuss cease-fire in Formosa area, stating Nationalists must first be ejected from Security Council.
- 5—French Premier Pierre Mendès-France is ousted by National Assembly on North African policy.
- 8—Soviet Premier Georgi M. Malenkov resigns, accusing himself of errors of leadership; Marshal Nikolai A. Bulganin is elected premier by Supreme Soviet.
- 9—Soviet Premier Bulganin, in inaugural address, stresses Sino-Soviet tie and increased output of heavy industry; Marshal Georgi K. Zhukov named minister of defense.
- U.S. Senate ratifies mutual defense pact with Nationalist China.
- 11—Chinese Nationalists complete evacuation of Tachen Islands with protection of U.S. Seventh Fleet.
- 19—Southeast Asia Collective Defense Treaty (SEATO) comes into effect.
- 23—Edgar Faure confirmed as premier of France.
- 23-25—SEATO Council holds first session in Bangkok, Thailand; creates permanent group of Council representatives and other organs.
- 24—Turkey and Iraq sign five-year mutual defense pact in Baghdad, Iraq.
- 27—Japanese elections result in victory of Premier Ichiro Hatoyama's Democratic Party.
- 28—Israeli forces stage reprisal raid on Egyptian posts in Gaza strip; 38 Egyptians and 8 Israelis killed.

MARCH

- 2—Cambodian King Norodom Sihanouk abdicates in favor of his father, Norodom Suramarit.
- 3—U.S.-Nationalist Chinese defense pact takes effect.
- 16—Yalta Conference documents are released by U.S. State Department.
- 18—Ichiro Hatoyama is re-elected premier of Japan by House of Representatives.
- 24—Canadian Secretary of State for External Affairs Lester B. Pearson states Canada will not take part in conflict over Quemoy and Matsu.
- 27—French Council of the Republic completes parliamentary ratification of 1954 Paris pacts on rearmament of Germany.

APRIL

- 5—Sir Winston Churchill resigns as prime minister of Great Britain.
- 6—Sir Anthony Eden is named prime minister of Great Britain and first lord of Treasury.
- 7—Harold Macmillan named British foreign secretary.
- 12—Salk antipoliomyelitis vaccine is reported successful in 1954 mass trials.
- 15—Austrian and Soviet leaders agree in Moscow on conditions for Austrian State Treaty.
- 18—Albert Einstein dies in Princeton, N.J., aged 76.

- 18-24—Asian-African Conference takes place at Bandung, Indonesia, adopting resolutions on world peace and self-determination of nations.
- 23—Chinese Communist Premier Chou En-lai, at Bandung, Indonesia, says Communist China does not want war with U.S. and is willing to negotiate on Formosa and other Far East issues.
- 29—Giovanni Gronchi, left-wing Christian Democrat, elected president of Italy by Parliament.

MAY

- 2—South Vietnamese army sweeps Binh Xuyen units out of Saigon, after 5 days of heavy fighting.
- 5—Federal Republic of Germany attains sovereignty, as 1954 Paris pacts on West Germany, Western European Union, and Saar come into effect.
- 7—Western European Union comes into being, as foreign ministers of member nations meet in Paris and set up organizational structure.
- 9—West Germany inducted into NATO at North Atlantic Council meeting in Paris.
- 10—U.S., Britain, and France, in notes to USSR, call for conference of Big Four heads of government.
- 13—Gen. Maxwell D. Taylor named to succeed Gen. Matthew B. Ridgway as chief of staff.
- 14—Eight East European Communist-bloc states sign 20-year mutual defense treaty at Warsaw; Soviet Marshal Ivan S. Konev named chief of joint military command.
- 15—Austrian State Treaty is signed in Vienna by foreign ministers of Big Four and Austria.
- 25-27—Tornadoes hit Kansas, Arkansas, Oklahoma, Missouri, and Texas; 121 killed, including 77 in Udall, Kans.
- 26—British elections result in Conservative Party victory. Soviet Premier Bulganin and Communist Party Secretary Khrushchev head Soviet delegation arriving in Belgrade, Yugoslavia; Khrushchev apologizes for Soviet-Yugoslav break of 1948 and calls for renewal of close ties.
- 31—U.S. Supreme Court rules that states must end racial segregation in public schools within "reasonable" time. Communist China "deports" four American fliers shot down in Korean war.

JUNE

- 3—French Premier Faure and Tunisian Premier Tahar ben Ammar sign conventions in Paris on internal autonomy for Tunisia.
- 6—Ford Motor Co. and United Automobile Workers agree on three-year contract including supplemental unemployment benefits.
- 7—USSR invites West German Chancellor Konrad Adenauer to discuss Soviet-West German ties.
- 13-14—Catholic demonstrators and Peronists clash in Buenos Aires; 430 Catholics arrested.
- 16—Navy revolt breaks out in Argentina; Argentine leaders excommunicated by Vatican for acts against Roman Catholic Church.
- 20-26—Tenth anniversary meeting of United Nations takes place in San Francisco.
- 22—Argentine revolt quelled; Gen. Franklin Lucero returns control of armed forces to President Juan D. Perón.
- Italian Premier Mario Scelba and cabinet resign, but remain temporarily as caretaker government.
- 23—Indian Prime Minister Nehru and Soviet Premier Bulganin sign declaration in Moscow calling for ban on nuclear weapons, arms reductions, and satisfaction of Communist China's "legitimate rights" to Formosa.

JULY

- 6—Antonio Segni heads new Italian cabinet.
- 7—North Vietnamese President Ho Chi Minh and Chinese Communist leaders conclude pact in Peking on \$338 million in Chinese economic aid to North Vietnam.
- 11—President Eisenhower orders cancellation of Dixon-Yates power contract.
- U.S. Air Force Academy dedicated near Denver, Colo.
- 14-18—Anti-French rioting in Morocco results in over 60 killed.

- 18—Big Four "Summit Conference" of heads of government opens in Geneva, Switzerland, attended by U.S. President Eisenhower, Soviet Premier Bulganin, British Prime Minister Eden, and French Premier Faure.
- 21—President Eisenhower, at Geneva Conference, proposes that U.S. and USSR exchange blueprints on respective military establishments and that each country be open to aerial inspection by the other; Premier Bulganin calls for nonaggression pact between NATO and Warsaw treaty bloc.
- Seawolf*, second U.S. atomic submarine, is launched at Groton, Conn.
- 23—Geneva Conference adjourns after directing Big Four foreign ministers to meet in October.
- Cordell Hull dies in Bethesda, Md., aged 83.
- 27—Austria regains sovereignty; Allied Council for Austria holds final meeting in Vienna.
- Israeli Constellation airliner is shot down by Bulgarian fighter planes near Greek border; 58 aboard (including 12 Americans) killed.
- Federation of Malaya holds first national elections; Alliance Party victorious.
- 29—White House announces U.S. plans to launch first man-made earth satellite in 1957 or 1958.

AUGUST

- 1—U.S. and Communist China open talks in Geneva; Chinese Representative Wang Ping-nan announces freeing of 11 U.S. airmen held in China as spies.
- 7—Mohammad Ali resigns as prime minister of Pakistan, after losing leadership of Moslem League Party.
- 8-20—First International Conference on the Peaceful Uses of Atomic Energy is held in Geneva, Switzerland.
- 9—South Korean demonstrators try to seize Polish and Czechoslovak members of Neutral Nations Supervisory Commission on Wolsmi Island, but are held off by U.S. guards.
- 10—South Vietnamese Premier Ngo Dinh Diem rejects North Vietnamese request for talks on unified elections.
- 11—Chaudhry Mohammad Ali heads Pakistan cabinet.
- 12—Thomas Mann dies in Zurich, Switzerland, aged 80.
- 13—USSR announces decision to reduce armed forces by 640,000 by December 15.
- 15—Indian nonviolent demonstrators march on Goa and Damão; Portuguese forces kill 22 demonstrators.
- 18-19—Rains accompanying hurricane Diane cause record floods in six Northeastern states; 179 killed; damages estimated at \$457.7 million.
- 19—India severs diplomatic relations with Portugal over Portuguese India dispute.
- 20-21—Revolts in French Morocco and Algeria result in over 2,200 persons killed.
- 31—Japanese Foreign Minister Mamoru Shigemitsu ends three-day talks with U.S. leaders in Washington; joint communiqué calls for build-up of Japanese military strength.
- Israel charges new wave of Arab terrorism along Gaza strip, with 7 Israelis killed; Israelis attack Egyptians at Khan Yunis, killing 40.

SEPTEMBER

- 6—Anti-Greek riots occur in Istanbul and Izmir, Turkey.
- 7—London conference of Great Britain, Greece, and Turkey on Eastern Mediterranean and Cyprus ends in deadlock after nine days.
- 9-13—West German Chancellor Adenauer confers with Soviet leaders in Moscow; agreement reached on establishing diplomatic relations between USSR and West Germany; USSR pledges to release German war prisoners still in Soviet custody.
- 16—Argentine army and navy units revolt against President Perón.
- 16-19—Finnish President Juho K. Paasikivi confers with Soviet leaders in Moscow; Finnish-Soviet defense treaty of 1948 renewed for 20 years; USSR agrees to evacuate naval base of Porkkala and return it to Finland.
- 19—President Perón is ousted in Argentine revolt; four-man military junta takes control.
- 20—U.N. General Assembly convenes for 10th regular session; elects José Maza of Chile as president.
- East German and Soviet leaders sign agreements in Moscow granting East Germany sovereignty and control over civilian traffic between Berlin and West Germany.
- 23—Maj. Gen. Eduardo Lonardi, rebel leader, is sworn in as provisional president of Argentina.
- 24—President Eisenhower suffers coronary thrombosis at Denver, Colo.
- 27—Egyptian Premier Gamal Abd el-Nasser reports agreement with Czechoslovakia for arms shipments to Egypt.
- 29—Indonesia begins first national elections.

OCTOBER

- 1—Moroccan Sultan Sidi Mohammed ben Moulay Arafat flees to Tangier, delegating authority to cousin.

France withdraws delegation from U.N. General Assembly in protest against vote to discuss Algeria.

- 3—Juscelino Kubitschek wins Brazil's presidential election.
- 23—Saar voters reject Europeanization statute.
- South Vietnamese vote to oust Bao Dai and support Premier Ngo Dinh Diem.
- 26—South Viet-Nam is proclaimed a republic by Premier Diem, who becomes first president.
- 27—Big Four foreign ministers open talks in Geneva on German unification and European security.
- 28—Western ministers at Geneva assure that united Germany free to join NATO will not menace peace; Soviet Foreign Minister Molotov repeats Soviet plan for European security treaty.
- 30—Moroccan Sultan Sidi Mohammed ben Moulay Arafat formally abdicates throne.

NOVEMBER

- 2-3—Israeli forces attack Egyptian positions in El 'Auja area; 50 Egyptians killed.
- 3—David Ben-Gurion heads new Israeli cabinet.
- 5—Sidi Mohammed ben Youssef is recognized as sultan of Morocco by French government.
- 11—Brazilian Army seizes power in bloodless coup; Nereu Ramos replaces Carlos Luz as acting president.
- 13—Lonardi regime in Argentina is ousted in bloodless military coup; Maj. Gen. Pedro Aramburu sworn in as president.
- 16—Big Four Foreign Ministers Conference at Geneva ends without agreement on issues discussed.
- Sultan Sidi Mohammed ben Youssef returns to Morocco after two-year exile.
- 18—Soviet Premier Bulganin and Communist Party Secretary Khrushchev arrive in New Delhi, India, for visit to India, Burma, and Afghanistan.
- 21-22—Council of Baghdad Pact holds first meeting in Baghdad, Iraq, attended by premiers of Iraq, Turkey, Iran, and Pakistan, and British foreign minister.
- 25—U.N. General Assembly votes to drop Algerian question, ending eight-week French walkout.
- U.S. Interstate Commerce Commission orders end to racial segregation on trains and buses which cross state lines (effective Jan. 10, 1956).
- 29—Premier Edgar Faure is defeated on confidence vote in French National Assembly, 319-219.
- 30—French Premier Faure dissolves National Assembly; elections set for January 1956.

DECEMBER

- 3—Great Britain and Egypt sign pact in Cairo granting Anglo-Egyptian Sudan right to determine future status by plebiscite.
- 5—American Federation of Labor and Congress of Industrial Organizations merge at joint convention in New York.
- 7—First representative Moroccan cabinet, headed by Premier M'barek Bekkai, takes office.
- 10—Australian elections result in victory for Prime Minister Robert Gordon Menzies' conservative coalition.
- 11—Israeli forces strike at Syrian positions along Sea of Galilee; 56 Syrians, 6 Israelis killed.
- 12—Otto John, former West German intelligence chief who defected to East Germany in 1954, returns to West Germany.
- 13—Nationalist China vetoes U.N. membership for Mongolian People's Republic, leading to failure of "package deal" on admission of 18 nations.
- Ford Foundation announces it will grant \$500 million to 4,157 private colleges, universities, and hospitals in next 18 months.
- 14—Sixteen new members (including four of Soviet bloc) elected to U.N., as USSR reverses earlier stand.
- Hugh Gaitskill elected leader of British Labour Party, succeeding Clement R. Attlee.
- 16—U.N. General Assembly approves President Eisenhower's plan on aerial inspection and exchange of military blueprints.
- Syria asks U.N. Security Council to impose economic sanctions against Israel for Sea of Galilee raid of Dec. 11.
- 18—Soviet Premier Bulganin and Afghanistan Premier Mohammed Daud sign protocol in Kabul extending nonaggression pact of 1931; Soviet leaders pledge \$100 million loan to Afghanistan.
- Saar parliamentary elections result in victory of pro-German parties.
- 19—Jordanian cabinet of Hazza al-Majali resigns, following rioting against Jordan's joining Baghdad Pact.
- 20—Selwyn Lloyd replaces Harold Macmillan as British foreign secretary in cabinet reorganization.
- Yugoslavia elected to U.N. Security Council, in compromise arrangement on split-term with Philippines; U.N. General Assembly adjourns.
- 22-26—Floods hit California, Nevada, and southern Oregon; 74 persons killed.
- 29—Soviet Premier Bulganin and Communist Party Secretary Khrushchev, in Moscow addresses, attack Western "colonialism"; Khrushchev criticizes President Eisenhower's plan on aerial inspection.

PART 2 . . Chronological Index of the Year's Events

ON the following pages are indexed the principal world events of 1955. Main subject headings are indexed in alphabetical order, while specific events under each subject heading are listed chronologically (in order of their occurrence). Articles on many of the persons, countries, and subjects may be found in the main text of this volume.

The Chronological Index is intended primarily to aid the reader in finding the dates on which the most important events of 1955 occurred. It is, therefore, a selected list of the year's most significant events, rather than a complete list of all events under all subject headings, though it does serve also as a guide to the year's important developments in any subject, particularly in the major countries.

In many instances events have been listed under both the general subject classification headings, and under the specific names of the events or persons concerned; for example, the Geneva Conference of the Big Four heads of government (July 18-23) may be found under the headings BULGANIN, EDEN, EISENHOWER, and FAURE, as well as under GENEVA CONFERENCE, FRANCE, GREAT BRITAIN, UNION OF SOVIET SOCIALIST REPUBLICS, and UNITED STATES. In other instances, events concerning persons whose names are less familiar to most readers may be found under the name of the country or general subject involved. United States diplomatic and other appointments are listed under the heading UNITED STATES. Cross-references used herein refer only to headings within this Index.

ACCIDENTS AND DISASTERS

Aviation

Belgian DC-6 crashes in mountains 50 miles north-east of Rome, Italy; 29 killed, **Feb. 13**
TWA Skyliner crashes on mountain peak near Albuquerque, N. Mex.; 16 killed, **Feb. 19**
Mexican DC-3 airliner crashes near Mascota, western Mexico; 26 killed, **Mar. 8**
U.S. Navy DC-6 crashes into mountain near Honolulu, Hawaii; all 66 aboard killed, **Mar. 22**
Braniff Airways Convair crashes in fog at Midway Airport, Chicago; 22 killed, **July 17**
American Airlines Convair crashes near Newburg, Mo.; 30 killed, **Aug. 4**
Soviet airliner crashes near Voronezh, USSR; 25 killed, **Aug. 6**
Two U.S. Air Force Flying Boxcars collide in midair near Edelweiler, Germany; 66 killed, **Aug. 11**
United Air Lines DC-4 crashes into mountain near Laramie, Wyo.; 66 killed in worst disaster of American commercial flying, **Oct. 6**
United Air Lines DC-6B explodes near Longmont, Colo., killing all 44 aboard; (explosion caused by bomb planted by son of a passenger) **Nov. 1**
Nonscheduled DC-4 crashes at Seattle, Wash.; 27 (including 26 servicemen) killed, **Nov. 18**
Eastern Air Lines Constellation crashes at Jacksonville, Fla.; 17 killed, **Dec. 21**

Earthquakes and Volcanoes

Undersea earthquake hits southern Philippines; towns near Lake Lanao destroyed; 442 killed, **Apr. 1**
Earthquake in Kiangtin, Sikiang Province, China, kills 39, **Apr. 14**
Earthquake strikes area northeast of Cairo, Egypt; 20 killed, **Sept. 12**

Fires and Explosions

Mine explosion in Zonguldak coal basin, Turkey, kills 49, **Jan. 23**

Fire razes Chicago hotel; 29 killed, **Feb. 12**
Fire in home for aged women near Yokohama, Japan, kills 97 inmates, **Feb. 17**
Fire in movie theater near Liège, Belgium, kills 38, mostly children, **Apr. 3**
Fire in movie theater in Wielopolo, Poland, kills 58, **May 18**
Fire in uranium mine at Niederschlema, East Germany, kills 33 miners, **July 16**
Explosion and fire in coal mine at Gelsenkirchen, West Germany, kills 41 miners, **Aug. 3**
Lightning hits restaurant in Andover, Ohio, causing explosion and fire; 21 killed, **Aug. 10**
Fires and explosions strike refinery of Standard Oil Co. of Indiana at Whiting; 2 killed, damages estimated at \$10 million, **Aug. 27**
Two dynamite-laden trucks crash into train at Gómez Palacio, Mexico; 20 killed, **Sept. 23**
Gas explosion in coal mine in northern Hokkaido, Japan, kills 60 miners, **Nov. 1**
Explosion in apartment dwelling in Frankfurt am Main, Germany, kills 27 tenants, **Dec. 7**

Floods

Floods hit western New South Wales, Australia; 70 reported lost; 50,000 homeless, **Feb. 23-28**
Ohio River floods leave thousands homeless, **Mar. 7-10**
Floods following hurricane Diane ravage 6 Northeastern states of U.S.; 179 killed; damages estimated at \$457.7 million, **Aug. 18-19**
Monsoon-caused floods devastate some 10,000 square miles in India and Pakistan; thousands believed killed, **Sept. 9**
Pánuco River levels off after flooding Tampico area of Mexico and leaving scores dead, **Oct. 6**
Floods in northern India and West Pakistan leave an estimated 1,500 dead, **Oct. 9-13**
Floods in Connecticut, New York, and other Northeastern states cause 44 deaths, **Oct. 17**
Floods in northern Mindanao and Visayan Islands, Philippines, leave at least 93 dead, **Nov. 28-30**

ACCIDENTS AND DISASTERS—(Left) Floods accompanying hurricane Diane (Aug. 18-19) leave scenes of destruction, like this one at Scranton, Pa., over sections of the Northeast. **(Right)** A house in Yuba City, Calif., is lifted onto a railroad embankment by floods which also inundated parts of Nevada and Oregon in late December.

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CHRONOLOGICAL INDEX, 1955

Floods in southern district of Madras State, India, leave 120 dead, 500,000 homeless, **Nov. 30-Dec. 2**
Heavy rains cause floods in Lebanon; 140 reported killed, 300 missing, **Dec. 17**
Floods hit California, Nevada, and southern Oregon; 74 killed, **Dec. 22-26**

Hurricanes, Tornadoes, and Typhoons

Two tornadoes strike Mississippi, Arkansas, and Alabama; 31 killed, **Feb. 1**
Tornadoes hit Kansas, Arkansas, Oklahoma, Missouri, and Texas; 121 killed, including 77 in Udall, Kans., **May 25-27**
Hurricane Connie hits Carolinas, Maryland, and Virginia; 43 killed, **Aug. 12-13**
Typhoon hits southeastern Formosa; 40 killed, **Aug. 24**
Hurricane Hilda hits Tampico, Mexico; 238 dead, 400 missing, **Sept. 19**
Hurricane Janet hits Windward Islands, Grenada, and Barbados; over 300 killed, **Sept. 22-23**
Hurricane Janet strikes Yucatán Peninsula, Mexico; estimated 250 killed, **Sept. 27-28**
Typhoon hits Kyushu, Japan; 31 killed, **Sept. 30**

Marine

Freezing mist causes loss of 2 British trawlers with 40 aboard off Northern Ireland, **Jan. 27**
Two Japanese coastal vessels en route to Okinawa missing in storm; 341 aboard lost, **Feb. 21**
Japanese ferry sinks after collision with freighter off Shikoku island; about 170 killed, **May 11**
Tidal wave hits Patani, southern Thailand; about 500 reported drowned, **June 23**
Mexican passenger ship sinks during storm in Gulf of Campeche; 29 lost, **July 13**
Excursion schooner wrecked in Chesapeake Bay, near North Beach, Md., during hurricane Connie; 14 dead and missing, **Aug. 12**

Motor Vehicles

Bus crashes and burns near Vigo, Spain; 31 killed, **Feb. 26**
Bus plunges off bridge south of Seoul, Korea; 38 killed, **Mar. 9**
Bus swept from bridge by floods at San Remón, Uruguay; 25 killed, **July 19**
Freight train hits school bus at Spring City, Tenn.; 11 children killed, **Aug. 22**

Railroads

Passenger train crashes near Aracajú, northern Brazil; 40 killed, **Jan. 8**
Part of train overturns near São Paulo, Brazil; 30 killed, **Mar. 1**
Part of passenger train plunges into abyss near Guadalajara, Mexico; 300 killed, **Apr. 3**
Two trains collide in San Bernardo station, Chile; 49 killed, **July 17**

Miscellaneous

Landslide caused by heavy rains kills 73 in Sasebo, Japan, **Apr. 16**
Sports car crashes into crowd at auto race, Le Mans, France; 87 killed, 108 injured, **June 11**
Giant wave strikes beach at Tsu, Japan; 36 girls in swimming class drown, **July 28**

ADENAUER, Konrad—See also GERMANY

Reaches agreement on Saar with French Foreign Minister Antoine Pinay in Bonn, **Apr. 29-30**
Resigns as foreign minister of West Germany, **June 6**
Confers with President Eisenhower in Washington; communiqué stresses collective security and rejects neutralization for Germany, **June 14**
Confers with British Prime Minister Eden in London on German reunification through free elections, **June 19**
Confers with Soviet leaders in Moscow; signs agreement on establishment of Soviet-West German diplomatic relations, **Sept. 9-13**

AERONAUTICS—See ACCIDENTS AND DISASTERS

AFGHANISTAN

Premier Mohammed Daud and Soviet Premier Bulganin sign protocol in Kabul extending neutrality and non-aggression pact of 1931; Soviet leaders pledge \$100 million loan, **Dec. 18**

AIR FORCE, U.S.—See UNITED STATES—Armed Forces

AIR FORCE ACADEMY, U.S.

Dedicated at temporary site near Denver, Colo.; first class of 306 cadets sworn in, **July 11**

ALASKA

U.S. Congress shelves statehood bill, **May 10**

ALBANIA

Elected to membership in United Nations, **Dec. 14**

ALGERIA—See also FRANCE

Anti-French outbreaks and French repressive operations result in over 1,400 killed, **Aug. 20-21**

ALI, Mohammad—See also PAKISTAN

Resigns as prime minister of Pakistan, **Aug. 7**

Appointed ambassador to U.S., **Aug. 24**

AMBASSADORS—See UNITED STATES



WIDE WORLD

ACCIDENTS AND DISASTERS—Udall, Kans., shows the destructive effects of a tornado which struck on the night of May 25, killing 77 and injuring hundreds.

AMERICAN FEDERATION OF LABOR

At annual convention in New York, votes approval of merger with CIO, **Dec. 1**

Merger of AFL and CIO takes place in New York; George Meany elected president, **Dec. 5**

AMERICAN LEGION

Annual convention held at Miami, Fla.; urges U.S. to withdraw its commission to UNESCO, **Oct. 10-13**

ANDERSON, Dillon

Named special assistant to President Eisenhower for national security affairs, **Mar. 8**

ANDREWS, T. Coleman

Resigns as commissioner of internal revenue, **Oct. 15**

ANGLO-EGYPTIAN SUDAN

Parliament approves resolution asking Britain and Egypt to withdraw troops within 90 days, **Aug. 16**

Last British troops depart, **Nov. 10**

Last Egyptian troops depart, **Nov. 13**

Britain and Egypt sign agreement in Cairo granting Sudan the right to decide on status by plebiscite, **Dec. 3**

House of Representatives adopts resolution declaring Sudan independent, **Dec. 19**

ANTARCTICA—See also BYRD

U.S.S. *Atka* sails homeward after surveying site for future operations, **Feb. 20**

Operation Deepfreeze, 4-year U.S. expedition, begins as icebreaker *Edisto* leaves Boston, **Oct. 30**

Soviet Antarctic expedition leaves USSR, **Nov. 30**

U.S.S. *Glacier*, navy icebreaker, reaches Antarctica, **Dec. 17**

French Antarctic expedition leaves Tasmania, **Dec. 26**

Australian Antarctic expedition leaves Melbourne, **Dec. 27**

ARAB LEAGUE

Leaders of member states meet in Cairo, Egypt; Egypt fails to dissuade Iraq from concluding alliance with Turkey, **Jan. 22-Feb. 6**

Egypt, Syria, and Saudi Arabia announce agreement on strengthening Arab unity, including defense and economic cooperation, **Mar. 6**

ARAMBURU, Maj. Gen. Pedro

Sworn in as president of Argentina, **Nov. 13**

ARGENTINA—See also PERÓN

Government halts teaching of Catholic faith in government-subsidized schools, **Apr. 14**

Chamber of Deputies passes bill to disestablish Catholicism as constitutional religion, **May 19**

Clashes take place in Buenos Aires between Catholic demonstrators and Perón supporters; 430 Catholics arrested, **June 13-14**

Two Catholic missionaries, charged with leading anti-Perón demonstrations, deported to Rome, **June 15**

Navy revolt shakes Perón regime; Buenos Aires bombed; Argentine leaders excommunicated by Vatican, **June 16**

Gen. Franklin Lucero heads "Forces of Repression" to quell revolt, **June 18**

Lucero returns control of armed forces to Perón, after putting down revolt, **June 22**

Army and navy units revolt; nation placed under martial law, **Sept. 16**

Perón is overthrown; military junta takes over and begins negotiations with rebels, **Sept. 19**

Major. Gen. Eduardo Lonardi sworn in as provisional president, **Sept. 23**

Lonardi regime is ousted by new junta in bloodless coup; Maj. Gen. Pedro Aramburu sworn in as new president, **Nov. 13**

Aramburu orders dissolution of Peronist party, **Nov. 30**
Government restores *La Prensa* to owners, **Dec. 7**

ARMY, U.S.—See EISENHOWER; UNITED STATES—*Armed Forces*

ASIAN-AFRICAN CONFERENCE

Leaders of 29 Asian and African nations meet in Bandung, Indonesia, **Apr. 18**

Adjourns, adopting resolutions on world peace, self-determination of nations, economic development, and other international issues, **Apr. 24**

ATOMIC ENERGY—See also EISENHOWER; UNITED NATIONS

Atomic Energy Commission reveals that hydrogen bomb blast and radioactive fallout could endanger life in 7,000-square-mile area, **Feb. 15**

Joint Congressional Committee on Atomic Energy announces formation of eight-member citizens panel to spur peaceful use of atomic energy, **Mar. 26**

Air Force B-36 releases air-to-air guided missile with atomic warhead in tests over Nevada, **Apr. 6**

Nuclear explosion rocks "capsule" town built at Yucca Flat, Nev., to test community damage in atomic attack, **May 5**

Atomic test series completed for 1955, **May 15**

Atomic-generated electric power distributed for first time on commercial basis, at West Milton, N.Y., **July 18**

Seawolf, second U.S. atomic submarine, is launched at Groton, Conn., **July 21**

First International Conference on the Peaceful Uses of Atomic Energy is held at Geneva, Switzerland, attended by delegates from 72 nations, **Aug. 8-20**

USSR reported to have exploded thermonuclear device, **Nov. 23**

ATLEE, Clement R.

Resigns as leader of British Labour Party; created an earl by Queen Elizabeth II, **Dec. 7**

AUSTRALIA

Floods in western New South Wales leave 70 dead or missing, 50,000 homeless, **Feb. 23-28**

Prime Minister Robert Gordon Menzies confers with President Eisenhower in Washington on Southeast Asian defense, **Mar. 14**

Menzies introduces report on Soviet espionage to Australian House of Representatives, **Sept. 14**

Elections result in increased parliamentary majority for Menzies' conservative coalition, **Dec. 10**

AUSTRIA

Chancellor Julius Raab and Foreign Minister Leopold Figl confer in Moscow with Soviet leaders on Austrian State Treaty; USSR agrees to withdrawal of troops, return of seized property, and easy reparations terms, in return for neutralization of Austria, **Apr. 13-15**

USSR relaxes certain curbs on shipping and travel in Soviet-occupied zone, **Apr. 28**

Figl and ambassadors of U.S., Britain, France, and USSR open talks in Vienna on treaty, **May 2**

Foreign ministers of Austria, Britain, France, USSR, and U.S. sign Austrian State Treaty, **May 15**

President Theodor Koerner signs treaty ratification, **June 8**

Regains sovereignty, as deposits of treaty ratifications in Moscow are completed; Allied Council for Austria holds final meeting in Vienna, **July 27**

USSR orders its occupation forces withdrawn by October 1, **July 31**

Elected to membership in United Nations, **Dec. 14**

AVERY, Sewell L.

Retains control of Montgomery Ward & Co., in struggle against Louis E. Wolfson, **Apr. 22**

Resigns after 24 years as chairman of Montgomery Ward & Co., **May 9**

AVIATION—See ACCIDENTS AND DISASTERS

ALGERIA—French Foreign Legionnaires guard a group of nomads during outbreak of rebellions in September.

UNITED PRESS



BAGHDAD PACT

Initiated with mutual defense treaty signed by Turkey and Iraq at Baghdad, **Feb. 24**

First meeting of Council of Baghdad Pact is held in Baghdad, Iraq, attended by premiers of Iraq, Turkey, Iran, and Pakistan, and foreign minister of Great Britain; establishes Middle East Treaty Organization with headquarters in Baghdad, **Nov. 21-22**

BALTIMORE

Thomas D'Alesandro, Jr., re-elected mayor, **May 3**

BAO DAI—See INDOCHINA

BASEBALL—See SPORTS

BATTLE BERRÉS, Luis—See URUGUAY

BELGIUM

Roman Catholic demonstrators in Brussels protest proposed cut in state subsidies to parochial schools, **Mar. 26**

King Baudouin returns to Belgium, after 27-day visit to Belgian Congo, **June 12**

BEN-GURION, David

Heads new Israeli coalition cabinet, **Nov. 3**

BEVAN, Aneurin

Readmitted into British parliamentary Labour Party, following expulsion (Mar. 16), **Apr. 28**

BIG FOUR CONFERENCES—See GENEVA CONFERENCE

BOLIVIA

Seventy-five persons arrested in alleged plot to assassinate President Victor Paz Estenssoro, **Apr. 18**

BOSTON

John B. Hynes re-elected mayor, **Nov. 8**

BOXING—See SPORTS

BRAZIL

President João Café Filho opens Paulo Affonso hydroelectric dam, **Jan. 15**

Juscelino Kubitschek wins presidential election, **Oct. 3**
Café relinquishes office to Carlos Coimbra da Luz, speaker of Chamber of Deputies, **Nov. 8**

Army seizes power in bloodless coup; Nereu Ramos replaces Luz as president, **Nov. 11**

Chamber of Deputies blocks attempt by Café to resume presidency, **Nov. 22**

BRUCKER, Wilber M.

Named secretary of army, **June 22**

BUDGET, U.S.—See EISENHOWER

BULGANIN, Marshal Nikolai A.—See also GENEVA CONFERENCE; UNION OF SOVIET SOCIALIST REPUBLICS
Elected premier of USSR by Supreme Soviet in Moscow, **Feb. 8**

Following seven-day visit to Yugoslavia, signs joint Soviet-Yugoslav declaration in Belgrade, **June 2**

Signs declaration with Indian Prime Minister Nehru in Moscow calling for ban on nuclear weapons, arms reductions, and satisfaction of Communist China's "legitimate rights" to Formosa, **June 23**

Attends Geneva Conference of Big Four heads of government, **July 18-23**

In report to Supreme Soviet in Moscow, criticizes President Eisenhower's arms inspection plan, but says Geneva Conference was successful in lessening tensions, **Aug. 4**

Signs agreement with West German Chancellor Adenauer in Moscow on establishment of Soviet-West German diplomatic relations, **Sept. 13**

In letter to President Eisenhower, supports principle of Eisenhower's arms inspection plan but states several qualifications, **Sept. 19**

Arrives in New Delhi, India, in first stop of tour of India, Burma, and Afghanistan, **Nov. 18**

In joint statement with Indian Prime Minister Nehru in New Delhi, stresses disarmament as only way toward world peace, **Dec. 13**

In address to Supreme Soviet in Moscow on South Asia tour, stresses rise of Asian independence movement against Western "colonialism," **Dec. 29**

BULGARIA

In note to Israel, expresses regret over shooting down of Israeli airliner on July 27; offers to pay part of damages, **July 28**

Elected to membership in United Nations, **Dec. 14**

BURKE, Rear Adm. Arleigh A.

Takes office as chief of naval operations, **Aug. 17**

BURMA—See also NU

Premier Nu and Soviet Premier Bulganin sign statement in Rangoon on desirability of Soviet-Burmese economic and cultural cooperation, **Dec. 6**

BYRD, Rear Adm. Richard E.

Appointed to take charge of Antarctic affairs of U.S., **Nov. 2**

CALIFORNIA—See ACCIDENTS AND DISASTERS; SAN FRANCISCO

CAMBODIA—See INDOCHINA

CANADA

Parliament opens in Ottawa; Gov. Gen. Vincent Massey presents legislative program for economic recovery measures, **Jan. 7**

House of Commons ratifies 1954 Paris agreements on West German rearmament, **Jan. 26**

Australian Prime Minister Robert Gordon Menzies visits Canada, **Mar. 9-13**



UNITED PRESS; WIDE WORLD; CAPITAL PRESS SERVICE

ARGENTINA—(Left) Pedro Aramburu, who became president Nov. 13, following the overthrow of Eduardo Lonardi. **AUSTRIA**—(Center) Soviet occupation troops leave, Sept. 9, as provided under the Austrian State Treaty. **CANADA**—(Right) Prime Minister St. Laurent (r.) and Australian Prime Minister Menzies, in Ottawa, March 10.

U.S. Secretary of State Dulles arrives in Ottawa on two-day diplomatic visit, **Mar. 17**
 Secretary of State for External Affairs Lester B. Pearson states in House of Commons that Canada will not take part in conflict over Chinese offshore islands of Quemoy and Matsu, **Mar. 24**
 Italian Premier Mario Scelba confers with Canadian leaders in Ottawa, **Mar. 26**
 Finance Minister Walter Harris presents 1955-56 budget calling for tax cuts, **Apr. 5**
 Dr. R. A. MacKay named permanent representative to United Nations, **June 1**
 Prime Minister Louis St. Laurent appoints 13 new senators to fill vacancies, **July 28**
 Lieut. Gen. Howard Graham succeeds Lieut. Gen. Guy Simonds as army chief of general staff, **Sept. 1**
 Soviet agricultural delegation completes two-week farm tour of Canada, **Sept. 10**
 Following week-long visit to Moscow by Secretary of State for External Affairs Pearson, accord is reached on granting most-favored-nation trade privileges and on cooperation in Arctic research, **Oct. 11**
 Student protest against rise in Montreal streetcar fares turns into rioting; 110 arrested, **Dec. 9**
CASTILLO ARMAS, Carlos—See also **GUATEMALA**
 During visit to U.S., addresses U.N. General Assembly in New York, **Nov. 3**
CEYLON
 Elected to membership in United Nations, **Dec. 14**
CHIANG KAI-SHEK
 In talks with Secretary of State Dulles in Taipei, rejects cease-fire for Formosa Strait, **Mar. 3**
CHICAGO
 Richard J. Daley, Democrat, elected mayor, **Apr. 5**
CHILE
 Some 42,000 government transport and communications workers end 9-day strike, **July 10**
CHINA—See also **CHIANG KAI-SHEK**; **CHOU EN-LAI**; **MAO TSE-TUNG**; **UNITED NATIONS**
 Over 100 Communist planes raid Nationalist-held Tachen Islands, **Jan. 10**
 Peking government announces establishment of diplomatic relations with Yugoslavia, **Jan. 10**
 Communist forces capture Yikiang Island, **Jan. 20**
 Peking invites families of 17 imprisoned Americans to visit prisoners, **Jan. 21**
 Communist Premier Chou En-lai rejects United Nations invitation to discuss cease-fire in coastal island area, **Feb. 3**
 Nationalists complete evacuation of Tachen Islands under protective cover of U.S. 7th Fleet, **Feb. 11**
 Nationalists claim sea victory in destruction of Communist submarine, landing craft, gunboats, and other vessels, **Feb. 18-22**
 Peking announces revaluation of yuan at rate of 10,000 to one (effective Mar. 1), **Feb. 21**
 Nationalists announce evacuation of Nanki Island, **Feb. 25**
 U.S.-Nationalist China defense pact takes effect, as Nationalist Foreign Minister George Yeh and Secretary of State Dulles exchange pact ratifications in Taipei, **Mar. 3**
 Tibetan Dalai Lama and Panchen Lama leave Peking for Tibet, after six-month visit; Dalai Lama named head of preparatory committee to set up expanded Tibetan autonomous region, **Mar. 12**
 Kao Kang, former Manchurian chief accused of "conspiratorial activities," reported to have committed suicide; 8 other Communist Party officials disciplined for "anti-party alliance," **Apr. 4**
 Indian airliner carrying 11 Communist officials and journalists to Asian-African Conference explodes and crashes in South China Sea; only three crewmen survive, **Apr. 11**

Peking "deports" four U.S. fliers after conviction by military tribunal of having intruded into China's territorial air, **May 31**
 At meeting of National People's Congress in Peking, Vice Premier Li Fu-chun announces curtailment of Five-Year Plan goals, **July 5**
 Chinese Communist and North Vietnamese leaders agree in Peking on \$338 million economic aid program for North Viet-Nam, **July 7**
 Wang Ping-nan, Chinese Communist ambassador to Poland, and U. Alexis Johnson of U.S., open talks in Geneva; Wang announces freeing (July 31) of 11 U.S. airmen held in China as spies, **Aug. 1**
 At Geneva talks, China agrees to release remainder of 41 U.S. civilians held in China; U.S. reaffirms right of any Chinese in U.S. to return to China, **Sept. 10**
 Chou En-lai and East German Premier Otto Grotewohl sign pact in Peking on Chinese-East German friendship and cultural cooperation, **Dec. 25**
CHOU EN-LAI—See also **CHINA**
 Confers with U.N. Secretary General Dag Hammarskjöld in Peking on fate of Korean war prisoners held in Communist China as spies, **Jan. 6-10**
 In Peking broadcast, rejects U.S.-proposed Communist-Nationalist cease-fire in Formosa Strait, demands U.S. withdraw its forces, **Jan. 25**
 Rejects United Nations bid to discuss cease-fire in coastal area; says Nationalists must first be ejected from Security Council, **Feb. 3**
 In statement at Asian-African Conference at Bandung, Indonesia, says China does not want war and is willing to negotiate with U.S. on Formosa and other Far East questions, **Apr. 23**
 In report to National People's Congress in Peking, calls for collective peace pact among nations of Asian-Pacific area, including U.S., **July 30**
CHURCHILL, Sir Winston
 In written statement to British House of Commons, says Britain will not become involved in defense of coastal islands off China, **Feb. 23**
 In address to House of Commons, says only U.S. can launch hydrogen bomb attack immediately and in strength; stresses continuing build-up of British power as deterrent to war, **Mar. 1**
 Charges "serious mistakes" in documents on 1945 Yalta Conference released by U.S. State Department, **Mar. 17**
 Resigns as British prime minister; declines proffered dukedom to remain in Commons, **Apr. 5**
CLEVELAND
 Anthony J. Celebrezze re-elected mayor, **Nov. 8**
COLLINS, Gen. J. Lawton
 Leaves Saigon, South Viet-Nam, ending six-month mission as special presidential envoy, **May 14**
COMMONWEALTH PRIME MINISTERS CONFERENCE
 Prime Ministers of nine Commonwealth nations meet in London; communiqué stresses goals of peace, disarmament, and economic development, **Jan. 31-Feb. 8**
COMMUNISM—See also **SUPREME COURT**
 Claude M. Lightfoot, Illinois Communist leader, sentenced in Chicago to five years in prison and fined \$5,000 as member of Communist Party, **Feb. 15**
 Harvey Matusow, former anti-Communist witness who later confessed having given false testimony, sentenced in El Paso, Texas, to three years in prison for contempt of court, **Mar. 16**
 Two secondary Communist leaders, convicted on perjured testimony of Matusow, granted new trial by federal court in New York, **Apr. 22**
 Nine Communist leaders in Philadelphia area sentenced to prison terms and fined, **June 20**
 Seven regional Communist Party leaders fined and sentenced to jail terms in Denver, Colo., **June 23**

House Un-American Activities Committee conducts hearings in New York on communism in entertainment field, **Aug. 15-18**

CONANT, James B.
Named ambassador to German Federal Republic, **Apr. 28**

CONGRESS, U.S.—See UNITED STATES—Congress

CONGRESS OF INDUSTRIAL ORGANIZATIONS
At annual convention in New York, ratifies merger with AFL, **Dec. 2**

Merged with AFL, **Dec. 5**

COOPER, John Sherman
Named ambassador to India, **Jan. 27**

CORSI, Edward J.
Dismissed as special assistant on refugees and immigration, **Apr. 8**

In letter to Secretary of State Dulles, charges "scandalous failure" in administration of Refugee Relief Act, **Apr. 11**

COSTA RICA—See also ORGANIZATION OF AMERICAN STATES
Rebels seize northern town of Villa Quesada; President José Figueres charges Nicaraguan aggression, **Jan. 11**

Rebel planes strafe San José and other towns, **Jan. 12**

OAS plan for buffer zone between Costa Rica and Nicaragua is accepted by both states, **Jan. 20**

Two rebel-held border towns taken by government forces; government commanders say rebellion is over, **Jan. 21**

Some 300 rebels cross into Nicaragua and surrender for internment, **Jan. 25**

CUBA
Gen. Fulgencio Batista sworn in as constitutional president, **Feb. 24**

CYPRUS
London conference of Britain, Greece, and Turkey ends in deadlock, **Aug. 29-Sept. 7**

Anti-British riots break out in Nicosia, **Sept. 17**

Field Marshal Sir John Harding named governor, replacing Sir Robert Armitage, **Sept. 25**

Harding declares state of emergency, following months of demonstrations and disorders, **Nov. 26**

CZECHOSLOVAKIA
Expelled from International Bank for Reconstruction and Development, **Jan. 15**

Announces cut in armed forces of 34,000 by Dec. 28, **Aug. 24**

Arms sale to Egypt revealed, **Sept. 27**

DIEM, Ngo Dinh—See INDOCHINA

DISASTERS—See ACCIDENTS AND DISASTERS

DIXON-YATES CONTRACT
Ordered cancelled by President Eisenhower, **July 11**

DULLES, John Foster—See also GENEVA CONFERENCE
Bars visits by relatives to American fliers imprisoned in China, **Jan. 27**

In New York City address, says U.S. has not promised to defend Quemoy and Matsu "as such," but would prevent forcible seizure of Formosa and Pescadores by Chinese Communists, **Feb. 16**

In address at opening of SEATO Council meeting at Bangkok, Thailand, says treaty will strengthen freedom throughout world, **Feb. 23**

Meets with British Foreign Secretary Eden in Bangkok on Formosa situation, **Feb. 25**

Confers with Burmese Premier Nu in Rangoon, **Feb. 26**

Confers with Laotian Crown Prince Savang in Vientiane; promises U.S. aid against Communist aggression, **Feb. 27**

Confers with Cambodian King Norodom Sihanouk in Phnompenh; says SEATO will guard Cambodia against Communist aggression, **Feb. 28**

Confers with Vietnamese Premier Ngo Dinh Diem in Saigon; assures South Viet-Nam of U.S. support against communism, **Mar. 1**

Meets with U.S. ambassadors and envoys to Far East nations in Manila, Philippines; says U.S. will make no more retreats in Asia, **Mar. 2**

In statement in Taipei, Formosa, warns Chinese Communists that U.S. would make all-out defense of Formosa, **Mar. 3**

In Washington address, warns Communist China that U.S. will meet force with "new and powerful weapons," **Mar. 8**

In press conference, says rise of small nuclear weapons reduces likelihood of massive retaliation by U.S. against aggressor's cities, **Mar. 15**

Arrives in Ottawa on two-day visit to Canada, **Mar. 17**

In Washington address, says U.S. aim in Far East is to bring about cease-fire and renunciation of force as means to attain national objectives, **Apr. 13**

In Washington news conference, says U.S. would be willing to confer with Communist China on Formosa Strait cease-fire without presence of Chinese Nationalists, **Apr. 26**

Attends North Atlantic Council session in Paris, **May 9-11**

Signs Austrian State Treaty in Vienna, **May 15**

In report to nation from Washington, sees possible "turning in the tide" for peace, **May 17**

Confers with British Foreign Secretary Macmillan, French Foreign Minister Pinay, and West German Chancellor Adenauer in New York, **June 16-17**

Addresses 10th anniversary meeting of United Nations in San Francisco; says collective action by West produced Soviet concessions toward peace, **June 24**

Accompanies President Eisenhower at Big Four meeting of heads of government in Geneva, **July 18-23**

In New York address, proposes Israeli-Arab peace based on internationally guaranteed borders and aid to Arab refugees, **Aug. 26**

In address to U.N. General Assembly, says if Geneva spirit is to last, there must be peaceful change rather than continuance of existing injustices, **Sept. 22**

Confers with Italian President Giovanni Gronchi and other Italian leaders in Rome, **Oct. 22-23**

Attends Big Four conference of foreign ministers in Geneva, Switzerland, **Oct. 27-Nov. 16**

Confers with Generalissimo Francisco Franco in Madrid on U.S.—Spanish collaboration, **Nov. 1**

Confers with Yugoslav President Marshal Tito on Brioni island, Yugoslavia, **Nov. 6**

Reports to nation on foreign ministers conference; reads President Eisenhower's statement pledging continuing U.S. efforts for "just and durable peace," **Nov. 18**

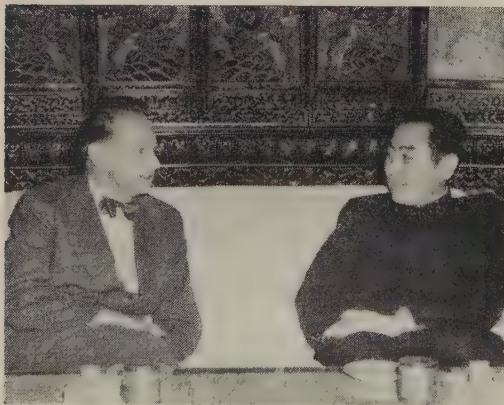
In joint statement in Washington with Portuguese Foreign Minister Paulo Cunha, criticizes Soviet leaders for fomenting East-West hatred during South Asian tour, **Dec. 2**

Attends meeting of North Atlantic Council in Paris, **Dec. 15-16**

DUNN, James C.
Named ambassador to Brazil, **Jan. 11**

EARTH SATELLITE
U.S. announces plans to launch first satellite in 1957 or 1958, **July 29**

CHINA—(Left) U.N. Secretary General Hammarskjöld (l.) and Premier Chou En-lai discuss the release of Korean War prisoners, in Peking, in early January. (Right) Col. John Arnold (l.) and Airman Daniel Schmidt, two of eleven U.S. airmen released at Hong Kong on Aug. 4, describe tortures inflicted by the Chinese Communists.



WIDE WORLD; UNITED PRESS

EARTHQUAKES—See ACCIDENTS AND DISASTERS

EDEN, Sir Anthony—See also GENEVA CONFERENCE; GREAT BRITAIN

Attends SEATO Council meeting at Bangkok, Thailand, Feb. 23-25

Confers with U.S. Secretary of State Dulles in Bangkok on Formosa question, Feb. 25

In statement to British House of Commons, proposes that Chinese Nationalists be evacuated from offshore islands of Quemoy and Matsu, with Communist China abstaining from attacking Formosa and Pescadores, Mar. 8

Appointed British prime minister and first lord of Treasury, Apr. 6

Announces new cabinet, relinquishing post of foreign secretary to Harold Macmillan, Apr. 7

Attends Geneva Conference of Big Four heads of government, July 18-23

In London address, offers British mediation in Arab-Israeli conflict, Nov. 9

Announces several cabinet changes, Dec. 20

EDUCATION—See also EISENHOWER; SUPREME COURT

Ford Foundation announces \$50 million grant toward salary increases of faculty members in private colleges and universities, Mar. 6

National Education Association holds 93d annual convention at Chicago, July 5-8

Ford Foundation announces grant of \$20 million toward college scholarship program, Sept. 6

White House Conference on Education takes place in Washington; calls for federal aid to public schools, Nov. 28-Dec. 1

Ford Foundation announces it will grant \$500 million to 4,157 private colleges, universities, and hospitals in next 18 months, Dec. 13

EGYPT—See also ANGLO-EGYPTIAN SUDAN; ARAB LEAGUE

Two persons sentenced to death in Cairo as members of Zionist espionage ring; six others given prison terms, Jan. 27

Premier Gamal Abd el-Nasser confers with Indian Prime Minister Nehru in Cairo; joint statement opposes international military blocs and arms rivalries, Feb. 15-16

Israeli attack on Egyptian positions in Gaza strip results in 38 Egyptians, 8 Israelis killed, Feb. 28

In protest to U.N. Security Council, charges Israeli aggression in Gaza attack (Feb. 28), Mar. 1

Breaks off talks with Israel (begun June 28) on easing Gaza border tension, charging Israel seeks to end international supervision, Aug. 24

Accepts appeal of U.N. truce body for cease-fire in Gaza and El 'Auja areas, Sept. 4

Nasser reveals agreement with Czechoslovakia for purchase of arms, Sept. 27

Withdraws forces from El 'Auja zone, Oct. 2

Receives first arms shipments from Czechoslovakia; signs mutual defense treaty with Syria in Damascus, Oct. 20

Signs mutual defense treaty with Saudi Arabia in Cairo, Oct. 27

Israeli forces attack Egyptian positions at El Sabha, on frontier of El 'Auja zone; 50 Egyptians reported killed, 49 captured; Egyptians claim 200 Israeli dead, Nov. 2-3

Nasser, in message to U.N. Secretary General Dag Hammarskjöld, warns Egypt will join Syria in war against Israel if Israel continues "aggressive actions," Dec. 15

EINSTEIN, Albert

Dies at Princeton, N.J., aged 76, Apr. 18

EISENHOWER, Dwight D.—See also GENEVA CONFERENCE

In letter to Secretary of Defense Wilson, calls for cut in armed forces to about 3 million by June 30, 1955, Jan. 5

In State of Union message to Congress, calls for inter-party cooperation to strengthen nation's role on behalf of world peace, Jan. 6

In message to Congress on foreign economic policy, calls for 3-year extension of Reciprocal Trade Agreements Act, Jan. 10

Asks Congress to increase pay of federal employees and raise postal rates, Jan. 11

In messages to Congress, calls for extension of draft, strengthening of reserves, and increase in pay and benefits for armed forces, Jan. 13

In budget message, calls for expenditures of \$62,408 million, estimates revenue at \$60,000 million for fiscal year 1956, Jan. 17

In first news conference before TV (film) and news-reel cameras, says he would favor U.N. effort to bring about Formosa Strait cease-fire, Jan. 19

In annual economic message to Congress, sees continued rise in output and employment; urges Congress to concentrate on long-term growth, Jan. 20

Asks Congress for authorization to use armed forces to prevent Formosa and Pescadores from being taken by Chinese Communists, Jan. 24

In White House statement, pledges that he alone will decide on use of U.S. forces in Formosa Strait, Jan. 27



WIDE WORLD

CHURCHILL—Sir Winston (r.), who retired as prime minister of Great Britain on April 5, was succeeded by Sir Anthony Eden (l.) on April 6.

Signs congressional resolution authorizing him to take measures to defend Formosa and Pescadores against Chinese Communists, Jan. 29

In health message to Congress, calls for government re-insurance service to help private health insurances expand services, Jan. 31

In education message to Congress, proposes emergency three-year, \$7 billion federal-state-local program of school construction, Feb. 8

Presents road-building message to Congress, calling for 10-year, \$101 billion federal-state-local program of construction, Feb. 22

In news conference, says U.S. will not aid Nationalist Chinese invasion of mainland China, Mar. 2

Signs bill increasing pay of Congress, judiciary, and certain other federal officials, Mar. 2

Approves seven revisions of federal employee security program to obtain greater fairness toward employee, Mar. 5

Informs Western European Union nations that U.S. will continue to keep defense forces in Europe after creation of WEU, Mar. 10

Confers with Australian Prime Minister Robert Gordon Menzies in Washington on Southeast Asian defense, Mar. 14

Confers with Italian Premier Mario Scelba in Washington, Mar. 28

Signs bill extending existing levels of corporation and excise taxes for another year, Mar. 30

Signs ratifications of 1954 Paris pacts on West German sovereignty and entry into NATO, Apr. 7

Approves draft agreement on sharing atomic weapons data with NATO powers, Apr. 13

Orders Department of Health, Education, and Welfare to set up voluntary system of allocating Salk anti-polio myelitis vaccine, Apr. 14

In message to Congress, calls for \$3,530 million in foreign military and economic aid in fiscal 1956, mostly for non-Communist Asia, Apr. 20

In New York address calls for enactment of full reciprocal trade program as aid to world peace; an-

DULLES—U.S. Secretary of State Dulles, British Foreign Secretary Macmillan, and French Foreign Minister Pinay confer in New York on June 16.

WIDE WORLD





WIDE WORLD

EISENHOWER—The president is photographed at Fitzsimons General Hospital in Denver, Colo., Oct. 25, while recuperating from his heart attack of Sept. 24.

announces plans for atomic-powered merchant ship to tour world for peace, **Apr. 25**
 In Washington address, states he is prepared to "meet with anyone, anywhere" for world peace, **May 10**
 Calls for \$28 million in federal grants for children of lower-income families to obtain antipoliomyelitis vaccine, **May 16**
 Vetoes bill for 8.8% pay rise for postal workers, **May 19**
 In message to Congress, proposes 10 amendments to Refugee Relief Act of 1953 to ease immigration, **May 27**
 Signs bill for 8% pay rise for postal workers, **June 10**
 In address at University Park, Pa., proposes that U.S. offer research reactors to friendly nations, and provide training for construction and operation for peaceful purposes, **June 11**
 Confers with V. K. Krishna Menon in Washington on Indian envoy's talks with Chinese Communist leaders in Peking; confers with West German Chancellor Adenauer on need for collective security for Germany, **June 14**
 In address at United Nations 10th anniversary meeting in San Francisco, pledges "tireless support" by U.S., **June 20**
 Signs Trade Agreements Extension Act, **June 21**
 Authorizes Atomic Energy Commission to double grants of uranium to friendly nations under Atoms for Peace program, **June 24**
 Signs Austrian State Treaty at Lancaster, N.H., while on New England visit, **June 25**
 Signs bill for 7.5% average pay rise for government employees, **June 28**
 Signs bill extending \$281 billion national debt limit for another year, **June 30**
 Signs bill to continue draft for four years and induction of doctors for two years, **June 30**
 Confers with Burmese Premier Nu in Washington concerning captive U.S. fliers in Communist China and U.S. rice shipments to Asia, **July 2**
 Orders cancellation of Dixon-Yates contract, after Mayor Frank Tobey of Memphis, Tenn., describes city's plans to build power plant, **July 11**
 Signs \$31,882,815,726 Defense Department appropriation bill, but terms rider to bill an unconstitutional invasion of executive power, **July 13**
 Attends Geneva Conference of Big Four heads of government, **July 18-23**
 In report to nation on Geneva Conference, says meeting showed that whole world wanted peace and that peace prospects had improved, **July 25**
 Signs bill to strengthen military reserves, **Aug. 9**
 Signs bill extending Defense Production Act through fiscal 1956, **Aug. 9**
 Signs housing bill for construction of 45,000 public housing units by July 31, 1956, **Aug. 11**
 Signs bill to raise minimum wages to \$1 per hour (effective March 1, 1956), **Aug. 12**

Signs executive order proclaiming new code of conduct for servicemen taken prisoner, **Aug. 17**
 Confers with governors of 6 Northeastern states at Windsor Locks, Conn., on federal program for flood reconstruction, **Aug. 23**
 In Philadelphia address, says if Geneva spirit is to be real, peace must be based on freedom of man and end to organized subversion, **Aug. 24**
 Authorizes close to \$1 billion in Office of Defense Mobilization loans to aid defense plants in flood-stricken areas, **Aug. 25**
 Suffers coronary thrombosis; enters Fitzsimons General Hospital near Denver, Colo., **Sept. 24**
 In letter to Soviet Premier Bulganin, agrees to Bulganin's proposal for exchange of inspection teams at key military points in respective countries, **Oct. 12**
 In statement from hospital, says U.S. will not contribute to arms race in Middle East, **Nov. 9**
 Leaves hospital for convalescence on farm near Gettysburg, Pa., **Nov. 11**
 Holds first cabinet meeting since illness, at Camp David, near Thurmont, Md., **Nov. 22**
 In filmed message to White House Conference on Education, calls for limited federal aid to education, with continuing local control, **Nov. 28**
 Issues executive order strengthening "conflict-of-interest" regulations concerning government advisers, **Nov. 28**
 In telephoned address to New York convention of new AFL-CIO, stresses labor's role in American life and employer-employee harmony, **Dec. 5**
 In Christmas message to Soviet-bloc peoples, expresses hope they will gain freedom, **Dec. 25**
ELIZABETH II, Queen—See GREAT BRITAIN
ESPINOSA, Ricardo Arias—See PANAMA
ETHIOPIA
 Emperor Haile Selassie proclaims new constitution providing for elected parliament, **Nov. 4**
EUROPEAN COAL AND STEEL COMMUNITY
 René Mayer named chairman of High Authority at council meeting in Messina, Sicily, **June 1**
EXPLOSIONS—See ACCIDENTS AND DISASTERS
FAURE, Edgar—See also FRANCE; GENEVA CONFERENCE
 Confirmed as premier of France by National Assembly, **Feb. 23**
 Signs conventions in Paris on autonomy for Tunisia, **June 3**
 Attends Geneva Conference of Big Four heads of government, **July 18-23**
 Loses confidence vote in National Assembly, **Nov. 29**
 Orders dissolution of National Assembly, **Nov. 30**
FERGUSON, Homer
 Named U.S. ambassador to Philippines, **Mar. 11**
FINLAND
 President Juho K. Paasikivi heads Finnish delegation arriving in Moscow, **Sept. 15**
 Mutual defense alliance with USSR is renewed for 20 years; USSR agrees to withdraw forces from Porkkala naval base within 3 months, **Sept. 19**
 Elected to membership in United Nations, **Dec. 14**
FINNEGAN, Joseph E.
 Named director of Federal Mediation and Conciliation Service, **Jan. 11**
FIRES—See ACCIDENTS AND DISASTERS
FLOODS—See ACCIDENTS AND DISASTERS
FOLSOM, Marion B.
 Named secretary of health, education, and welfare, **July 13**
 Takes office as secretary, **Aug. 1**
FOOTBALL—See SPORTS
FORD FOUNDATION—See EDUCATION
FOREIGN AID—See UNITED STATES—Congress
FORMOSA—See CHINA
FORRESTAL, U.S.S.
 Commissioned at Portsmouth, Va., **Oct. 1**
FRANCE—See also ALGERIA; MOROCCO
 Premier Pierre Mendès-France relinquishes post of foreign minister to Edgar Faure, **Jan. 27**
 National Assembly ousts Mendès-France on North African policy, **Feb. 5**
 Edgar Faure confirmed as premier by National Assembly, **Feb. 23**
 Council of Republic completes parliamentary ratification of 1954 Paris pacts on rearmament of Germany and Europeanization of Saar, **Mar. 27**
 Small shopkeepers, led by Pierre Poujade, strike against "crushing taxes," **Mar. 28**
 Premier Faure declares cabinet has decided France will not build atomic weapons but will concentrate on peaceful uses of atomic energy, **Apr. 13**
 Foreign Minister Antoine Pinay and West German Chancellor Adenauer reach agreement in Bonn on Saar, **Apr. 29-30**
 Faure and Secretary of State Dulles confer in Paris on Indochina, **May 12**
 Faure announces transfer of one of France's NATO divisions to Algeria to quell disorders, **May 26**
 Faure and Tunisian Premier Tahar ben Ammar sign conventions in Paris on Tunisian autonomy, **June 3**

Sports car crashes into crowd at auto race in Le Mans; 87 killed, 108 injured, **June 11**
 Faure and Pinay attend Geneva Conference of Big Four heads of government, **July 18-23**
 Council of the Republic completes legislative approval of conventions for home-rule in Tunisia, **Aug. 4**
 Cabinet agrees on plan for reform of Moroccan government, **Sept. 12**
 Withdraws delegation from U.N. General Assembly in protest against vote to discuss Algeria, **Oct. 1**
 Cabinet agrees to recognize Sidi Mohammed ben Youssef as sultan of Morocco, **Nov. 5**
 French delegation returns to U.N. General Assembly, following assembly's decision not to take up Algerian question, **Nov. 29**
 Faure government is defeated on confidence vote in National Assembly, 319-219, **Nov. 29**
 Faure orders dissolution of National Assembly; elections set for January 1956, **Nov. 30**

GAITSKELL, Hugh—See also **GREAT BRITAIN**

Elected leader of British Labour Party, **Dec. 14**

GALLAGHER, Sgt. James C.

Sentenced to life imprisonment by military court in New York for collaboration with enemy and other offenses in Korean war prison camps, **Aug. 19**

GENEVA CONFERENCE

U.S. President Eisenhower, British Prime Minister Eden, Soviet Premier Bulganin, and French Premier Faure open Big Four "Summit Conference" in Geneva, Switzerland; Eisenhower proposes new "alarm system" of arms inspection and control; Bulganin says USSR would contribute to atoms-for-peace pool; Eden offers plans for German unification; Faure urges arms reduction and aid to underdeveloped areas, **July 18**

Eisenhower and Eden call for immediate German unification; Bulganin proposes 2-phase plan, including all-European security system, **July 20**

Eisenhower proposes that U.S. and USSR exchange military blueprints and allow aerial inspection by the other; Bulganin calls for nonaggression pact between NATO and Warsaw treaty blocs, **July 21**

Western Big Three ask USSR to lift bars to free flow of ideas, goods, and men between East and West, **July 22**

Conference adjourns, issuing directive for meeting of Big Four foreign ministers in October, **July 23**

U.S. Secretary of State Dulles, British Foreign Secretary Macmillan, French Foreign Minister Pinay, and Soviet Foreign Minister Molotov open Big Four foreign ministers conference, **Oct. 27**

West presents plan for German unification, assuring that united Germany free to join NATO will not menace peace; Molotov reiterates Soviet plan for general European security treaty, **Oct. 28**

Dulles announces that U.S. will permit free travel by U.S. citizens to European Communist states with which U.S. has diplomatic relations; West calls for freer East-West communications, tourism, and cultural exchange; Molotov stresses expansion of East-West trade, **Oct. 31**

West proposes free elections in September 1956 to unite Germany, **Nov. 4**

Molotov rejects West's plan for German unification; says unification must come about gradually, through cooperation between West Germany and East Germany, **Nov. 8**

Molotov terms as inadequate President Eisenhower's plan for aerial inspection and exchange of military blueprints; demands prohibition of atomic weapons, **Nov. 10**

Conference adjourns without agreement, **Nov. 16**

GEORGE, Walter F.

Introduces congressional resolution granting President Eisenhower unlimited authority to use U.S. armed forces for meeting Communist China's threatened invasion of Formosa and the Pescadores, **Jan. 24**

On television program, calls for a meeting of the Big Four heads of government, **March 20**

In Washington address, says U.S. should be willing to negotiate with Communist China, **Apr. 24**

GERMANY—See also **ADENAUER**; **GENEVA CONFERENCE**
 Dr. Otto Suhr, Socialist, elected mayor of West Berlin, **Jan. 11**

USSR formally declares end to state of war, **Jan. 25**

West German Bundesrat completes parliamentary ratification of 1954 Paris pacts on West German rearmament and Saar, **Mar. 18**

West German President Theodor Heuss signs ratifications of 1954 Paris pacts, **Mar. 24**

East German government greatly increases tolls on trucking to west, **Mar. 31**

West Germany attains sovereignty, with completion of deposits in Bonn of ratifications of 1954 Paris pacts; controls over West Berlin eased by Allied commanders, **May 5**

Heinz L. Krekeler presents credentials to President Eisenhower in Washington as German ambassador to U.S., **May 6**

West Germany formally inducted into NATO, at North Atlantic Council meeting in Paris, **May 9**

Chancellor Adenauer resigns as West German foreign minister; Dr. Heinrich von Brentano named foreign minister; Theodor Blank named defense minister, **June 6**

USSR invites Chancellor Adenauer to visit Moscow to discuss German-Soviet ties, **June 7**

Adenauer confers with President Eisenhower in Washington; communiqué stresses collective security and rejects neutralized Germany, **June 14**

West German Bundesrat completes legislative action on bill to recruit 6,000 officers and noncommissioned officers to set up armed force, **July 22**

Adenauer and Soviet Premier Bulganin sign agreement in Moscow to establish Soviet-West German diplomatic relations; USSR pledges to release remaining German war prisoners, **Sept. 13**

East German Premier Otto Grotewohl signs agreement in Moscow granting East German sovereignty and control over civilian traffic between Berlin and West Germany; USSR pledges release of German war prisoners, **Sept. 20**

Social Democrats defeat Adenauer's Christian Democratic coalition in Bremen elections; mass return of war prisoners from USSR begins, **Oct. 9**

West German Army is born, as 101 members of armed forces obtain certificates of appointment in Bonn, **Nov. 12**

Maj. Gen. P. A. Dibrova, Soviet commandant in Berlin, says USSR regards East Berlin as under East German government, **Nov. 29**

U.S., Britain, and France, in notes to USSR, reject Soviet view that occupation of Berlin is over, **Dec. 1**

East German police have taken over from Soviet forces the guarding of the border, as well as supervision of most Berlin-West German traffic, East German government announces, **Dec. 9**

Otto John, former West German intelligence chief who fled secretly to East in 1954, returns to West Germany, **Dec. 12**

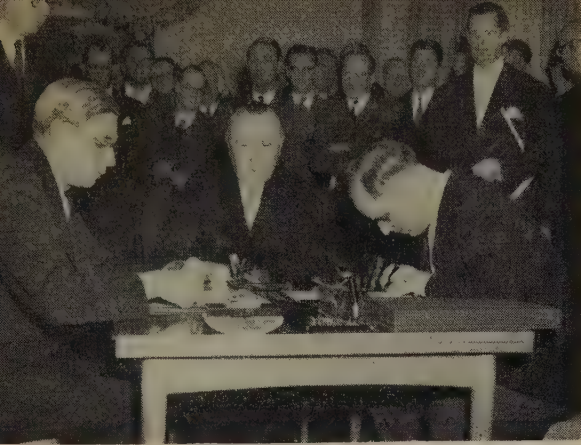
Otto John arrested in Wiesbaden on suspicion of treason, **Dec. 23**

East German Premier Otto Grotewohl signs pact in Peking on East German-Chinese friendship and cultural cooperation, **Dec. 25**

FAURE—(Left) Edgar Faure, here being interviewed, was confirmed as premier of France on Feb. 23. **GENEVA CONFERENCE**—(Center) Wives of Western leaders, at Geneva on July 20, are (l. to r.): Mrs. Eisenhower, Lady Eden, Mme. Faure, and Mrs. Dulles. (Right) Soviet Premier Bulganin (l.) and President Eisenhower, at Geneva, July 20.

FRENCH EMBASSY PRESS & INFORMATION DIVISION; UNITED PRESS; UNITED PRESS





UNITED PRESS

GERMANY—James B. Conant (l.), with Chancellor Adenauer (center) and a German foreign ministry official, deposits in Bonn, on April 22, U.S. ratification of the 1954 Paris agreements granting West German sovereignty.

GOLF—See SPORTS

GRAY, Gordon

Named assistant secretary of defense for internal security affairs, **June 10**

GREAT BRITAIN—See also **ANGLO-EGYPTIAN SUDAN**; **CHURCHILL, EDEN**

In note to USSR, says Soviet threat to annul Anglo-Soviet treaty of 1942 will not deter Britain from backing rearmament of Germany, **Jan. 27**

Has rejected Soviet proposal for 10-power talks (excluding Nationalist China) on Formosa dispute, Foreign Office reveals, **Feb. 12**

Announces 10-year plan to construct 12 electric power stations utilizing nuclear energy, **Feb. 15**

Annual Statement on Defense says Britain will produce hydrogen bomb as deterrent to war, **Feb. 17**

Foreign Ministry publishes document describing torture and indoctrination of British prisoners of war in Korea by Communists, **Feb. 27**

Aneurin Bevan expelled from parliamentary Labour Party by Labour members of Commons, **Mar. 16**

Sir Winston Churchill resigns as prime minister, **Apr. 5**

Sir Anthony Eden appointed prime minister and first lord of Treasury, **Apr. 6**

New Eden cabinet announced: Harold Macmillan named foreign secretary; Selwyn Lloyd, minister of defense; Reginald Maudling, minister of supply, **Apr. 7**

Eight-week strike of 700 engineering and electrical employees of London newspapers ends, permitting resumption of publication, **Apr. 19**

Chancellor of Exchequer R. A. Butler, in budget message, proposes tax cuts removing 2,400,000 persons from tax rolls, **Apr. 19**

Gen. Sir Gerald Templer to succeed Field Marshal Sir John Harding as chief of Imperial General Staff (in November), War Office reveals, **Apr. 22**

Bevan readmitted into parliamentary Labour Party, **Apr. 28**

Queen Elizabeth II dissolves Parliament, paving way for election, **May 6**

Malcolm MacDonald named high commissioner to India (effective in September), **May 15**

GREAT BRITAIN—Defense Minister Selwyn Lloyd (r.) became foreign secretary on Dec. 20, replacing Harold Macmillan (l.), who became chancellor of the exchequer.

UNITED PRESS



General elections result in Conservative victory; Conservatives (with associates) obtain 344 seats to 277 for Labour, **May 26**

Some 70,000 railroad workers go on strike, **May 29**

Queen Elizabeth II proclaims state of emergency in face of railway strike; government empowered to ensure flow of essential supplies, **May 31**

Queen Elizabeth II opens new Parliament, **June 9**

Seventeen-day railway strike ends, as government agrees to appoint arbiter to decide on pay increases, **June 14**

Seamen's strike ends after 35 days, as government threatens to draft strikers, **June 25**

In note to Greece, charges incitement of Cypriotes by Greek radio broadcasts, **June 27**

Six-week strike of dockworkers in 7 ports ends, **July 4**

Eden and Macmillan attend Geneva Conference of Big Four heads of government, **July 18-23**

Members of Irish Republican Army raid arms depot at Arborfield, England, **Aug. 13**

Foreign Office issues White Paper stating Donald Mclean and Guy Burgess had spied for USSR before disappearing in 1951, **Sept. 23**

Eden announces cut of 100,000 in armed forces within next 30 months, **Oct. 8**

Hugh Gaitskell defeats Aneurin Bevan in contest for treasurer of Labour Party, at party's annual conference at Margate, **Oct. 11**

Clement R. Attlee resigns as leader of Labour Party, **Dec. 7**

Gaitskell elected leader of Labour Party, **Dec. 14**

Selwyn Lloyd named foreign secretary; Macmillan, chancellor of exchequer; Richard A. Butler, leader of House of Commons and Lord Privy Seal; Sir Walter Monckton, minister of defense; Iain Mcleod, minister of labor and national service, **Dec. 20**

GREECE—See also **CYPRUS**

Parliament approves 20-year Greek-Turkish-Yugoslav pact, **Jan. 18**

Protests to Turkey against anti-Greek violence in Istanbul and Izmir, **Sept. 7**

Premier Marshal Alexander Papagos dies in Athens, aged 71, **Oct. 4**

Constantin Karamanlis heads new cabinet, **Oct. 6**

GRONCHI, Giovanni

Inaugurated as president of Italy, **May 11**

GROTEWOHL, Otto—See **GERMANY**

GUATEMALA

Government thwarts attempted coup charged to Communists; 10 persons killed at Guatemala City military base, **Jan. 20**

President Carlos Castillo Armas confers with President Eisenhower at Denver, Colo., during 12-day visit to U.S., **Nov. 9**

Government candidates win congressional elections, **Dec. 18**

GUIZADO, José Ramón—See **PANAMA**

GWYNNE, John W.

Named Federal Trade Commission chairman, **Sept. 8**

HAITI

President Paul E. Magloire arrives in Washington on three-day state visit, **Jan. 26**

HAMMARSKJÖLD, Dag

Confers with Chinese Communist Premier Chou En-lai in Peking on freeing Korean War prisoners held in China as spies, **Jan. 6-10**

Opens first International Conference on Peaceful Uses of Atomic Energy at Geneva, Switzerland, **Aug. 8**

Submits proposals to Israel and Egypt for ending clashes in demilitarized El 'Auja area, **Nov. 3**

HARLAN, John Marshall

Sworn in as associate justice of Supreme Court, **Mar. 28**

HARRINGTON, Russell C.

Named commissioner of internal revenue, **Nov. 30**

HATOYAMA, Ichiro—See also **JAPAN**

Re-elected premier of Japan to head cabinet replacing caretaker government, **Mar. 18**

Re-elected premier after merger of Liberal and Democratic parties, **Nov. 22**

HAWAII

Volcanic eruptions (lasting over period of 3 months) begin on island of Hawaii, **Feb. 28**

U.S. Congress shelves statehood bill, **May 10**

HO CHI MINH

Heads North Vietnamese delegation to Peking; agreement reached with Chinese Communist leaders on \$338 million Chinese aid to North Viet-Nam, **July 7**

During visit to USSR, concludes agreement with Soviet leaders on \$100 million Soviet aid to North Viet-Nam, **July 18**

HOBBY, Oveta Culp

Resigns as secretary of health, education, and welfare (effective Aug. 1), **July 13**

HOLLISTER, John B.

Takes office as head of International Cooperation Administration, **July 1**

HOOVER COMMISSION

Ends existence, after two years of study and recommendations on government reorganization, **June 30**



UNITED PRESS; INTERNATIONAL NEWS SERVICE; FRENCH EMBASSY PRESS & INFORMATION DIVISION

INDOCHINA—Homes are burned during the Binh Xuyen rebellion in April. Bao Dai (l.) was deposed as chief of state of South Viet-Nam, and Premier Ngo Dinh Diem (r.) proclaimed himself president of the new republic on Oct. 26.

HORSE RACING—See SPORTS
HOUSING

Congress passes bill authorizing construction of 45,000 public housing units in year ending July 31, 1956, Aug. 2

HOWREY, Edward F.

Resigns as chairman of Federal Trade Commission, Aug. 10

HULL, Cordell

Dies in Bethesda, Md., aged 83, July 23

HULL, Gen. John E.

Retires as commander in chief of United Nations and U.S. forces in Far East, Feb. 26

HUNGARY—See also MINDSZENTY

Premier Imre Nagy and Defense Minister Mihaly Farkas ousted from government and Communist Party posts, Apr. 14

Andras Hegedus elected premier by Parliament, Apr. 18
Says armed forces will be cut by 20,000 by Dec. 31, Sept. 7

Elected to membership in United Nations, Dec. 14

HURRICANES—See ACCIDENTS AND DISASTERS

INDIA—See also NEHRU

President Rajendra Prasad, at opening of Parliament, says India backs Communist China's claims to Formosa, but urges negotiations, Feb. 21

Congress Party coalition strongly defeated Communists in Andhra elections, returns show, Mar. 2
Pakistani and Indian forces clash at border of Kashmir and West Pakistan; 12 Indian soldiers killed, May 7

Imperial Bank of India is nationalized, July 1
Orders Portugal to close legation in New Delhi, in dispute over Portuguese India, July 25

Nationalist demonstrators seek to enter Goa and Damão; 22 killed by Portuguese forces, Aug. 15

Riots in Bombay and other cities protest shooting of demonstrators by Portuguese, Aug. 16

Breaks diplomatic relations with Portugal, Aug. 19
Northern areas inundated by nation's worst floods in century; 1,200 believed killed, Oct. 9-13

Soviet Premier Bulganin and Communist Party Secretary Khrushchev arrive in New Delhi, Nov. 18

Leftist unions call strike in Bombay against proposed change in city's political status; 12 persons killed in clashes with police, Nov. 21

Nehru and Soviet Premier Bulganin, in joint declaration in New Delhi, call for worldwide arms reduction; agreement reached on expanding Indian-Soviet trade, Dec. 13

INDIANA

Gov. George W. Craig invokes martial law in eastern Indiana, following strike violence at New Castle, Oct. 10

INDOCHINA—See also DULLES; HO CHI MINH

Lieut. Gen. John W. O'Daniel, head of U.S. military mission, takes charge of training and reorganizing South Vietnamese Army, Feb. 12

Cambodian King Norodom Sihanouk abdicates in favor of his father, Prince Norodom Suramarit, Mar. 2
Forces of South Viet-Nam National Army and Binh Xuyen clash in Saigon; 26 killed, Mar. 29

Heavy fighting breaks out in Saigon between South Viet-Nam National Army and Binh Xuyen, Apr. 28
Gen. Nguyen Van Vy seizes control of South Vietnamese government and declares himself loyal to Bao Dai; Premier Ngo Dinh Diem regains control and forces Nguyen Van Vy to flee, May 1

Premier Ngo Dinh Diem and army chiefs inform Bao Dai he no longer has power to appoint and dismiss cabinet; forces of Binh Xuyen retreat from Saigon after pounding by army, May 2

Mass demonstrations in Saigon protest Geneva truce; mobs pillage two hotels, July 20

Ngo Dinh Diem rejects North Vietnamese call to discuss unified elections, charging Communists annul liberties, Aug. 10

Election in Cambodia gives Prince Norodom Sihanouk's Popular Socialist Rally all seats in National Assembly, Sept. 11

Cambodia eliminates all reference to French Union in Cambodian constitution, Sept. 25

Bao Dai, in Paris, decrees dismissal of Ngo Dinh Diem, Oct. 18

In South Viet-Nam referendum sponsored by Premier Ngo Dinh Diem, voters oust Bao Dai and support premier as chief of state, Oct. 23

Ngo Dinh Diem proclaims South Viet-Nam a republic with himself as president and premier, Oct. 26

Cambodia and Laos elected to membership in United Nations, Dec. 14

Laotian government holds elections despite boycott by Communist-led regime in north, Dec. 25

INDONESIA—See also ASIAN-AFRICAN CONFERENCE

Premier Ali Sastroamidjojo arrives in Peking on state visit, May 26

Sastroamidjojo and cabinet resign, July 23
Burhanudin Harahap, Moslem party leader, heads new coalition cabinet, Aug. 11

National elections begin, Sept. 29

INTERNATIONAL CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY—See ATOMIC ENERGY

INTERNATIONAL COOPERATION ADMINISTRATION

Succeeds Foreign Operations Administration in carrying out U.S. Mutual Security Program; John B. Hollister becomes director, July 1

INTERNATIONAL COURT OF JUSTICE

Judge Green H. Hackworth of U.S. named president of the court, Feb. 9

IRAN—See also BAGHDAD PACT

Gen. Fazlollah Zahedi resigns as premier, Apr. 5
Hussein Ala forms new cabinet, Apr. 9

In note to USSR, rejects Soviet protest against Iran's joining Baghdad Pact, Dec. 5

IRAQ—See also BAGHDAD PACT

Premier Nuri as-Said and Turkish Premier Adnan Menderes sign five-year Turkish-Iraqi mutual defense pact in Baghdad, Feb. 24

Signs new defense pact with Great Britain in Baghdad, terminating treaty of 1930, Apr. 4

IRELAND, Republic of

Elected to membership in United Nations, Dec. 14

ISRAEL—See also EGYPT; UNITED NATIONS—Security Council

Former Premier David Ben-Gurion rejoins cabinet as defense minister, Feb. 21

Condemned by Egyptian-Israeli Mixed Armistice Commission for "planned attack" against Egyptian forces in Gaza strip on Feb. 28, Mar. 6

Israeli and Jordanian commanders in Jerusalem area establish security zone, Apr. 18

Negotiations with Egypt commence in Gaza strip truce area to halt fighting, June 28

Premier Moshe Sharett ousts General Zionist Party from cabinet, June 29

National elections held; Mapai continues as leading party but loses strength to rightist Herut and leftist parties, July 26

Israeli Constellation airliner is shot down by Bulgarian fighter planes near Petrich, Bulgaria; 58 killed, July 27

Reports new wave of incidents along Gaza strip; charges killing of 7 Israelis by Egyptian infiltrators, Aug. 31

Army reprisal raid hits Egyptian police post in Gaza strip; 40 Egyptians killed, Aug. 31-Sept. 1

Accepts appeal of U.N. truce supervision body for cease-fire in Gaza and El 'Auja areas, Sept. 4

Three Israelis killed, 9 injured, in Arab ambush of bus near Meiron, **Sept. 22**
 Withdraws forces from El 'Auja zone (occupied on Sept. 21), **Oct. 2**
 Premier Sharett appeals to Soviet Foreign Minister Molotov at Geneva to halt Communist arms sales to Arabs, **Oct. 31**
 Ben-Gurion heads new coalition cabinet, **Nov. 3**
 Israeli forces strike at Egyptian frontier positions in El 'Auja area; 50 Egyptians killed, 49 captured, **Nov. 2-3**
 Foreign Minister Sharett confers with U.S. Secretary of State Dulles in Washington; says Israel will not cede territory to Arabs but is willing to make minor border adjustments for peace, **Dec. 6**
 Israeli forces attack Syrian positions near Sea of Galilee; 56 Syrians, 6 Israelis killed, **Dec. 11**

ITALY
 Premier Mario Scelba concludes three-day talks in Rome with Turkish Premier Adnan Menderes on bolstering Mediterranean defense, **Feb. 2**
 Senate completes parliamentary ratification of 1954 Paris pacts on rearmament of Germany, **Mar. 11**
 Premier Scelba confers with President Eisenhower in Washington during 12-day visit to U.S., **Mar. 28**
 Giovanni Gronchi, left-wing Christian Democrat, is elected president by Parliament, **Apr. 29**
 Gronchi inaugurated as president, **May 11**
 Christian Democrats score gains in Sicilian regional elections, **June 6**
 Scelba and cabinet resign (remaining temporarily as caretaker government), **June 22**
 Antonio Segni heads new coalition cabinet, **July 6**
 Elected to membership in United Nations, **Dec. 14**

JAPAN
 Reaches agreement with U.S. to accept \$2 million in compensation for damages caused by U.S. hydrogen bomb tests of 1954 in Pacific, **Jan. 4**
 Democratic Party of Premier Ichiro Hatoyama is victorious in general elections, **Feb. 27**
 Hatoyama is re-elected premier by House of Representatives, heading new cabinet to replace caretaker government, **Mar. 18**
 Representatives of Japan and USSR meet in London on normalizing Soviet-Japanese relations, **June 7**
 Foreign Minister Mamoru Shigemitsu confers with U.S. Secretary of State Dulles and other officials in Washington; joint communiqué calls for build-up of Japanese military strength, **Aug. 29-31**
 Liberal and Democratic parties merged; Hatoyama re-elected premier, **Nov. 22**

JOHN, Otto—See **GERMANY**
JORDAN, Hashemite Kingdom of the
 Jordanian and Israeli commanders in Jerusalem area establish security zone, **Apr. 18**
 Elected to membership in United Nations, **Dec. 14**
 Hazza al-Majali heads new cabinet, **Dec. 15**
 Al-Majali resigns, following rioting against Jordan's joining Baghdad Pact, **Dec. 19**
 Ibrahim Hashim heads caretaker cabinet, **Dec. 21**

KANCHENJUNGA, Mount
 Third highest peak, located on Nepal-Sikkim border, climbed for first time by British expedition led by Dr. Charles Evans, **May 25**

KEFAUVER, Estes
 Announces candidacy for 1956 Democratic presidential nomination, **Dec. 16**

KENTUCKY
 Albert B. ("Happy") Chandler, Democrat, elected governor, **Nov. 9**

KHRUSHCHEV, Nikita S.—See also **UNION OF SOVIET SOCIALIST REPUBLICS**
 Arriving in Belgrade, Yugoslavia, apologizes for Soviet-Yugoslav break of 1948 and asks resumption of close relations, **May 26**

Arrives in New Delhi, in first stop of South Asian tour, **Nov. 18**
 In address at Rangoon, Burma, charges Western powers seek to push West Germany into war, **Dec. 6**
 In address to Supreme Soviet in Moscow, stresses rise of Asian independence against Western "colonialism"; criticizes President Eisenhower's plan on aerial inspection and Christmas message to Soviet-bloc peoples, **Dec. 29**

KONEV, Marshal Ivan S.
 Named chief of unified military command of European Communist-bloc states, **May 14**

KOREA
 U.N. Command charges illegal air build-up by Communists in North Korea, **Mar. 5**
 South Korean soldiers and civilians try to seize Polish and Czechoslovak members of Neutral Nations Supervisory Commission on Wolmi Island, but are beaten off by U.S. guards, **Aug. 9**
 U.N. Command proposes disbanding of Neutral Nations Supervisory Commission, **Aug. 29**
 Compromise settlement reached on long dispute over taxation of foreign businesses, **Nov. 21**
 Admission to U.N. vetoed by USSR, **Dec. 13**

KUBITSCHKE, Juscelino
 Wins Brazil's presidential election, **Oct. 3**

LABOR—See **AMERICAN FEDERATION OF LABOR; CONGRESS OF INDUSTRIAL ORGANIZATIONS; EISENHOWER; STRIKES AND WALKOUTS; UNITED STATES—Internal Affairs**

LADEJINSKY, Wolf
 Cleared as security risk by Foreign Operations Administration and hired as land-reform specialist for FOA program in South Viet-Nam, **Jan. 5**

LAOS—See **INDOCHINA**

LATTIMORE, Owen
 Perjury charges dismissed by Washington federal court at request of government, **June 30**

LEBANON
 Rashid Karami forms new cabinet, **Sept. 19**

LENNITZER, Gen. Lyman L.
 Named commander in chief of United Nations command and U.S. command in Far East, **May 13**

LIBERIA
 William V. S. Tubman re-elected president, **May 3**
 Tubman escapes assassination attempt in Monrovia, **June 23**

LIBYA
 Elected to membership in United Nations, **Dec. 14**

LOYD, Selwyn
 Named British foreign secretary, **Dec. 20**

LODGE, John Davis
 Named U.S. ambassador to Spain, **Jan. 11**

LONARDI, Maj. Gen. Eduardo—See also **ARGENTINA**
 Sworn in as provisional president of Argentina, following Sept. 22 overthrow of President Juan D. Perón, **Sept. 23**
 Ousted as provisional president, **Nov. 13**

MacARTHUR, Douglas
 In address at Los Angeles ceremonies on his 75th birthday, calls on U.S. to take lead in proclaiming abolition of war, **Jan. 26**
 Says documents released by Defense Department confirm that he had not been consulted on Yalta Conference, **Oct. 20**

McCARTHY, Joseph R.—See **UNITED STATES—Congress**

MACMILLAN, Harold
 Named foreign secretary of Great Britain, **Apr. 7**
 Attends Big Four conference of heads of government in Geneva, **July 18-23**
 In address to U.N. General Assembly, says Western Big Three could offer USSR security against aggression by united Germany in NATO, **Sept. 30**
 Attends Geneva conference of Big Four foreign ministers, **Oct. 27-Nov. 16**

MOROCCO—(Left) French Resident General Boyer de Latour (l.) greets Sultan ben Moulay Arafat, who abdicated on Oct. 31. **NEHRU**—(Center) Prime Minister Nehru and V. K. Krishna Menon at the Asian-African Conference in April. **NIXON**—(Right) Vice President Nixon visits Costa Rica, Feb. 23, during his Caribbean goodwill tour.



WIDE WORLD; WIDE WORLD; UNITED PRESS

Attends meeting of Baghdad Pact Council in Baghdad, Iraq, **Nov. 21-22**
 Replaced as British foreign secretary and named chancellor of exchequer, **Dec. 20**

MALAYA, Federation of
 First national elections take place; Alliance Party victorious, **July 27**
 Peace talks in Baling between Chief Minister Tengku Abdul Rahman and Communist guerrilla leader, Chin Peng, collapse, **Dec. 29**

MALENKOV, Georgi M.
 Resigns as premier of USSR, accusing himself of errors of leadership, **Feb. 8**
 Named Soviet deputy premier and minister of electric power stations, **Feb. 9**

MANILA TREATY—See SOUTHEAST ASIA COLLECTIVE DEFENSE TREATY

MANN, Thomas
 Dies in Zurich, Switzerland, aged 80, **Aug. 12**

MAO TSE-TUNG
 In Peking address, says aggression by U.S. "imperialists" would be "thoroughly smashed" by China with help of USSR, **Feb. 14**

MARGARET ROSE, Princess
 Visits British West Indies, **Feb. 1-Mar. 3**
 Announces decision not to marry Group Capt. Peter Townsend, **Oct. 31**

MASSACHUSETTS—See also BOSTON
 Four convicts of Massachusetts State Prison surrender after three-day siege in which they held five guards as hostages, **Jan. 21**
 Extensive damage caused by floods following hurricane Diane, **Aug. 18-20**

MATUSOW, Harvey—See COMMUNISM

MAZA, José
 Chilean delegate elected president of 10th session of U.N. General Assembly, **Sept. 20**

MEANY, George
 Elected president of newly formed AFL-CIO, at convention in New York, **Dec. 5**

MENDERES, Adnan—See TURKEY

MENDES-FRANCE, Pierre
 Ousted as premier of France by defeat of North African policy in National Assembly, **Feb. 5**

MENZIES, Robert Gordon—See also AUSTRALIA
 Visits Canada, **Mar. 9-13**
 Confers with President Eisenhower in Washington on problems of Southeast Asian defense, **Mar. 14**

MEXICO
 Hurricane Hilda hits Tampico; 238 dead, 400 missing, **Sept. 19**
 Hurricane Janet strikes Yucatán Peninsula; estimated 250 killed, **Sept. 27-28**
 Pánuco River levels off after flooding Tampico area; scores killed, thousands homeless, **Oct. 6**

MIDDLE EAST TREATY ORGANIZATION—See BAGHDAD PACT

MINDSZENTY, Joseph Cardinal
 Has been granted interruption of prison term, Budapest radio reports, **July 16**

MISSISSIPPI
 Jury in Sumner acquits two white men accused of killing Emmett Till, Negro youth, for allegedly insulting wife of one of accused, **Sept. 23**
 J. P. Coleman, Democrat, elected governor, **Nov. 8**

MOLOTOV, Vyacheslav M.—See also GENEVA CONFERENCE
 In address to Supreme Soviet in Moscow, says USSR has lead in hydrogen weapons, warns "aggressive" Western coalition against rearming Germany, and demands U.S. quit Formosa, **Feb. 8**
 Signs Austrian State Treaty in Vienna, **May 15**
 In address at 10th anniversary meeting of United Nations in San Francisco, calls for American people to join Soviet people in preventing third world war, **June 22**
 Attends Geneva conference of heads of government, **July 18-23**
 In letter published in Soviet magazine, admits ideological error on socialism in speech of Feb. 8, **Oct. 8**
 Attends Geneva conference of Big Four foreign ministers, **Oct. 27-Nov. 16**

MOROCCO
 Anti-French violence in Casablanca and elsewhere results in over 60 dead, **July 14-18**
 Anti-French outbreaks and French repressive operations result in over 800 dead, **Aug. 20**
 French and Moroccan leaders confer at Aix-les-Bains, France, on new status for Morocco, **Aug. 22**
 Sultan Mohammed ben Moulay Arafa flees to Tangier; delegates power to cousin, **Oct. 1**
 Tribesmen attack French posts in Fez region, **Oct. 1**
 Thami el-Glaoui, pasha of Marrakech, demands restoration of exiled Sultan Sidi Mohammed ben Youssef, **Oct. 25**
 Sultan Sidi Mohammed ben Moulay Arafa renounces all rights to throne, **Oct. 30**
 French cabinet recognizes Sidi Mohammed ben Youssef as sultan, following his arrival in France from exile in Madagascar, **Nov. 5**



N.Y. STATE THRUWAY COMMISSION

NEW YORK—The New York State Thruway, shown here in the Mohawk River Valley, was completed on Dec. 15, except for 3 miles between Yonkers and New York City.

André Dubois named new resident general, **Nov. 9**
 Sultan ben Youssef returns to Rabat after 2-year exile, **Nov. 16**
 M'barek Bekkai heads first representative cabinet; sultan relinquishes absolute authority, **Dec. 7**
 Rebel tribesmen clash with French forces in Rif Mountains; 50 persons reported killed, **Dec. 30**

MOTION PICTURES
 Academy of Motion Picture Arts and Sciences awards "Oscars" for 1954: best film, *On the Waterfront*; best actor, Marlon Brando (*On the Waterfront*); best actress, Grace Kelly (*The Country Girl*), **Mar. 30**

NASSER, Gamal Abd el—See EGYPT

NEGROES, American—See also MISSISSIPPI
 Supreme Court rules that states must end racial segregation in public schools within "reasonable" time; regional federal courts given responsibility for checking on states, **May 31**
 Interstate Commerce Commission orders end to racial segregation on trains and buses which cross state lines (effective Jan. 10, 1956), **Nov. 25**
 Racial segregation in public parks, playgrounds, and golf courses ruled illegal by Supreme Court, **Nov. 7**

NEHRU, Jawaharlal
 In address to Indian Parliament, charges that policy of Western powers in building alliances hurts cause of peace, **Mar. 31**
 Attends Asian-African Conference at Bandung, Indonesia, **Apr. 18-24**
 During 15-day visit to USSR, signs declaration with Soviet Premier Bulganin in Moscow calling for ban on nuclear weapons, arms reductions, and satisfaction of Communist China's "legitimate rights" to Formosa, **June 23**
 In address to Yugoslav Parliament in Belgrade, says war is out of question in atomic age, **July 2**
 In joint statement with Marshal Tito, asks Big Four to begin international cooperation for peaceful use of nuclear energy, **July 7**
 Confers with British Prime Minister Eden in London, **July 9-10**
 Confers with Egyptian Premier Nasser in Cairo and condemns military alliances as obstacles to peace; arrives in Bombay after 37-day trip in 7 countries, **July 12**
 In joint statement with Soviet Premier Bulganin at New Delhi, stresses disarmament as only course toward world peace, **Dec. 13**

NEPAL
 King Tribhuvana dies in Zurich, Switzerland, aged 48, **Mar. 13**
 Crown Prince Mahendra becomes king, **Mar. 14**
 Elected to membership in United Nations, **Dec. 14**

NETHERLANDS
 Government of Premier Willem Drees is defeated in Parliament on proposed rent increase, **May 17**
 Drees agrees to continue in office, after compromise is reached among Socialists, **June 2**
 Queen Juliana and Prince Bernhard return to Netherlands after 3-week tour of Netherlands Antilles and Surinam, **Nov. 6**

NEW YORK (STATE)
 Averell Harriman inaugurated as governor, **Jan. 1**
 New York-Buffalo Thruway is completed, **Dec. 15**



NATO INFORMATION SERVICE; WIDE WORLD; UNITED PRESS

NORTH ATLANTIC TREATY ORGANIZATION—(Left) Chancellor Adenauer attends NATO Council meeting, May 9, at which West Germany was admitted to membership. **PERON**—(Center) Juan Perón, ousted as president of Argentina on Sept. 19. **SALK**—(Right) Dr. Jonas Salk, whose vaccine for polio was declared a success on April 12, with his family.

NEW YORK CITY

Waterfront Commission begins enforcing hiring regulations for longshoremen, **April 1**

Main floor of Coliseum structure collapses while concrete is being poured; 1 workman killed, 51 injured, **May 9**

Longshoremen end 8-day strike, **Sept. 14**

Democrats make clean sweep of contested city offices; win Queens district attorneyship, **Nov. 8**

NICARAGUA—See also **COSTA RICA**; **ORGANIZATION OF AMERICAN STATES**

President Anastasio Somoza denies Costa Rican charges of promoting rebellion in Costa Rica, **Jan. 11**

Accepts plan of Organization of American States for buffer zone with Costa Rica, **Jan. 20**

NIXON, Richard M.

Returns to Washington after four-week goodwill tour of Caribbean nations, **Mar. 5**

NOBEL PRIZES

Dr. Hugo Theorell of Sweden named winner of prize in medicine, **Oct. 20**

Halldór Kiljan Laxness, Icelandic author, wins literature prize, **Oct. 27**

Dr. Vincent du Vigneaud of Cornell University Medical College wins chemistry prize; Dr. Polykarp Kusch of Columbia University and Dr. Willis E. Lamb, Jr., of Stanford University named co-winners of physics prize, **Nov. 2**

Peace prize for 1954 is awarded to Office of U.N. High Commissioner for Refugees, **Nov. 3**

NORTH ATLANTIC TREATY ORGANIZATION

Federal Republic of Germany formally inducted as member at opening of three-day North Atlantic Council meeting in Paris, **May 9**

North Atlantic Council meets in Paris; communiqué says Soviet moves in Middle East offer "new challenge to the free world," **Dec. 15-16**

NORWAY

Premier Oscar Torp and Labor government resign, **Jan. 14**

Einar Gerhardsen heads new Labor cabinet, **Jan. 22**
Gerhardsen signs agreement in Moscow on expansion of Soviet-Norwegian trade and cultural relations, **Nov. 15**

NU, U—See also **BURMA**

Addresses joint session of U.S. Congress in Washington, defending Burmese neutralism, **June 30**

Confers with President Eisenhower in Washington on U.S. captive fliers in Communist China, U.S. rice shipments to Asia, and other questions, **July 2**

Ending 2-week visit to USSR, joins Soviet Premier Bulganin in Moscow statement denouncing policy of creating military blocs, **Nov. 3**

OHIO—See also **CLEVELAND**

Ohio Turnpike (241 miles long) opened, **Sept. 30**

ORGANIZATION OF AMERICAN STATES

Council meets in emergency session in Washington at request of Costa Rica; calls on Costa Rica and Nicaragua to avoid any action towards increase of tension, **Jan. 10**

Council requests American states to provide planes for observation of Costa Rica fighting; also asks American states to deny their territory to groups engaged in military action against governments of other states, **Jan. 12**

Adopts resolution asking Nicaragua to try to halt movement of war materiel into Costa Rica, **Jan. 14**
Plan for buffer zone between Costa Rica and Nicaragua is accepted by both states and goes into effect, **Jan. 20**

Investigating commission reports rebel forces in Costa Rica were substantially aided by Nicaragua; rec-

ommends steps toward Costa Rica-Nicaragua reconciliation, **Feb. 17**

Asks Nicaragua and Costa Rica to establish peace commission to settle any future disputes and not permit rebels to use respective territories to attack the other country, **Feb. 24**

ORGANIZATION OF CENTRAL AMERICAN STATES

Delegates of Guatemala, Nicaragua, El Salvador, Honduras, and Costa Rica meet at Antigua, Guatemala, **Aug. 17**

PACIFIC (ANZUS) COUNCIL

Foreign ministers of U.S., Australia, and New Zealand meet in Washington; affirm need to maintain defensive strength, **Sept. 24**

PAKISTAN

Gov. Gen. Ghulam Mohammad proclaims state of emergency and takes over supreme administrative authority, **Mar. 27**

Pakistani and Indian forces clash at border of Kashmir State and West Pakistan; 12 Indian soldiers killed, **May 7**

Devalues rupee by one third, **July 31**

Prime Minister Mohammad Ali resigns, after having lost leadership of Moslem League Party, **Aug. 7**
Chaudhry Mohammad Ali heads new coalition cabinet, **Aug. 11**

Mohammad Ali named ambassador to U.S., **Aug. 24**
Ghulam Mohammad resigns as governor general and is succeeded by Maj. Gen. Iskander Mirza, **Sept. 19**

PANAMA

President José Antonio Remón is assassinated in Panama City, **Jan. 2**

José Ramón Guizado sworn in as president, **Jan. 3**
Guizado impeached and dismissed as president by National Assembly; Ricardo Arias Espinosa sworn in as president, **Jan. 15**

New treaty signed with U.S. for increase in U.S. payments for rights to Panama Canal, **Jan. 25**

Guizado sentenced to 6 years and 8 months in prison for complicity in slaying of Remón, **Mar. 29**

PATE, Lieut. Gen. Randolph McC.

Becomes commandant of U.S. Marine Corps, **Dec. 30**

PEARSON, Lester B.—See **CANADA**

PENNSYLVANIA—See also **PHILADELPHIA**

Floods following Hurricane Diane kill 113, **Aug. 19**

PERKINS, George W.

Named permanent U.S. representative on NATO Council, **Mar. 1**

PERON, Juan D.—See also **ARGENTINA**

In address to Argentine nation, charges Roman Catholic Church refuses to cooperate with government; warns of "popular anger," **June 13**

Declares state of siege, following navy revolt and bombing of Buenos Aires, **June 17**

Ousted as president by armed forces rebellion, **Sept. 19**
Arrives in Asunción, Paraguay, in exile, **Oct. 2**

Arrives in Panama, **Nov. 6**

PETERSON, Val

Named to head new Civil Defense Coordinating Board to coordinate civil defense activities of federal agencies, **Apr. 9**

PHILADELPHIA

Democrat Richardson Dilworth elected mayor, **Nov. 8**

PHILIPPINES—See also **ROMOLO**

Undersea earthquake hits Lake Lanao area; 442 persons killed, 2,000 injured, **Apr. 1**
Nacionalista Party scores strong gains in senatorial, provincial, and local elections, **Nov. 9**

PINAY, Antoine—See also **GENEVA CONFERENCE**

Reaches agreement on Saar with West German Chancellor Adenauer in Bonn, **Apr. 29-30**

Signs Austrian State Treaty in Vienna, **May 15**

CHRONOLOGICAL INDEX, 1955

In address at 10th anniversary meeting of U.N. in San Francisco, says France will not abandon NATO and will not support plan for neutralized Germany, **June 23**

Attends Geneva Conference, **July 18-23**

In address to U.N. General Assembly, stresses defensive character of NATO and urges USSR to end campaign against U.S. bases abroad, **Sept. 29**

PIUS XII, Pope

Reported having seen vision of Christ during illness on Dec. 2, 1954, **Nov. 18**

In Christmas message, supports proposals for international disarmament and banning of nuclear weapons, **Dec. 24**

POLAND

Heads of governments of 8 Communist-bloc states of eastern Europe sign 20-year mutual defense treaty in Warsaw, establishing joint military command, **May 14**

Warsaw pact comes into effect, **June 5**

Announces cut in armed forces of 47,000 by Dec. 20, **Sept. 3**

POLIOMYELITIS

Antipoliomyelitis vaccine developed by Dr. Jonas Salk is declared a success by University of Michigan Polio Vaccine Evaluation Center on basis of 1954 tests, **Apr. 12**

Surgeon General Dr. Leonard A. Scheele announces temporary halt of federal clearance of Salk vaccine, pending study of manufacturing methods, **May 6**

Public Health Service reports that failure of its own safety tests were partly responsible for live virus in 6 lots of Cutter antipoliomyelitis vaccine, **Aug. 25**

PORTUGAL—See also **INDIA**

Elected to membership in United Nations, **Dec. 14**

PORTUGUESE INDIA

Indian nationalist demonstrators enter Goa and Damão; 22 killed by Portuguese forces, **Aug. 15**

PULITZER PRIZES

Awards announced for 1954: fiction, William Faulkner (*A Fable*); drama, Tennessee Williams (*Cat on a Hot Tin Roof*); U.S. history, Paul Horgan (*Great River: The Rio Grande in American History*); biography, William Smith White (*The Taft Story*); poetry, Wallace Stevens (*Collected Poems*); music, Gian-Carlo Menotti (*The Saint of Bleecker Street*), **May 2**

QUARLES, Donald A.

Named secretary of air force, **Aug. 11**

RADFORD, Adm. Arthur W.

Confers with President Chiang Kai-shek in Taipei, Formosa, **Apr. 24-27**

Reappointed to two-year term as chairman of Joint Chiefs of Staff, **May 25**

RAILROADS—See **ACCIDENTS AND DISASTERS**

RAYBURN, Samuel T.

Elected speaker of House of Representatives of 84th Congress, **Jan. 5**

REMON, José Antonio—See **PANAMA**

RIDGWAY, Gen. Matthew B.

Announces resignation (June 30) as U.S. Army chief of staff, **May 13**

RIZA PAHLEVI, Shah of Iran

Sails from New York with Queen Soraya after eight-week visit to U.S., **Feb. 11**

ROMOLO, Brig. Gen. Carlos P.

Named Philippines ambassador to U.S., **Sept. 24**

RUMANIA—See also **SWITZERLAND**

Announces cut in armed forces of 40,000 by December, **Aug. 30**

Chivu Stoica succeeds Gheorghe Gheorghiu-Dej as premier; Gheorghiu-Dej named first secretary of Communist Party, **Oct. 3**

Elected to membership in United Nations, **Dec. 14**

RUSSELL, Bertrand

Reads statement in London of 9 world-prominent scientists, calling on governments to renounce war because nuclear weapons threaten existence of mankind, **July 9**

SAAR

Europeanization statute comes into effect, **May 5**

Voters, by over 2-1, reject Europeanization statute; Premier Johannes Hoffmann resigns, **Oct. 23**

Pro-German parties win parliamentary elections, **Dec. 18**

SALK, Dr. Jonas E.—See also **POLIOMYELITIS**

Antipolio vaccine declared successful, **Apr. 12**

Receives presidential citation from President Eisenhower in Washington, D.C., **April 22**

SAN FRANCISCO

George Christopher elected mayor, **Nov. 8**

SARATOGA, U.S.S.

Christened at New York Naval Shipyard, Brooklyn, N.Y., **Oct. 8**

SAUDI ARABIA

Signs mutual defense treaty with Egypt in Cairo, **Oct. 27**



WIDE WORLD

SARATOGA—The U.S.S. *Saratoga*, U.S. Navy supercarrier, is christened in Brooklyn, N.Y., on Oct. 8.

SCELBA, Mario

Confers with British Prime Minister Churchill and Foreign Secretary Eden in London, **Feb. 15-17**

Confers with President Eisenhower in Washington, **Mar. 28**

Resigns as premier of Italy, **June 22**

SCHEELE, Dr. Leonard A.—See **POLIOMYELITIS**

SCHWEITZER, Albert

Receives insignia of Order of Merit from Queen Elizabeth II in London, **Oct. 19**

SEAWOLF, U.S.S.

Second U.S. atomic submarine is launched at Groton, Conn., **July 21**

SEgni, Antonio

Heads new Italian coalition cabinet, **July 6**

SHARETT, Moshe—See also **ISRAEL**

Confers with U.S. Secretary of State Dulles in Washington; says Israel will not cede territory to Arabs but is willing to make minor border adjustments for peace, **Dec. 6**

SOUTH AFRICA, Union of—See also **UNITED NATIONS**

Apartheid policy of forced resettlement of natives outside Johannesburg begins, **Feb. 9**

Announces withdrawal from UNESCO because of "interference in South Africa's racial problems," **Apr. 5**

SOUTHEAST ASIA COLLECTIVE DEFENSE TREATY (SEATO)

Treaty comes into force, **Feb. 19**

Council meeting held in Bangkok, Thailand; Prince Wan Waihayakon of Thailand elected permanent chairman, **Feb. 25**

SPAIN

Generalissimo Franco confers with U.S. Secretary of State Dulles in Madrid, **Nov. 1**

Elected to membership in United Nations, **Dec. 14**

SPORTS

Ohio State defeats Southern California, 20-7, in Rose Bowl football classic at Pasadena, Calif.; Navy defeats Mississippi, 21-0, in Sugar Bowl at New Orleans, **Jan. 1**

Swaps, ridden by Willie Shoemaker, wins 81st Kentucky Derby at Churchill Downs, Louisville, **May 1**

TITO—Marshal Tito of Yugoslavia (l.), in Egypt for a 10-day state visit, is greeted in Cairo by Egyptian Premier Nasser on Dec. 28.

UNITED PRESS



Rocky Marciano retains heavyweight championship by ninth-round technical knockout of Don Cockell of England, in San Francisco, **May 16**

Jack Fleck of Davenport, Iowa, defeats Ben Hogan, 69-72, in play-off match for United States Open golf championship at San Francisco, **June 19**

National League defeats American League, 6-5, in 22d annual All-Star Game at Milwaukee, **July 12**

Australia defeats U.S., 5-0, to gain Davis Cup tennis championship at Forest Hills, N.Y., **Aug. 26-28**

Tony Trabert and Doris Hart win national singles tennis championships at Forest Hills, N.Y., **Sept. 11**

Rocky Marciano retains heavyweight boxing title by 9th-round knockout of Archie Moore at Yankee Stadium, New York City, **Sept. 21**

Brooklyn Dodgers defeat New York Yankees, 4 games to 3, to win World Series, **Sept. 28-Oct. 4**

Donald M. Campbell pilots jet-powered speedboat at record 216.2 miles per hour on Lake Mead, Nevada, **Nov. 16**

Ray Robinson regains middleweight boxing title by second-round knockout of Carl (Bobo) Olson at Chicago, **Dec. 9**

Nashua is sold for \$1,251,200, record price for a racehorse, **Dec. 15**

STASSEN, Harold E.
Returns to Washington after three-week tour of seven Asian nations; calls for increased U.S. economic aid, **Mar. 13**
Named special assistant to president on disarmament problems, **Mar. 19**
Resigns as head of Foreign Operations Administration, **July 1**

STEVENS, Robert T.
Resigns as secretary of army, **June 22**

STEVENSON, Adlai E.
In radio address, says U.S. decision to defend Matsu and Quemoy would have disastrous consequences; calls for submission of Formosa question to U.N. or international negotiations, **Apr. 11**
Announces candidacy for 1956 Democratic presidential nomination, **Nov. 15**

STOCK MARKET—See UNITED STATES—Internal Affairs

STRIKES AND WALKOUTS
Some 50,000 telephone workers in nine Southern states go on strike upon expiration of contract, **Mar. 14**
Some 25,000 textile workers of 23 New England cotton mills strike against pay cut, **Apr. 16**
Strike of 25,000 nonoperating employees of Louisville and Nashville Railroad and two subsidiaries ends after 59 days, **May 11**
Some 9,300 workers at Sperry Gyroscope plant at Lake Success, N.Y., end 33-day strike, **May 23**
Some 84,000 workers of Ford Motor Co. reported idled by wildcat walkouts during contract negotiations, **June 6**
Wildcat walkouts make 42,000 General Motors Corp. workers idle during contract negotiations, **June 8**
Three-week strike of long-haul truck drivers in 11 Western states ends with pay rises and pension benefits, **June 11**
Brief strike of some 28,000 seamen against Atlantic and Gulf coast passenger and dry-cargo operators ends, **June 18**
Strike of 600,000 steelworkers ends after 12 hours with pay rises, **July 1**
Strike of 2,000 Los Angeles bus operators and motor-men ends after 34 days, with agreement on wage increases, **July 24**
Strike of Washington bus and streetcar workers ends after 51 days, with wage and fare rises, **Aug. 21**

USSR—Indian Prime Minister Nehru (l.), Soviet Premier Bulganin (center), and Soviet Communist Party Secretary Khrushchev (r.) are greeted by Girl Scouts during Soviet leaders' visit to India in November and December.

UNITED PRESS



Week-long strike of 20,000 Bendix Aviation Corp. workers ends with agreement on wage rises and layoff pay, **Sept. 4**

Strike of New York longshoremen ends after 8 days, **Sept. 14**

Strike of some 40,000 workers of International Harvester Co. ends after 25 days, with agreement on wage rises and layoff pay, **Sept. 17**

Nearly 22,000 telephone workers in Nevada and northern California go on strike, **Oct. 10**

Some 46,000 Westinghouse Electric Corp. workers in 10 states go on strike, **Oct. 17**

SUMMIT CONFERENCE—See GENEVA CONFERENCE

SUPREME COURT, U.S.
Refuses to review cases of 13 convicted Communist Party leaders, **Jan. 10**
Rules legitimate theater and professional boxing are subject to antitrust laws, **Jan. 31**
John M. Harlan sworn in as associate justice, **Mar. 28**
Rules states must end racial segregation in public schools within "reasonable" time; regional federal courts given responsibility for checking on states, **May 31**
Rules racial segregation in public parks, playgrounds, and golf courses is illegal; rules civilians cannot be tried by court-martial for crime committed while in service, **Nov. 7**

SWEDEN
Orders expulsion of Rumanian diplomat and three Czechoslovak legation aides for alleged involvement in espionage ring, **Mar. 14**

SWITZERLAND—See also GENEVA CONFERENCE
Four Rumanian anti-Communists yield Rumanian legation in Bern to Swiss police, after holding it by force for two days, **Feb. 16**

SYRIA
Faris el-Khoury resigns as premier, **Feb. 7**
Sabri el-Assali heads new coalition cabinet, **Feb. 13**
Shukri el-Kuwatly elected president by Parliament, **Aug. 18**
Signs mutual defense treaty with Egypt in Damascus, **Oct. 20**
Israelis attack shore batteries near Sea of Galilee; 56 Syrians, 6 Israelis killed, **Dec. 11**

TALBOTT, Harold E.
Resigns as secretary of air force, following Senate subcommittee investigation of business activities, **Aug. 1**

TAXATION—See UNITED STATES—Congress

TAYLOR, Gen. Maxwell D.
Named commander in chief of U.S. and U.N. forces in Far East (effective Apr. 30), **Mar. 7**
Named chief of staff of U.S. Army (effective June 30), **May 13**

TENNIS—See SPORTS

TITO, Marshal
Leaves India after state visits to India and Burma, **Jan. 25**
Following talks with Soviet leaders in Belgrade, signs Soviet-Yugoslav declaration on steps toward world peace, **June 2**
In joint statement with Indian Prime Minister Nehru, asks Big Four to begin international cooperation for peaceful use of atomic energy, **July 7**
Confers with U.S. Secretary of State Dulles on Brioni island, **Nov. 6**
Arrives in Cairo on 10-day state visit to Egypt, **Dec. 28**

TORNADOES—See ACCIDENTS AND DISASTERS

TRUMAN, Harry S.
Addressing 10th anniversary meeting of U.N. in San Francisco, says world faces choice between U.N. principles or anarchy; urges balanced arms reduction, **June 24**
Breaks ground for library in Independence, Mo., **May 8**

TUBMAN, William V. S.—See LIBERIA

TUNISIA
Premier Tahar ben Ammar and French Premier Faure sign conventions in Paris on internal autonomy for Tunisia, **June 3**
Bey of Tunis approves all-Tunisian cabinet under Premier Tahar ben Ammar, **Sept. 17**

TURKEY—See also BAGHDAD PACT
Premier Adnan Menderes concludes three-day talks with Italian Premier Scelba in Rome on bolstering Mediterranean defenses, **Feb. 2**
Menderes and Iraqi Premier Nuri as-Said sign five-year Turkish-Iraqi mutual defense pact in Baghdad, **Feb. 24**
Anti-Greek rioting takes place in Istanbul and Izmir, **Sept. 6**
New Menderes government (following mass resignation of Nov. 29) approved by Parliament, **Dec. 16**

U NU—See NU, U

UNION OF SOVIET SOCIALIST REPUBLICS—See also BULGANN; GENEVA CONFERENCE; KHRUSHCHEV; MOLOTOV
Foreign Ministry states USSR is ready to share its technical experience acquired in operation of atom-driven industrial power plant, **Jan. 14**



WIDE WORLD

UNITED NATIONS—U.S. delegate Henry Cabot Lodge, Jr., (r.), in the presence of Soviet delegate Arkady A. Sobolev (l.) and British delegate Sir Pierson Dixon (center), speaks in the Security Council, Jan. 31, against the Soviet proposal that Nationalist China be barred from debate on the question of a cease-fire for Formosa.

Presidium of Supreme Soviet declares formal end to state of war with Germany, **Jan. 25**

Foreign Minister Molotov, in note to Japanese Premier Ichiro Hatoyama, offers to end formal state of war and settle territorial disputes, **Jan. 25**

Communist Party Central Committee calls for renewed emphasis on heavy industry to strengthen defense, **Feb. 2**

Budget presented to Supreme Soviet calls for 12% rise in defense outlay, **Feb. 3**

Premier Georgi M. Malenkov resigns; Marshal Nikolai A. Bulganin is named premier by Supreme Soviet, following nomination by Nikita S. Khrushchev, **Feb. 8**

Marshal Georgi K. Zhukov is named minister of defense; Malenkov is named deputy premier and minister of electric power stations, **Feb. 9**

Bulganin reorganizes cabinet; Anastas I. Mikoyan, Mikhail G. Pervukhin, and Maxim Z. Saburov are elevated to first deputy premiers; four new deputy premiers appointed, **Mar. 1**

Soviet leaders reach agreement in Moscow with Austrian leaders on Austrian State Treaty; USSR agrees to withdrawal of troops, return of seized property, and easy reparations terms, in return for neutralization of Austria, **Apr. 15**

In notes to U.S., Britain, and France, calls for Big Four conference in Vienna on Austrian State Treaty, **Apr. 19**

Presidium of Supreme Soviet approves scrapping of friendship treaties with Britain and France in retaliation for Anglo-French backing of German rearmament, **May 7**

Heads of governments of Communist-bloc states of eastern Europe sign 20-year mutual defense treaty at Warsaw; Marshal Ivan S. Konev of USSR named chief of forces, **May 14**

In note to West Germany, invites Chancellor Adenauer to visit Moscow to discuss diplomatic and trade relations with USSR, **June 7**

President Marshal Kliment E. Voroshilov signs ratification of Austrian State Treaty, **June 11**

Molotov hands memorandum to Secretary of State Dulles in San Francisco, expressing Soviet "regret" over shooting down of U.S. Navy Neptune patrol craft over Bering Strait by Soviet planes on June 22 and offering to pay for half of damage, **June 25**

Bulganin and Khrushchev attend Geneva Conference of Big Four heads of government, **July 18-23**

Orders Soviet occupation forces withdrawn from Austria by October 1, **July 31**

Announces cut of 640,000 in armed forces by Dec. 15, **Aug. 13**

Farm delegation ends 12,000-mile tour of U.S. farmlands, **Aug. 23**

Bulganin and West German Chancellor Adenauer sign agreement in Moscow to establish Soviet-West German diplomatic relations; USSR pledges release of remaining German war prisoners, **Sept. 13**

Proclaims amnesty for Russians, who collaborated with Germans in World War II, **Sept. 18**

Renews mutual defense alliance with Finland for 20 years; agrees to withdraw Soviet forces from Porkkala base within 3 months, **Sept. 19**

Concludes agreement with East Germany granting sovereignty and control over borders and traffic between Berlin and West Germany, **Sept. 20**

Presidium of Supreme Soviet approves release of 9,626 German war prisoners, **Sept. 28**

Reaches accord with Canada on granting each other most-favored-nation trade privileges and on cooperation in Arctic research, **Oct. 11**

Bulganin and Khrushchev leave Moscow on month's tour of South Asia, **Nov. 17**

Announces execution of 6 officials as accomplices of Lavrenti P. Beria, **Nov. 22**

In note to Iran, charges Iranian membership in Baghdad Pact violates Iranian treaty obligations with USSR; confirms report that it had recently exploded hydrogen bomb, **Nov. 26**

Bulganin and Indian Prime Minister Nehru sign agreement on expansion of Soviet-Indian trade, **Dec. 13**

Bulganin and Afghanistan Premier Mohammed Daud sign protocol in Kabul extending neutrality and non-aggression agreement of 1931; Soviet leaders pledge \$100 million in economic aid, **Dec. 18**

Bulganin and Khrushchev return to Moscow after visit to India, Burma, and Afghanistan, **Dec. 21**

Minister of Finance Arseny G. Zverev presents 1956 budget to Supreme Soviet; proposed military expenditures reduced by 8.5%, **Dec. 26**

UNITED NATIONS—See also HAMMARSKJÖLD

Tenth anniversary meeting takes place in San Francisco, **June 20-26**

General Assembly

Tenth regular session convenes; votes, 42-12 with 6 abstentions, to postpone consideration of Communist China's seating; José Maza of Chile elected president, **Sept. 20**

Votes to shelve discussion of Cyprus, **Sept. 23**

France withdraws delegation in protest against vote (Sept. 30) to discuss Algeria, **Oct. 1**

South Africa quits assembly over committee's vote to recommend continuance of U.N. inquiry into South Africa's racial segregation, **Nov. 9**

Votes to drop Algerian question from agenda, **Nov. 25**

French delegates end walkout, **Nov. 29**

Adopts resolution for collection and distribution by U.N. members of data on radiation; approves establishment of International Commission on Peaceful Uses of Atomic Energy, **Dec. 3**

Votes to end special U.N. commission on racial segregation in South Africa, **Dec. 6**

Admits 16 new members to U.N.—Albania, Jordan, Ireland, Portugal, Hungary, Italy, Austria, Rumania, Bulgaria, Finland, Ceylon, Nepal, Libya, Cambodia, Laos, and Spain, **Dec. 14**

Approves President Eisenhower's plan for aerial inspection of military installations and exchange of military blueprints, **Dec. 16**

Yugoslavia is elected to Security Council, in compromise arrangement on split term with Philippines; assembly adjourns, **Dec. 20**

Security Council

Votes to invite Communist China to take part in talks to end fighting in Formosa Strait area, **Jan. 31**

Suspends action on Formosa cease-fire, **Feb. 14**

Condemns Israel for attack on Egyptian forces in Gaza strip on February 28, **Mar. 29**

Calls on Israel and Egypt to cooperate in easing Gaza border tension, **Sept. 8**

Nationalist China vetoes U.N. membership for Mongolian People's Republic, **Dec. 13**

Syria asks that economic sanctions be imposed against Israel for Sea of Galilee raid of Dec. 11, **Dec. 16**

UNITED STATES—See also such headings as ACCIDENTS AND DISASTERS; ATOMIC ENERGY; COMMUNISM; EDUCATION; NEGROES, AMERICAN; SPORTS; STRIKES AND WALKOUTS; and SUPREME COURT, U.S.; and names of outstanding personalities of the year.

Foreign Affairs

In retaliatory measure, closes 27% of U.S. area to Soviet visitors, **Jan. 3**

Reaches agreement with Japan to pay \$2 million in compensation for damages caused by 1954 hydrogen bomb tests in Pacific, **Jan. 4**

At request of Organization of American States, sells four F-51 Mustang fighter planes to Costa Rica to bolster defense against rebels, **Jan. 16**

President Eisenhower signs congressional resolution authorizing him to take measures to defend Formosa and Pescadores against Chinese Communists, **Jan. 29**
Senate approves Southeast Asia Collective Defense Treaty, **Feb. 1**

F-86 Sabrejets shoot down two Communist MIG-15's in Yellow Sea off North Korea, in Communist attack on U.S. RB-45 reconnaissance bomber, **Feb. 5**

Seventh Fleet covers Chinese Nationalist evacuation of Tachen Islands, **Feb. 6-11**

Demands Communist China release 41 American civilians kept in "unwarranted detention," **Feb. 28**

Defense pact with Nationalist China comes into effect on exchange of ratifications in Taipei, Formosa, **Mar. 3**

State Department releases documents on Yalta conference of 1945, **Mar. 16**

Signs documents in Geneva, Switzerland, on adherence to revised General Agreement on Tariffs and Trade (GATT), **Mar. 21**

State Department announces that 76 Chinese students in U.S., previously denied permission to return to China, are now free to go, **Apr. 2**

President Eisenhower signs ratifications of 1954 Paris pacts on West German sovereignty and rearmament, **Apr. 7**

U.S., Britain, and France, in notes to USSR, propose talks of Big Four heads of government, **May 10**

Sabrejets down two (and probably three) Communist MIG's off North Korea, **May 10**

Communist China releases four American fliers after convicting them of having intruded into China's territorial air, **May 31**

Navy Neptune patrol plane is shot down by Soviet fighters over Bering Strait; seven U.S. airmen injured, **June 22**

International Cooperation Administration succeeds Foreign Operations Administration in administering U.S. foreign aid, **July 1**

Accepts Soviet offer of compensation for shooting down navy patrol plane, **July 7**

Three American prisoners of Korean War, who refused repatriation but later changed their minds about remaining in Communist China, arrive in Hong Kong, **July 10**

President Eisenhower and Secretary of State Dulles attend Geneva Conference of heads of government, **July 18-23**

Senate ratifies mutual cooperation agreement with Panama, **July 29**

Protests to Bulgaria against shooting down of Israeli airliner on July 27 (58 dead included 12 Americans), **July 30**

U. Alexis Johnson, U.S. ambassador to Czechoslovakia, and Wang Ping-nan, Chinese Communist ambassador to Poland, open talks in Geneva; Wang announces freeing of 11 U.S. airmen held in Communist China as spies, **Aug. 1**

Eleven U.S. airmen, released by Chinese Communists at Hong Kong on Aug. 4, charge in Tokyo press conference that they were tortured by captors, **Aug. 7**
Most members of U.S. agricultural delegation to USSR return to New York after 10,000-mile tour of Soviet farms, **Aug. 25**

Secretary of State Dulles and other officials confer in Washington with Japanese Foreign Minister Mamoru Shigemitsu; communiqué on 3-day talks calls for build-up of Japanese military strength to aid security in western Pacific, **Aug. 31**

Freeing of 12 American civilians by Communist China is announced by Chinese representative at U.S.-China talks in Geneva, **Sept. 6**

At Geneva talks, Communist China agrees to release remainder of 41 American civilians; U.S. reaffirms right of any Chinese in U.S. to return to China, **Sept. 10**

Announces easing of restrictions on shipments of non-strategic goods to Soviet-bloc nations, **Nov. 3**

In note to Soviet ambassador to East Germany, rejects Soviet view that 4-power occupation of Berlin is over, **Dec. 1**

Internal Affairs

President Eisenhower, in State of Union message, calls for interparty cooperation to strengthen nation's international role for peace, **Jan. 6**

President Eisenhower, in budget message, calls for expenditures of \$62,408 million in fiscal 1956; estimates revenue at \$60,000 million, **Jan. 17**

Senate Banking Currency Committee, under chairmanship of Sen. J. William Fulbright, ends formal hearings on stock market, after receiving testimony of 22 witnesses, **Mar. 23**

Heavy winds and snow hit eastern U.S., amid record low temperatures for date; at least 41 killed; crop losses estimated in millions of dollars, **Mar. 27-28**

Salk antipoliomyelitis vaccine is declared a success by University of Michigan Polio Vaccine Evaluation Center on basis of 1954 tests, **Apr. 12**

Tornadoes hit Arkansas, Kansas, Oklahoma, Missouri, and Texas; at least 121 killed, including 77 in Udall, Kans., **May 25-27**

Majority report of Senate Banking and Currency Committee calls for more controls on stock market to curb "unhealthy" speculation, **May 26**

Supreme Court rules that states must end racial segregation in public schools within "reasonable" time, **May 31**

Ford Motor Co. and United Automobile Workers sign three-year contract containing provision for layoff pay, **June 8**

New Division of Biologics Standards created within Department of Health, Education, and Welfare (replacing Laboratory of Biologics Control) to prevent recurrence of difficulties in poliomyelitis vaccine program, **June 9**

Nation practices "Operation Alert" in simulated hydrogen bomb attack, **June 15**

Wheat farmers vote for extension of government curbs on marketing of wheat in 1956, **June 25**

Senate rejects President Eisenhower's request for atomic-powered peace ship, **June 28**

Strike of 600,000 steelworkers ends after 12 hours, with agreement on wage increases, **July 1**

U.S. Air Force Academy dedicated at temporary site near Denver, Colo., **July 11**

President Eisenhower orders cancellation of Dixon-Yates power contract, **July 11**

Seawolf, nation's second atomic submarine is launched at Groton, Conn., **July 21**

Cordell Hull dies in Bethesda, Md., aged 83, **July 23**

UNITED STATES—(Left) George Meany (l.) and Walter Reuther at the AFL-CIO merger convention in New York City, Dec. 5. (Center) President Eisenhower, with Director of Defense Mobilization Arthur Flemming (l.) and Civil Defense Director Val Peterson (r.), speaks to the nation from his secret hideout during "Operation Alert" defense test, June 15. (Right) Marion B. Folsom, who was named secretary of health, education, and welfare on July 13.

WIDE WORLD; WIDE WORLD; UNITED PRESS



White House announces U.S. plans to launch first man-made earth satellite in 1957 or 1958, **July 29**
 Harold E. Talbott resigns as secretary of air force, following Senate subcommittee investigation of business activities, **Aug. 1**
 Forty-seventh annual governors' conference meets in Chicago, **Aug. 9-12**
 New code of conduct for U.S. servicemen taken prisoner is proclaimed by President Eisenhower, **Aug. 17**
 Floods following hurricane Diane devastate areas in 6 Northeastern states; 179 killed; damages estimated at \$457.7 million, **Aug. 18-19**
 Public Health Service reports that failure of its own safety tests were partly responsible for live virus in 6 lots of Cutter antipoliomyelitis vaccine, **Aug. 25**
 Jury in Sumner, Miss., acquits two white men accused of killing Emmett Till, Negro boy, for allegedly insulting wife of one of accused, **Sept. 23**
 President Eisenhower suffers coronary thrombosis at Denver, Colo., **Sept. 24**
 U.S.S. *Forrestal*, world's largest warship, is commissioned at Portsmouth, Va., **Oct. 1**
 United Air Lines DC-4 crashes into mountain peak near Laramie, Wyo.; 66 killed in U.S. commercial flying's worst disaster, **Oct. 6**
 Defense Department releases 1945 documents showing that Gen. Douglas MacArthur and most other military leaders favored Soviet entry in war against Japan, **Oct. 19**
 Democrats score scattered gains in state and local elections, **Nov. 8**
 Twelve-member bipartisan Committee on Government Security appointed to review loyalty-security program, **Nov. 10**
 Interstate Commerce Commission orders end to racial segregation on trains and buses which cross state lines (effective Jan. 10, 1956), **Nov. 25**
 AFL and CIO merge at joint convention in New York, **Dec. 5**
 Floods hit California, southern Oregon, and Nevada; 74 persons killed, **Dec. 22-26**
 Delegates from 12 Southern states meet secretly in Memphis, Tenn.; form national organization to fight desegregation movement, (reported) **Dec. 29**

Appointments and Resignations

Henry A. Byroade named ambassador to Egypt; John L. Tapping named ambassador to Libya, **Jan. 10**
 James C. Dunn named ambassador to Brazil; James C. H. Bonbright named ambassador to Portugal; John Davis Lodge named ambassador to Spain; Robert C. Hendrickson named ambassador to New Zealand; Joseph E. Finnegan named director of Federal Mediation and Conciliation Service; Rudolf A. Schoenfeld resigns as ambassador to Colombia, **Jan. 11**
 Donald A. Heath named ambassador to Lebanon, **Jan. 18**
 Charles C. Finucane named undersecretary of army, **Jan. 24**
 John Sherman Cooper named ambassador to India, **Jan. 27**
 Maj. Gen. Kenneth D. Nichols resigns as general manager of Atomic Energy Commission (effective May 1), **Jan. 29**
 Philip W. Bonsal named ambassador to Colombia; Newell Brown named administrator of Wage and Hour and Public Contracts Divisions, **Feb. 4**
 George W. Perkins named permanent representative on North Atlantic Council; Ross Rizley named chairman of Civil Aeronautics Board, **Mar. 1**
 Robert Cutler resigns as special presidential assistant on national security affairs; Dillon Anderson named to succeed Cutler, **Mar. 8**
 Homer Ferguson named ambassador to Philippines to succeed Adm. Raymond A. Spruance (resigned), **Mar. 11**
 Ellis O. Briggs named ambassador to Peru; William S. B. Lacy named ambassador to South Korea, **Mar. 16**
 Harold E. Stassen named special assistant to president on disarmament problems, **Mar. 19**
 Joseph E. Jacobs named ambassador to Poland; Joseph C. Satterthwaite named ambassador to Burma, **Mar. 24**
 Val Peterson named to head new Civil Defense Coordinating Board, **Apr. 9**
 Brig. Gen. Kenneth E. Fields named general manager of Atomic Energy Commission; G. Frederick Reinhardt named ambassador to South Viet-Nam; Ralph Demmler resigns as chairman of Securities and Exchange Commission, **Apr. 13**
 James B. Conant named ambassador to German Federal Republic, **Apr. 28**
 John B. Hollister named chief of International Cooperation Administration, **Apr. 30**
 Norman Armour resigns as ambassador to Guatemala; Edward J. Sparks named to replace Armour, **May 6**
 Selden Chapin named ambassador to Iran; Richard L. Jones named ambassador to Liberia, **May 20**
 Guy Farmer retires as chairman of NLRB (effective Aug. 27), **May 25**



UNITED STATES—Secretary of State Dulles (r.) and Walter F. George, Senate Foreign Relations Committee chairman, discuss the Formosa defense resolution of Jan. 29.

H. Struve Hensel resigns as assistant secretary of defense, **May 27**
 Gordon Gray named assistant secretary of defense for international security affairs, **June 10**
 John C. Baker named permanent representative on U.N. Economic and Social Council, **June 20**
 Robert T. Stevens resigns as secretary of army; Wilber M. Brucker named to succeed Stevens, **June 22**
 Robert B. Anderson resigns as deputy secretary of defense, **July 11**
 Oveta Culp Hobby resigns as secretary of health, education, and welfare (effective Aug. 1); Marion B. Folsom named to post, **July 13**
 Harold E. Talbott resigns as secretary of air force, **Aug. 1**
 Edward F. Howrey resigns as chairman of Federal Trade Commission, **Aug. 10**
 Donald A. Quarles named secretary of air force, **Aug. 11**
 Archie A. Alexander resigns as governor of Virgin Islands, **Aug. 17**
 Walter A. Gordon named governor of Virgin Islands, **Aug. 19**
 John Williams Gwynne named chairman of Federal Trade Commission, succeeding Edward F. Howrey, **Sept. 8**
 Thomas C. Mann named ambassador to El Salvador, **Oct. 11**
 T. Coleman Andrews resigns as commissioner of internal revenue; William S. B. Lacy resigns as ambassador to Korea, **Oct. 15**
 Boyd Leedom named chairman of NLRB, **Nov. 18**
 Hugh W. Cross resigns as chairman of ICC, **Nov. 25**
 John J. Forbes retires as director of Bureau of Mines; Russell C. Harrington named commissioner of internal revenue, **Nov. 30**
 Max W. Bishop named ambassador to Thailand, **Dec. 3**
 Frederick B. Lee resigns as administrator of Civil Aeronautics Administration; Charles J. Lowen, Jr., named to succeed Lee, **Dec. 10**
 Nelson A. Rockefeller resigns as special presidential assistant on psychological strategy, **Dec. 19**

Armed Forces

Lieut. Gen. Anthony McAuliffe formally named commander of U.S. Army in Europe, **Feb. 8**
 Gen. John E. Hull retires as commander in chief of U.S. and U.N. forces in Far East (effective Apr. 30), **Feb. 26**
 Gen. Maxwell D. Taylor named commander in chief of U.S. and U.N. forces in Far East, **Mar. 7**
 Air Force B-36 releases air-to-air guided missile with atomic warhead in tests over Nevada, **Apr. 6**
 Vice Adm. Arthur D. Struble named commander of Eastern Sea Frontier and Atlantic Reserve Fleet, **Apr. 7**
 Gen. Maxwell D. Taylor named Army chief of staff to succeed retiring Gen. Matthew B. Ridgway (effective June 30); Gen. Lyman L. Lemnitzer to succeed Taylor as commander in chief of U.S. and U.N. forces in Far East, **May 13**
 Rear Adm. Arleigh A. Burke named chief of naval operations, succeeding Adm. Robert B. Carney (effective Aug. 17), **May 25**
 U.S. Air Force Academy dedicated at temporary site near Denver Colo., **July 11**
 Gen. Isaac D. White assumes command of Eighth Army and Army Forces Far East, **July 25**
 Executive order establishes new code of conduct for servicemen taken prisoner, ordering resistance to "brainwashing," **Aug. 17**

Vice Adm. Alfred M. Pride named to succeed Vice Adm. Harold M. Martin as commander of Pacific Fleet Air Force, **Oct. 19**
 Adm. Stuart H. Ingersoll succeeds Vice Adm. Alfred Pride as commander of Seventh Fleet, **Dec. 19**
 Lieut. Gen. Randolph McC. Pate is sworn in as commandant of Marine Corps, **Dec. 30**

Congress

First session of 84th Congress convenes, **Jan. 5**
 House, 409-3, votes to support President Eisenhower in any military action required to defend Formosa and Pescadores from Chinese Communists, **Jan. 25**
 Senate, 85-3, passes President Eisenhower's requested resolution for defense of Formosa and Pescadores, **Jan. 28**
 Senate, 82-1, ratifies Southeast Asia Collective Defense Treaty, **Feb. 1**
 Senate, 64-6, ratifies defense pact with Nationalist China, **Feb. 9**
 Passes bill raising pay of legislators from \$15,000 to \$22,500, and providing increases for federal judiciary and certain other federal officials, **Mar. 1**
 Senate, 50-44 (in key vote), defeats Democratic moves for reduction in income tax, **Mar. 15**
 Passes administration-sponsored tax bill cancelling certain scheduled rises in corporation and excise taxes, **Mar. 30**
 Passes bill for pay rises to armed forces, **Mar. 30**
 Senate, 76-2, ratifies 1954 Paris pacts for rearmament of West Germany, **Apr. 1**
 House shelves statehood for Hawaii and Alaska, sending bill back to committee, **May 10**
 Passes bill for 8.8% pay rise for postal workers (later vetoed by President Eisenhower), **May 11**
 Passes bill for 8% postal pay rise, **June 7**
 Passes Trade Agreements Extension Act of 1955, extending reciprocal trade program to June 30, 1958, **June 15**
 Senate approves Austrian State Treaty, **June 17**
 Senate, 42-41, rejects President Eisenhower's proposed atomic peace ship, **June 28**
 Passes four-year extension of draft, **June 28**
 Passes bill appropriating \$31,882,815,726 for armed services in fiscal year 1956, **June 30**
 Senate approves revised Geneva conventions on treatment of prisoners of war and civilian captives, **July 6**
 Passes bill authorizing \$3,285,800,000 in foreign economic and military aid in fiscal 1956, **July 7**
 Authorizes \$2,360,530,300 for military construction, **July 11**
 Completes action on bill appropriating \$1,365,613,510 for Atomic Energy Commission, TVA, and Public works program, **July 13**
 Completes action on bill to strengthen military reserves, **July 26**

Passes \$2,703,341,705 foreign aid appropriations bill for fiscal 1956, **July 28**
 Passes bill to raise minimum wage to \$1 per hour (effective March 1, 1956), **July 30**
 Passes bill authorizing construction of 45,000 public housing units in year ending July 31, 1956; extends Defense Production Act through fiscal 1956, **Aug. 2**
 First session of 84th Congress adjourns, **Aug. 3**

URUGUAY

President Luis Battle Berres arrives in Washington on state visit, **Dec. 5**

VIET-NAM—See INDOCHINA

VOLCANOE—See ACCIDENTS AND DISASTERS

VON BRENTANO, Heinrich

Named foreign minister of West Germany, **June 6**

WARSAW CONFERENCE—See POLAND

WESTERN EUROPEAN UNION

Treaty comes into force, with deposition of French, British, and German ratifications in Paris, **May 5**
 Organization comes into being, as foreign ministers of member states meet in Paris, **May 7**

WILSON, Charles E.

Issues directive on security program for private defense industry, establishing centralized office in Washington to expedite handling of security cases, **Feb. 16**

YALTA PAPERS—See also CHURCHILL

Released by State Department, **Mar. 16**

State Department reveals further documents indicating growing rift between Roosevelt and Stalin in month before Roosevelt's death, **Dec. 29**

YEMEN

Imam Seif al-Islam Ahmed reported restored as ruler, after quelling army coup, **Apr. 5**

YUGOSLAVIA—See also TITO

Announces establishment of diplomatic relations with Communist China, **Jan. 10**

President Marshal Tito welcomes Soviet delegation to Belgrade; USSR Communist Party Secretary Khrushchev apologizes for Soviet-Yugoslav break of 1948 and asks renewal of close ties, **May 26**

Tito and Bulganin sign Soviet-Yugoslav declaration in Belgrade proposing European collective security treaty and admission of Communist China to U.N., and citing Communist China's rights to Formosa, **June 2**

Tito goes to Egypt for state visit, **Dec. 28**

ZHUKOV, Marshal Georgi K.

Named Soviet minister of defense, **Feb. 9**

ZWICKER, Brig. Gen. Ralph W.

Cleared in Defense Department reinvestigation of responsibility in promotion and discharge of Maj. Irving Peress, **Jan. 7**

Formosan farmers continue to harvest their crops late in January while defense supplies are being unloaded from the U.S. Air Force "Globemaster" in the background.

U.S. AIR FORCE



THE AMERICANA ANNUAL 1956



BRASIVES. Various natural minerals and a few synthetic products are used for grinding and polishing. United States production and imports of the more important of these are shown in the accompanying table.

ABRASIVES IN THE UNITED STATES
(In short tons, unless otherwise indicated)

Type and category	1952	1953	1954
NATURAL:			
Grinding and polish- ing sand	1,229,794	1,492,348	
Quartz (crude, crushed, and ground)	246,604	241,723	
Garnet	11,390	10,520	14,183
Emery	10,352	10,562	9,758
Tripoli	35,459	36,183	
Pumice (abrasive only)	22,429	22,988	16,397
Grindstones	3,962	2,499	2,218
Tube-mill liners	1,083	1,219	933
Grinding pebbles	3,400	2,472	3,070
MANUFACTURED*:			
Silicon carbide	91,531	62,301	66,972
Aluminum oxide	180,375	244,136	219,308
Metallic abrasives	157,034	160,500	118,096
IMPORTS:			
Industrial diamonds (carats)	13,705,258	13,522,676	13,988,762
Corundum	4,571	2,675	1,108
Emery			557
Pumice	22,464	33,655	21,901
Silicon carbide	50,684	46,294	38,935
Aluminum oxide	133,276	239,722	184,177

* Combined production of United States and Canada.
(Source: U.S. Bureau of Mines.)

OLIVER BOWLES, *Former Chief, Nonmetals Division, U.S. Bureau of Mines;* and BERNICE B. MITCHELL, *Foreign Minerals Staff, U.S. Bureau of Mines.*

ACADEMIES AND ASSOCIATIONS. See SOCIETIES AND ORGANIZATIONS.

ACCIDENTS. Accidents, the leading cause of death among persons 1 to 35 years of age, continued to be the fourth most important cause of death in the United States, exceeded only by heart disease, cancer, and cerebral hemorrhage.

Accidental deaths during the first seven months of 1955 totaled 51,100, only 200 fewer than in the corresponding months of 1954. A 4% increase in motor vehicle deaths was offset by reductions in home and public accident deaths.

The 1954 accidental death toll in the United States was approximately 90,000, an average of 55.8 persons killed per 100,000. This is the lowest rate in the nation's history, and the first time it has been below 60.

There were 8,642 accidental deaths in Canada in 1953 (the latest year for which complete figures are available). The population death rate was 58.6 for every 100,000 persons. As in the United States, accidents in Canada ranked fourth among all causes of death. Motor vehicle accidents were the most important type in Canada in 1953, resulting in 3,121 deaths, followed by falls (1,469), drownings (1,202), burns (477), railroad accidents (313), and poison gases (194).

The distribution was similar in the United States, except for a higher proportion of motor vehicle deaths and a lower proportion of deaths by drowning. There the 1954 accidental death

Photo Above: Two Adélie penguins overlook a part of the Antarctic coastline, as if to welcome the numerous expeditions which will visit that continent in 1956-57.

AUSTRALIAN NEWS & INFORMATION BUREAU

totals by classes were: motor vehicle, 36,000; home, 27,500; public non-motor vehicle, 15,500; and work, 14,000. In addition to deaths, accidental injuries totaled 9,050,000, including about 330,000 which resulted in some degree of permanent impairment.

Accidental deaths and injuries are estimated to have cost the United States \$9.8 billion in 1954. These costs include wage losses, medical and hospital expenses, overhead costs of insurance, property damage in motor vehicle accidents, property destroyed by fire, and property destroyed or production lost due to work accidents.

ACCIDENTAL DEATHS IN THE U.S., 1945-55

Year	Total ¹	Motor vehicle	Public non-motor vehicle	Home	Work
1945	95,918	28,076	16,000	33,500	16,500
1946	98,033	33,411	17,500	33,000	16,500
1947	99,579	32,697	18,000	34,500	17,000
1948* (5th revn.)	98,001	32,259	17,000	35,000	16,000
1948* (6th revn.)	93,000	32,259	16,000	31,000	16,000
1949	90,106	31,701	15,000	31,000	15,000
1950	91,249	34,763	15,000	29,000	15,500
1951	95,871	36,996	16,000	30,000	16,000
1952	96,172	37,794	16,000	30,500	15,000
1953	95,032	37,955	16,000	29,500	15,000
1954	90,000	36,000	15,500	27,500	14,000
1954 (Jan.-July)	51,300	19,150	9,600	16,300	7,900
1955 (Jan.-July)	51,100	19,840	9,500	15,600	7,900

¹ Duplications between motor vehicle, work, and home accidents are eliminated in the "Total" column. For the war year 1945, accidental deaths of military personnel are included only in the "Total" and "Motor vehicle" columns. For other years deaths of military personnel are assigned to motor vehicle, public non-motor vehicle, and home accidents, according to the type of accident. ² The first figures for 1948 are comparable with those for earlier years; the second, with later years. The differences between the two sets of 1948 figures reflect changes made in the official methods of death classification.

Source: Total deaths and motor vehicle deaths, 1945 to 1948 (5th revn.), and 1949 to 1953 are National Office of Vital Statistics totals. All other figures are National Safety Council estimates based on data from the National Office of Vital Statistics, state and city health departments and traffic authorities, and other sources.

The motor vehicle accident problem grew more acute as travel mileage continued to rise. A feature of the 1954 efforts to control the traffic death toll was S-D Day (Safe Driving Day), sponsored by President Eisenhower and the President's Committee for Traffic Safety. The aim was to hold traffic deaths to a minimum for one day—December 15. The program resulted in a death toll about 18% less than the normal expected toll, which, if that percentage reduction had prevailed throughout 1954, would have saved about 6,000 lives.

Activities of the National Safety Council and its affiliated state and community organizations continued to expand in 1955, especially in field service and traffic work. Industry, school, government, and private agencies also gave an increasing emphasis to safety.

Grand awards in the National Traffic Safety Contest went to Washington among the states, and to Wausau, Wis., among the cities.

The 42d National Safety Congress, held in October in Chicago, was attended by some 12,000 delegates from all parts of the United States and Canada. Two hundred sessions in five days covered the entire field of safety.

(See also the Index entries, *Accidents* and *Safety*, and the list of accidents and disasters in the CHRONOLOGY at the front of this volume.)

M. E. HORNER,

Director of News, National Safety Council.

ACOUSTICS. See Index entry, *Sound*.

ADAMS, Sherman, American public official: b. East Dover, Vt., Jan. 8, 1899. A former executive of the Parker-Young (lumber) Company, he entered politics in 1940 when he was elected as a Republican to the New Hampshire House of Representatives. Subsequently he served a term in the U.S. House of Representatives (1945-46) and two terms as governor of New Hampshire (1949-52). One of the initial supporters of Gen. Dwight D. Eisenhower, and later his personal campaign manager, Adams was named to the important and influential post of assistant to the president on Nov. 24, 1952.

In this capacity, Adams has played a major role in organizing the administration, hiring its top personnel, and shaping its domestic policy. Shortly after President Eisenhower's heart attack on Sept. 24, 1955, Adams established headquarters at Lowry Air Force Base in Denver, Colo., where he took on the responsibility of reviewing presidential business and deciding what was to be referred to the president's immediate attention. During the first days of President Eisenhower's illness, he and other top officials of the administration decided that it would not be necessary, because of Eisenhower's rapid recovery, to delegate the president's powers.

ADEN. See *ARABIA*.

ADENAUER, Konrad, chancellor of the Federal Republic of Germany: b. Cologne, Germany, Jan. 6, 1876. His political career, which began in 1906, was interrupted in 1933 when the Nazis barred him from political activity. Returning to politics in the post-World War II period as leader of the Christian Democrats, Adenauer became chancellor on Sept. 15, 1949, was re-elected in 1953, and from 1951 to June 6, 1955, also served as foreign minister.

Under his leadership in 1955, parliamentary ratification of the Paris agreements was completed on March 18, leading to West Germany's achievement of sovereignty on May 5 and to her membership in the Western European Union (May 7) and the North Atlantic Treaty Organization (May 9).

Adenauer visited the United States on June 13-18, and stated in Washington, D.C., that West Germany would remain allied with the free world as a means of working toward European security and the unification of East and West Germany. He conferred with President Eisenhower on June 14, and on June 16 received an honorary doctorate of laws from Harvard University. On September 9-13 he headed a German delegation to Moscow, where discussions with Soviet leaders produced agreements for the establishment of West German-Soviet diplomatic relations and for the release of Soviet-held German prisoners of war. (See also *GERMANY*.)

ADLER, Julius Ochs, American newspaper executive and army officer: b. Chattanooga, Tenn., Dec. 3, 1892; d. New York, N.Y., Oct. 3, 1955. As an executive of the *New York Times*, he played an important part in establishing it as one of the foremost newspapers in the world. He also served with distinction in the U.S. Army during both World War I and II.

The nephew of Adolph S. Ochs, former publisher of the *New York Times* and the *Chattanooga Times*, Julius Ochs Adler was graduated from Princeton University (B.A. 1914). He joined the staff of the *New York Times* in 1914, but interrupted his business career for military service. Commissioned a 2d lieutenant in April

1917, he was subsequently promoted to captain and assigned to the 306th Infantry Regiment of the 77th Division, with which he saw action in the Lorraine, Vesle, Aisne, and Meuse-Argonne sectors. He won the Distinguished Service Cross for heroism in the latter campaign.

On his return to the United States in 1919 he was named vice president and treasurer of the *New York Times*, in which capacities he handled the business and mechanical affairs of the newspaper. Having retained a commission in the Organized Reserve Corps, he commanded the 306th Regiment from 1924 to 1940. With the death of Adolph Ochs in 1935, he became general manager of the *New York Times* and publisher of the *Chattanooga Times*.

In 1940, after the outbreak of hostilities in Europe, Adler took a leave of absence from his newspaper duties to return to active service. In July 1941 he was promoted to brigadier general, and in September was appointed assistant commander of the 6th Infantry Division, which in 1943 was assigned the defense of Oahu, Hawaii. In January 1944 he was sent with the division into the Southwest Pacific, and saw action in the New Guinea and Papuan campaigns. In November 1944 he left active service and resumed his newspaper activities.

General Adler continued to pursue his military interests into the postwar period. In 1946 he was appointed commander of the reactivated 77th Division, U.S. Army Reserve, and in 1948, was promoted to the rank of major general. After his retirement from the Reserves on Dec. 31, 1954, he continued to serve as chairman of the National Security Training Commission, a post to which he was appointed by President Dwight D. Eisenhower in 1953.

ADULT EDUCATION. See Index entry.

ADVERTISING. The trend in advertising during 1955 followed, as it usually does, the pattern of American business generally. Record sales were recorded by many companies during 1955 as business activity reached an all-time high, and advertising also exceeded all previous volume records.

The total investment in national advertising reached a new high of something more than \$9 billion, or about 12% over the 1954 level of a little more than \$8 billion. The total investment in measurable national advertising reached a new level, too, of about \$2.6 billion, a 13% increase over 1954's total of some \$2.3 billion. Most of this gain can be attributed not to an increase in advertising volume but rather to higher advertising rates and costs.

Advertising expenditures have been rising steadily since the years prior to World War II, and the rate of increase is shown in the accompanying table taken from the *Tide* Advertising Index which covers the period from 1941 through 1955. The index points are the average for each year with a base of 100 for the 1947-49 average.

1941.....	46.8	1946.....	84.1	1951.....	126.4
1942.....	46.7	1947.....	96.8	1952.....	137.8
1943.....	59.7	1948.....	100.5	1953.....	154.6
1944.....	69.5	1949.....	103.9	1954.....	161.0
1945.....	75.0	1950.....	113.1	1955.....	181.5*

* Estimated

Advertising agencies had one of their most successful years in 1955, although their remuneration system (which has been under debate for many years) became the subject of a government antitrust suit. Early in 1955 the Justice Department filed the suit against the American Associa-

tion of Advertising Agencies, the American Newspaper Publishers Association, and four other media associations charging conspiracy to fix agency commissions at 15%. Another phase of the suit charged conspiracy by the defendants to "recognize" certain agencies to the exclusion of others. Although the six associations involved indicated their determination to fight the suit through the courts, several postponements in 1955 meant that any action on the suit would not take place before 1956.

Several trends continued to affect advertising agencies in 1955. Continually rising costs forced more small and medium-sized agencies to go out of business or to merge with other agencies. And demands by advertisers for more marketing services (such as public relations, market research, packaging, etc.) forced many agencies to expand their facilities in order to provide these services.

Network television naturally accounted for the biggest increase in advertising expenditures in 1955 because of higher rates, more TV stations coming on the air, more people buying TV sets, and more advertisers using the medium for the first time. Expenditures in network TV in 1955 reached \$418 million, an increase of almost 31% over 1954's total volume of \$320 million. National spot television also enjoyed a record year with billings of an estimated \$236 million, compared with \$177 million in 1954.

Color television moved ahead in 1955, its biggest gains coming through an increased amount of color TV programming. Color television audiences were still comparatively small in 1955 due to the high cost of color TV sets.

All other media but one recorded volume gains in 1955. National magazines reached an estimated \$660 million, compared with \$604 million in 1954, a 9% increase in revenue. Ad pages climbed 4% in 1955, from 81,000 to 84,300.

National advertising in newspapers came to about \$690 million in 1955, compared with \$594 million in 1954. The bulk of this increase was due to gains in automotive and general classifications; a 3% increase in newspaper rates and more use of color advertising in newspapers also helped account for the volume rise.

The one medium which lost ground in 1955 was network radio, which fell about 17% behind 1954 in dollar volume.

Outdoor advertising climbed from \$112 million in 1954 to an estimated \$115 million in 1955. Transportation advertising also recorded a slight gain to \$20.3 million. Business publications received about \$390 million in revenue in 1955, compared with \$365.5 million in 1954. Direct mail volume also showed an increase from \$1 billion to about \$1.27 billion. Point-of-purchase advertising was also up, probably to slightly more than \$1 billion.

ALVIN W. OUTCALT,
Assistant Editor, "*Tide*" Magazine.

AERONAUTICS. "Pinch-Waisted" Design.—A revolutionary aerodynamic discovery which has resulted in increases of up to 25 per cent in the speed of supersonic aircraft was announced on Sept. 11, 1955, by the National Advisory Committee for Aeronautics after three years of secrecy. The so-called area rule concept of aircraft design was developed by Richard T. Whitcomb, a 34-year-old scientist at the Langley Aeronautical Laboratory of the NACA.

One of the handicaps to increased speed has been the very high power required to offset the very high drag encountered when a plane passes

through the transonic region. In applying area rule, the designer considers the total cross-sectional area of wings, fuselage, tail surfaces, and other parts of the airplane, rather than that of the fuselage alone, and develops a configuration having greatly reduced drag rise in the transonic regime of flight. The result, in terms of design, is essentially an indented fuselage in the region of the wing, and is known as the "pinch-waisted" design.

The new principle has contributed greatly to the increased performance of the air force Convair F102-A delta-wing all-weather interceptor, and the navy Grumman F11F-1 Tiger carrier-based interceptor. It also has been applied to the design of the navy Chance Vought F8U-1 interceptor, which is to be produced in quantity.

Wind tunnel tests of the original F-102 configuration showed reason for doubt that the plane would be able to attain supersonic speeds. After the area rule principle was applied, the F-102 easily passed a speed of Mach 1 (equal to the speed of sound). In the case of the Grumman F11F-1, area rule came into being early enough in the design to be used effectively in the first prototype.

Vertical Take-off Aircraft.—Two extremes were achieved in 1955 in the field of vertically rising aircraft—one a convertiplane which can take off and land vertically, and fly forward as a conventional airplane; and the other a one-man "flying platform" without wings and tail, which can dart up and down and move in level flight in any direction.

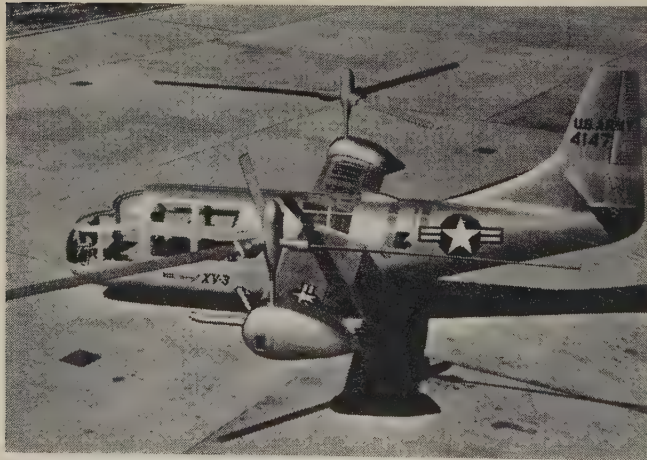
At least three convertiplanes were unveiled to some degree during the year—one by the

Transcendental Aircraft Corporation of Glen Ridge, Pa.; the second by McDonnell Aircraft Corporation of St. Louis, Mo.; and the third by the Bell Aircraft Corporation at its Hurst plant near Fort Worth, Texas. The Bell XV-3 is 30 feet long and 13 feet high, with a wing span of 30 feet. Three-bladed rotor propellers are mounted near the tips of the short-span fixed wings, and during the regime of take-off and landing they act as helicopter rotors. For forward speeds these rotor propellers can be rotated 90 degrees for cruising and high-speed flight.

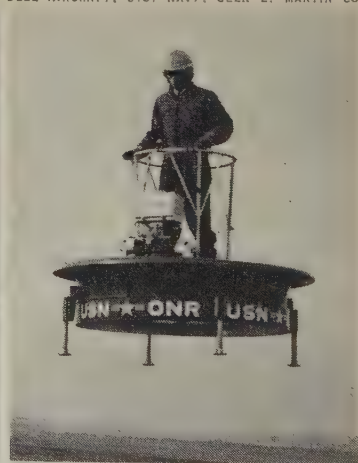
The one-man "puddle jumper" was a flying platform for one person, developed by Hiller Helicopters for the Office of Naval Research. This machine, which has been described as a "flying manhole cover," is really a platform retaining two contra-rotating ducted fans driven by two engines developing less than 100 hp. It is about 6 feet in diameter and 30 inches high, with a guard rail inside of which the pilot stands. Vertical flight is accomplished by giving gas to the engines through a throttle device. Directional motion is accomplished by the pilot's leaning in the desired direction of flight. At about the same time that the Hiller machine was announced came news of a somewhat similar device called the "helivector," powered by a marine outboard motor, and produced by the De Lachner Aircraft Co. of Mount Vernon, N.Y.

Military Aircraft.—Exhaustive laboratory tests accelerated the flight test program of the Douglas C-133 turboprop-powered cargo plane, which was scheduled for production late in 1955. The power plant for this new military cargo carrier is the Pratt & Whitney T-34. Among the tests

Bell XV-3 convertiplane (l.); Hiller "flying platform" (r.); and U.S. Navy's Martin Seamaster XP6M-1 (bottom).



BELL AIRCRAFT; U.S. NAVY; GLEN L. MARTIN CO.



planned is an underwater pressurization study of the fuselage, which measures 130 feet in length, 24 feet in height, and 30 feet in width. These tests will be conducted in the company's new \$6 million laboratory at the Long Beach, Calif., division.

Also under test in the same laboratory will be the B-66 bomber series. This and other planes and their components will be tested under temperature conditions ranging from -100°F. to $+500^{\circ}\text{F.}$ The power plant of the B-66, the Allison J-71 engine, also will be subjected to rigid cooling tests to determine the correct configuration and materials for an optimum performance with a minimum loss of engine power.

The electrical systems of both the C-133 and B-56 will be subjected to a number of tests to determine whether or not they will operate under the wide range of conditions required by these aircraft.

In the fall of 1955, the first official pictures of the huge Martin P6M SeaMaster flying boat were released by the U.S. Navy. The P6M has a wing span of 100 feet, a length of 134 feet, and a height of 31 feet. Its wing area is 1,900 square feet. It is characterized by its high tail and pronounced wing cathedral. Other features are plastic wing tip floats, hydroflaps on both sides of the hull afterbody, and fuel tanks sealed within the wings. (See also AIR FORCE, U.S.; NAVAL AFFAIRS.)

U.S. Commercial Air Traffic.—During the first six months of 1955 the United States scheduled airline industry doubled its profits (\$39,758,000), compared with those earned in the same period a year earlier (\$19,868,000), according to figures furnished by the Air Transport Association of America. The bulk of the business was credited to passenger traffic, which increased 19.4 per cent to a total of 11,630,366,000 revenue passenger-miles flown from January through June 1955. Industry gross revenues totaled \$779,640,000, or a 15 per cent gain over the comparable period of 1954. Estimates for the full year 1955 showed revenues exceeding \$1 billion, net operating income of more than \$100 million, and profits of \$75 million for the domestic scheduled airlines.

SCHEDULED TRAFFIC OF U.S. AIRLINES

	Jan.-Sept. 1954	Jan.-Sept. 1955
DOMESTIC TRUNK AIRLINES:		
Revenue passenger-miles.....	10,991,097,000	13,169,839,000
Revenue plane-miles.....	359,400,800	463,466,125
Freight ton-miles.....	88,736,802	111,079,391
Mail ton-miles.....	51,211,230	55,966,192
Express ton-miles.....	24,794,285	30,612,188
Total revenue ton-miles.....	1,235,863,853	1,482,726,516
U.S.-FLAG INTERNATIONAL AIRLINES:		
Revenue passenger-miles.....	2,486,681,000	2,965,408,000
Revenue plane-miles.....	76,118,356	84,819,912
Freight ton-miles.....	51,836,629	56,298,662
Mail ton-miles.....	20,729,247	32,779,693
Foreign mail ton-miles.....	4,622,624	4,951,135
Express ton-miles.....	142,961	149,786
Total revenue ton-miles.....	335,257,568	398,281,272

(Source: Air Transport Association of America.)

Transatlantic air traffic reached a new peak during the summer of 1955. Approximately 150,000 passengers made return flights over the various routes, and an additional 35,000 made air charter trips. Approximately one half of the scheduled air traffic was carried by two airlines, Pan American World Airways and Trans-World Airlines. The remainder was handled by the scheduled foreign carriers. The increase is due in a large measure to the conversion of airline capacity to tourist or second-class services. The

combination of low-rate tourist fares, a time-payment plan, and the economic prosperity of the United States were the chief contributing factors.

Traffic on United States domestic and international lines in the first nine months of 1955, as compared with the corresponding period of 1954, is shown in the accompanying table.

Re-equipment of U.S. Airlines.—A \$357 million re-equipment program, including 45 jet-powered airliners accounting for \$269 million, was announced on Oct. 13, 1955, by Pan American World Airways. The remaining \$88 million was for 33 Douglas DC-7C piston-engine-powered transports. The jet plane order is shared by the Douglas Aircraft Company of Santa Monica, Calif., and the Boeing Airplane Company of Seattle, Wash., and includes 20 Boeing 707 and 25 Douglas DC-8 airliners. Engines for both jet-powered planes will be of Pratt & Whitney design, rated at more than 10,000 pounds thrust* each; they will be advanced versions of the J-57's in the prototype.

When this equipment goes into service, beginning in 1958, flying time between principal cities of the world will be cut approximately in half. For example, New York to Paris (now 11 hours) will be 6 hours 35 minutes; Chicago to London (now 16 hours) will be 6 hours 45 minutes; San Francisco to Tokyo (now 25 hours) will be cut to 12 hours 45 minutes; and New York to Buenos Aires (now 23 hours) will be 11 hours 15 minutes. Since these airplanes traveling westbound approach more nearly the speed of the earth's rotation than ever before, passengers leaving London at noon London time will arrive in New York at 2:15 P.M., New York time, because of the 5-hour time difference between London and New York; the actual flying time will be 7 hours, 15 minutes.

The Douglas DC-8 has a span of 138.6 feet, a length of 140.6 feet, and an overall height of 40.2 feet; it will carry 130 or more passengers at a gross weight of 257,000 pounds while cruising at 575 mph. for a nonstop distance of 5,000 miles. Somewhat smaller, but having the same performance, the Boeing 707 will have a gross weight of 230,000 pounds, and will have a wing span of 130 feet 10 inches, and a length of 134 feet 6 inches.

Since these planes will normally operate at altitudes above 30,000 feet, they will be above most of the bad weather. This feature, added to the greatly reduced vibration of jets as compared with piston engines, will usher in a new era of comfort for air travel.

It is expected that other operators will follow Pan American in putting these two new jet-powered planes into service. United Airlines has announced its intention to order 30 Douglas DC-8 jet planes costing \$175 million. Eastern Airlines has said it will buy 20 jet-powered transports, as part of a \$350 million expansion program, but has not decided on the specific types. National Airlines is reported to have placed an order for 8 such aircraft, contingent on the receipt of larger orders (such as that of Pan American) which are needed to absorb the higher development cost. American Airlines announced in November that it had ordered 30 Boeing 707's for delivery beginning in March 1959.

Before the jet portion of Eastern Airlines' five-year expansion program has been realized,

* One pound of thrust equals one horsepower at a speed of 375 mph. As speeds increase above 375 mph., the equivalent horsepower increases.

the company announced orders for 40 DC-7B's (of which 8 had been delivered by early November 1955) and 10 Lockheed 1049-G's (Super-G Constellations). These, together with present equipment, will bridge the gap to jet speeds. The Super-G's are planned for use on the new Eastern-Braniff interchange service between New York and South America. These additions to EAL's "transition fleet" will have cost \$125 million by 1958.

Step two in Eastern's program will be the introduction of Lockheed Electras as the new first-class plane on main trunk routes. EAL's original order of 40 Electras will cost about \$100 million and makes Eastern the second United States airline to contract for turboprop passenger transports. In June, American Airlines announced its contract for 35 Electras (to be delivered in 1958-59), at a cost of \$65 million. The first of the 66-passenger Electras, capable of speeds "well in excess of 400 miles per hour," will be delivered to EAL in August 1958. Deliveries will be gradually stepped up to the rate of five per month with completion of the order due for July 1959. If the option for 30 additional Electras is exercised, deliveries will begin in August 1959, continue at a rate of two per month through March 1960, and three per month until completion in November 1960.

With a power plant estimated to generate 3,750-hp., the Eastern Electra would weigh 98,500 pounds and would have a range of 2,000 miles. In addition to its 66 passengers, the plane will have a six-place luxury lounge. By removal of the galley and other fittings used for first-class service, the plane could have a capacity of 91 passengers as a coach-class aircraft. When the first 40 Electras are added, Eastern's 1959 fleet will total 198 planes with a capacity of 10½ billion seat-miles annually, or 90 per cent more than at present. Four-engine piston-powered planes will be converted to coach service as replaced by the new turboprops.

During the fall of 1955, orders for the new Convair 440 Metropolitan airliner passed the \$11 million mark when Scandinavian Airlines ordered 11, in addition to the 2 ordered by Real, S.A. Transportes Aereos of Brazil, and one by Aero O/Y Finnair. Real Transportes will take another two 52-passenger Metropolitans as substitutes for two Model 340's ordered earlier in 1955. Continental Air Lines will do the same, taking 44-passenger 440's instead of three 340B's.

Convair's Model 440 will be powered by two Pratt & Whitney Aircraft R2800 piston engines with new cylinder baffles and cylinder head deflectors for improved performance, particularly during climbs. The use of jet engines for additional wing-tip power is being considered for U.S. Air Force versions of the Convair transport. The maximum range of the new transport is given as 1,310 miles with no wind, a 1,500-pound fuel reserve under cruise operation at 20,000 feet, and a maximum take-off weight of 49,100 pounds. This compares with a range of 1,150 miles for the Model 340. The 52-passenger version of the 440 will have a range of nearly 1,000 miles under the same flight conditions.

Canada.—The Canadian Air Transport Board has approved the trade by Trans-Canada Air Lines (TCA) with Canadian Pacific Air Lines (CPA) of the former's Montreal-Mexico City route for two domestic routes—one between Montreal, Quebec City, and Seven Islands; and the other between Montreal, Rouyn, Noranda, and Toronto. In addition, Canadian Pacific is

turning over its service from Quebec City to Baie Comeau and Forestville to Quebecair Ltd.

CPA's Toronto-Mexico City nonstop route will complement its Vancouver-Mexico City nonstop route, and will provide the line's only service in eastern Canada. TCA in the exchange gets a section of the transcontinental Canadian route which will probably be extended from Seven Islands to St. John's, Newfoundland, to tie in with its transatlantic services. TCA will continue to operate its Toronto-Tampa nonstop route and its services to the Caribbean area.

Trans-Canada Air Lines operations in the first nine months of 1955, as compared with the corresponding period of 1954, were as follows:

	Jan.-Sept. 1954	Jan.-Sept. 1955
Route miles.....	22,445	22,314
Revenue passenger-miles.....	651,587,645	730,280,226
Revenue plane-miles.....	23,423,888	25,545,992
Mail ton-miles.....	4,895,707	5,437,393
Express ton-miles.....	1,252,624	1,558,136
Freight ton-miles.....	5,781,806	7,125,550

Great Britain.—Progress in turbine engine design was evident at the 16th Annual Display of the Society of British Aircraft Constructors at Farnborough, Sept. 5-11, 1955, where 18 aircraft and engines were given their first public showing.

Armstrong Siddeley Motors Ltd. has developed its Sapphire turbojet to a thrust well above the initial type-test rating of 10,200 pounds on the ASSA-7. Later versions of the Sapphire are said to be almost complete redesigns of current series, and feature more airflow capacity for greater thrust.

Late models of the Viper, a simple turbojet, are approaching high thrust-weight ratios of about 3:6. The newest type-tested Viper is the ASV-8, rated at 1,750 pounds thrust for a dry weight of less than 500 pounds. The developed ASV-10 gives 2,300 pounds thrust without afterburner, and the ASV-7R gives 2,400 pounds thrust, also without afterburner.

Armstrong Siddeley shares with de Havilland the small-size rocket engine development. Engines thus far announced have been the Snarler and the Screamer, but these have been supplanted by later designs.

The Olympus engine has been type-tested in one modification at 11,000 pounds thrust; newer versions of the Olympus—the BO1.6 and the BO1.11—are rated considerably higher, with 16,000 pounds thrust as the reported rating for one of them. Now used in the Vulcan, the Olympus is scheduled to go into the redesigned Javelin in a developed form with higher thrust.

A new Bristol engine called the Zeus, with a design thrust starting near the 20,000-pound mark, has been reported. Two novel concepts at Bristol are the BE-25 supercharged turboprop and the lightweight Orpheus turbojet. The BE-25 has not yet been in operation, but many of its components have. Its compressor is aerodynamically identical to that of the Orpheus. Bristol has aimed the BE-25 at the civil turboprop transport market; it is in direct competition there with the Rolls RB-109 and the Napier Elands future developments. The Orpheus made its first flight in the Folland Gnat fighter in July 1955. Its combustion chambers have a life of 800 hours at this early stage of the program. Bristol expected to qualify the Orpheus at its guaranteed rating of 4,850 pounds thrust by the end of 1955. The engine installed in the Gnat currently is rated at less than 4,000 pounds thrust.

Also at the Farnborough display, a new and revolutionary development in jet aerodynamics

was demonstrated. Although it is still in the laboratory stage, the jet flap promises increased performance for jet power plants by ejecting the whole thrust of the engine through a trailing edge slat. The resulting sheet of air is forced down at a 60-degree angle, giving an upward reaction plus a forward suction component greater than the normal horizontal jet thrust. The elevator of the conventional airplane is replaced by this jet sheet, and the angle can be varied from 60 degrees to zero, giving a lift coefficient ranging from 11.0 for take-off and landing to 1.0 for level flight. The idea, which originated in the National Gas Turbine Establishment, would result in greatly reduced requirements for runway length in landings and take-offs.

Germany.—One of the most famous airlines in pre-World War II history was the German line, Lufthansa. The revived Lufthansa (Deutsche Lufthansa Aktiengesellschaft) resumed domestic flights in Germany on April 1, 1955, and international flights (to London and Madrid) on May 15. On June 9 it completed its first postwar transatlantic flight, from Hamburg to New York, using a United States-built Lockheed Super-G Constellation. At that time Lufthansa had taken delivery of four of these planes, and had four more on order. The West German flight crews are being trained by Lockheed and United States airlines personnel.

USSR.—Soviet military aircraft have been given code designations by the United States for identification purposes. Most important of the planes demonstrated at the May Day and Soviet Aviation Day (July 3) shows in 1955 were the following: the Bison, or Type 37 (a four-jet intercontinental bomber, corresponding to the Boeing B-52); the Badger, or Type 39 (a twin-jet medium bomber, somewhat comparable to the Boeing B-47); the Bear (a new four-engine turboprop bomber or aerial tanker, with no United States counterpart); the Flashlight (a new all-weather interceptor, somewhat similar to the Northrop F-89 and the Lockheed F-94); and the Farmer (a new twin-engine supersonic day fighter). In the Soviet Aviation Day display, observers reported seeing, in addition to the foregoing, a glider with flapping wings, 4 twin-rotor helicopters capable of carrying from 50 to 60 troops, a jet-powered airliner, and 7 long-range turboprop bombers. United States defense officials have indicated that although Soviet aircraft are showing constant advances in both quantity and quality, the United States is continuing to maintain aircraft superiority, particularly in power plants.

(See also CIVIL AERONAUTICS ADMINISTRATION; NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS; and the Index entry, *Aeronautics*.)

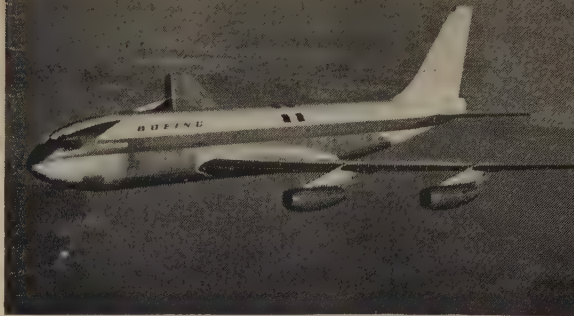
FLIGHT RECORDS

National Aircraft Show.—Major trophy winners in the National Aircraft Show, held at Philadelphia, Pa., in September 1955, were as follows:

Thompson Trophy (18.11-km. course): Col. Horace A. Hanes, USAF, with F-100C Super Sabrejet; Palmdale, Calif., Aug. 20, 1955; average speed, 822.135 mph. at 40,000 feet (a new world speed record under timed and certified conditions).

Bendix Trophy (George Air Force Base, Victorville, Calif., to Philadelphia, Pa., 2,325 miles): Col. Carlos M. Talbott, USAF, with F-100C Super Sabrejet, on September 4; average speed, 610.726 mph.; elapsed time, 3 hr. 48 min. 4 sec., with one refueling stop.

Allison Engine Company Competition (for speed in changing engines): Crew from Webb Air Force Base, Big Springs, Texas, on September 4; elapsed time, 11 min. 32.2 sec.



BOEING AIRPLANE COMPANY

Military prototype of Boeing 707 jet stratoliner, planned for future use in American commercial aviation.

Unofficial U.S. Records.—Other records set in 1955 (aside from the official records listed below) included the following:

World speed record of 695.163 mph., set by Lieut. Gordon Gray, USN, in a A-4D Douglas Skyhawk jet attack bomber, on a 100-km. closed circuit, Edwards Air Force Base, Calif., October 15.

Los Angeles—New York record (2,530 miles in 3 hr. 40 min.), set by Lieut. Col. Robert R. Scott, with USAF Republic Thunderstreak jet on March 9.

Seattle—Andrews Air Force Base, Maryland, record transcontinental flight for jet airliners (2,340 miles in 3 hr. 58 min.; average speed, 570 mph.), set by A. M. Johnston, pilot, in a Boeing 707 Stratoliner, October 16.

Shannon, Ireland—New York record for transatlantic flight (10 hr. 33 min.), set by two Pan American World Airway's Douglas DC-6B's, June 7.

Japan—Australian nonstop record for single-engine jet planes (12 hr. 10 min.), set by four U.S. F-84 Thunderjet fighter-bombers, May 18.

Official Records, 1954-55.—In the period Oct. 1, 1954 to Oct. 1, 1955, the following national (U.S.) and international records were established and confirmed in various categories determined by the Federation Aeronautique Internationale (FAI), each flight being supervised and observed in accordance with FAI specifications. (For categories not shown below, no official records were established in the period under review.)

JET-POWERED AIRPLANES

Distance in a closed circuit without refueling: World "class" record, 1,938,700 km. (1,143,134 miles)—Miss Elisabeth Boselli (France) with Mistral aircraft; Mont de Marsan-Oran-Mont de Marsan course, Feb. 21, 1955.

Distance in a straight line without refueling: World "class" record, 2,331,220 km. (1,448,550 miles)—Miss Elisabeth Boselli (France) with Mistral aircraft; from Creil to Agadir, March 1, 1955.

Speed for 1,000 km. (621.369 miles) in a closed circuit without payload: World "class" record (559.643 mph.)—Capt. A. Hans M. Neij (Sweden) with SAAB S.29 monoplane; Nyköping-Natra-Nyköping course, March 23, 1955.

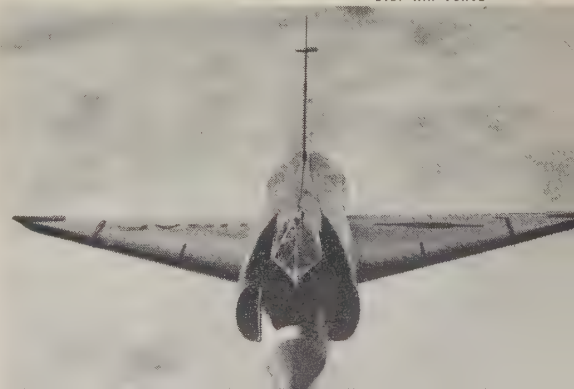
LIGHT AIRPLANES, LESS THAN 500 KILOGRAMS

(1,102.3 POUNDS)

Speed for 100 km. (62.137 miles) over a closed circuit: World "class" record (171.097 mph.)—Iginio Guagnellini (Italy) with Ambrosini G.F.4 "Rondone" airplane; Sesona (Vergiate)—Cameri-Seveso-S. Pietro course, Nov. 20, 1954.

Air Force's Convair F-102A, showing "pinch-waisted" design which increases the speed of supersonic aircraft.

U.S. AIR FORCE



Speed for 500 km. (310.685 miles) over a closed circuit: World "class" record (168,642 mph.)—Iginio Guagnellini (same as above).

Speed for 1,000 km. (621.369 miles) over a closed circuit: World "class" record (149,451 mph.)—Nello Valzania (Italy) with Ambrosini G.F.4 "Rondone" airplane; Sesona (Vergiate)—Cameri-Seveso-S. Pietro course, Dec. 19, 1954.

LIGHT AIRPLANES, 500 TO 1,000 KILOGRAMS (1,102.3 TO 2,204.6 POUNDS)

Distance in a closed circuit, without refueling: World "class" record (1,936.189 miles)—Frantisek Novak (Czechoslovakia) with Sokol OK-DHH aircraft; Brno-Hutsopece Letonice-Brno course, June 23, 1955.

ROTORPLANES

Altitude without payload: World "class" record (26,931 feet)—Jean Boulet (France) with SE "Alouette" helicopter; Buc Airport, June 6, 1955. **U.S. record** (24,521 feet)—W/O Billy I. Webster, USA with Sikorsky XII-39 helicopter; Bridgeport, Conn., Oct. 17, 1954.

LIGHT ROTORPLANES, BETWEEN 500 AND 1,000 KILOGRAMS (1,102.3 TO 2,204.6 POUNDS)

Altitude without payload: World "class" record (26,931 feet)—Jean Boulet (France) with SE "Alouette" helicopter; Buc Airport, June 6, 1955.

GLIDERS, SINGLE PLACE

Distance to a predetermined point with return to point of departure: World "class" and U.S. record (810.697 miles)—Lyle A. Maxey (United States) with Kerns sailplane; from Adelanto, Calif., to Independence, Calif., Sept. 4, 1955.

Speed for 200 km. over a triangular course: World "class" record (41,821 mph.)—Edward Makula (Poland) with "Jakolska" Sp-1522 sailplane; Lisie Katy-Przepalkowo-Zblewo-Lisie Katy course, Aug. 16, 1955.

Speed for 300 km. over a triangular course: World "class" record (24,673 mph.)—Gabriel Megerit (France) with Air-102 sailplane; St. Auban-Die-Mont Genevre-St. Auban course, Aug. 17, 1955.

GLIDERS, MULTIPLE PLACE

Speed for 200 km. over a triangular course: World "class" record (41,040 mph.)—Henry Zydorczak, pilot (Poland) with Bocian SP-1564 sailplane; Lisie Katy-Przepalkowo-Zblewo-Lisie Katy course, Aug. 14, 1955.

Speed for 300 km. over a triangular course: World "class" record (31,271 mph.)—Henryk Zydorczak, pilot (Poland) with Bocian SP-1564 sailplane; Lisie Katy-Przepalkowo-Zblewo-Lisie Katy course, Aug. 16, 1955.

FEMININE RECORDS

Gliders, single place—Altitude gained: World "class" and U.S. record (27,994.4 feet)—Miss Betsy Woodward (United States) with a Pratt-Read sailplane; Bishop, Calif., April 14, 1955. **Altitude above sea level:** World "class" and U.S. record (39,994 feet)—Miss Betsy Woodward (same as above). **Distance to a predetermined point with return to point of departure:** World "class" record (203,934 miles)—Maksymiliana Czielowna (Poland) with "Jaskolka" sailplane; from Mirosławice (Wroław) to Kobylnica (Poznań) and return, June 18, 1955.

Gliders, multiple—Distance to a predetermined destination: World "class" record (235,942 miles)—Miss Francine Abadie and Miss Jacqueline Trubert (France) with Castel 25 biplace sailplane; from La Ferte-Alais to Cognac, April 16, 1955. **Speed for 200 km. (at least) over a triangular course:** World "class" record (31,280)—Maksymiliana Czielowna, pilot, and Helena Niezabytowska (Poland) with Bocian SP-1551 sailplane; Lisie Katy-Przepalkowo-Zblewo-Lisie Katy course, Aug. 16, 1955.

LESLIE E. NEVILLE,

Former Director, Armed Forces Technical Information Agency.

AFGHANISTAN. This constitutional monarchy of Asia (area, 250,000 square miles), located northwest of West Pakistan, east of Iran, and south of the USSR, has a population (1954 est.) of 12,250,000, more than half being Pakhtuns or Pashtuns (Sunnite Moslems, following the Hanafite rites). Others are Tajiks (Sunnite), Hazaras (Shi'ite), Turkomans, and Uzbeks. Kabul (est. pop., 300,000) is the capital; other cities include Kandahar (est. 60,000), Herat (80,000-90,000), and Mazar-i-Sharif (est. 50,000).

Government.—King Muhammad Zahir Shah (b. 1914; succeeded 1933) governs with the aid of a prime minister and a cabinet. Gen. Muhammad Da'ud Khan has been prime minister and minister of interior since September 20, 1953. The constitution has a religious

basis, and Islam is the official religion. The legislature comprises a 45-member nominated Senate (Majlis-e-A'yan) and a 171-member elected National Assembly (Majlis-e-Shura). Annual revenue approximates 250 million afghanis (17.01 afghanis equal U.S.\$1.).

Education and Welfare.—Primary education throughout the country, and secondary instruction in all provincial capitals are free, with compulsory education through age 13, but a high percentage of the population is illiterate. In 1950 there were 325 primary schools with an enrollment of 78,581, and 654 secondary schools with an enrollment of 19,701. There are teacher-training and technical schools at Kabul and the provincial capitals. Kabul University, founded in 1932, has faculties of arts, medicine, science, politics, theology, and law. English, French, and German are taught in secondary schools and colleges; Pushtu, or Pashto, is taught in Persian-speaking districts. Through a \$210,000 grant made by the United States government, Teachers College, Columbia University, is assisting the Ministry of Education and the teachers training college at Kabul in the development of educational institutions; and through a similar grant the University of Wyoming has undertaken to develop training programs in Afghanistan in agriculture, engineering, education, etc. A medical-aid program to lower infant mortality and train child-health personnel is conducted by the U.N. Children's Fund (UNICEF). In 1954, a 4-year malarial control program was completed, aiding over 900,000 people and making possible the expansion of cultivation. Afghan women appear heavily veiled and take no part in public affairs.

Helmand River Valley Project.—Less than one fourth of the land has been under cultivation because of mountains and the scarcity of water. In 1946 an extensive irrigation program was begun on the Helmand and Arghandab rivers. In 1954 a loan of \$18.5 million was negotiated with the Export-Import Bank of Washington for the construction of more lateral canals, drainage projects, and hydroelectric power installations to implement two dams recently completed by an American firm. Only a small part of these funds had been used by the end of 1955. More than one sixth of the population will benefit from this long-range program.

Production and Trade.—Formerly, the skins of stillborn lambs of the karakul sheep (Persian lamb) were the most important export. With changes in American tastes and styles, however, American imports of lamb skins in 1955 had fallen to less than half of what they were in 1950. On the other hand, dam construction and United Nations technical assistance have greatly increased cotton production. Cotton and wool exports are now three times as great as those of lamb skins. Wheat, barley, and other grains, and indigenous plants of industrial and medicinal value are grown. Mineral production includes coal, copper, lead, iron, and oil. Prewar ties with Germany are being re-established. An Afghan-European Cultural Exchange has been set up in Munich, and a German medium-term credit arrangement, along with German purchases of cotton and wool, has made possible the construction of a cotton textile mill by German engineers.

Monopolies for transportation, generation of electricity, and manufacture of carpets, cotton textiles, and sugar have been granted to a number of Afghan trading companies; the government has a monopoly on the importation of motor vehicles, tobacco and cigarettes, gasoline, and sugar. The Afghan National Bank finances the procurement of foreign equipment and machinery for industrial development. Of all Afghanistan's exports, 80% go through Pakistan. Fruits (\$20 million in 1954) are exported to Pakistan, and karakul skins (\$10.5 million in 1954), wool, and nuts to the United States. Principal imports from the United States are cotton textiles, machinery, and sugar.

Transportation and Communications.—There are no railways in Afghanistan, although lines in the

USSR and Pakistan extend close to its border. Automobiles, trucks, camels, horses, and airplanes provide the transportation. In 1954 an American firm completed a road from Kandahar to Chaman in Pakistan. Internal air services are provided by the government-subsidized Afghanistan Air Lines. Kabul has air connections with Teheran and New Delhi.

Principal Events, 1955.—The prolonged dispute with Pakistan over the border provinces comprising Pashtunistan continued into 1955. On March 26, the Pakistani government declared its intention to incorporate the disputed area into the Province of West Pakistan. The Afghan government, which has demanded that the 7 million tribesmen of Pashtunistan be allowed to hold a plebiscite to determine whether they wish to become an independent state or to remain part of Pakistan, protested against the proposal on March 29. On the following day some 15,000 Afghans mobbed the Pakistani embassy in Kabul, tore down its flag, and invaded and destroyed the quarters of the Pakistani ambassador. Mediation conducted by Musaid ibn al-Rahman of Saudi Arabia during May and June was reported to have brought an agreement, but no details were announced.

On July 14, 1955, Afghanistan became the 57th member of the International Monetary Fund and the International Bank for Reconstruction and Development. The quota set for Afghanistan in the fund was \$10 million, and its subscription to the bank was 100 shares valued at \$10 million. During the year a new commercial code of law, modeled after the Turkish and Swiss, was enacted to replace the old religious (shariat) and customary law.

Following their state visit to India and Burma, Soviet Premier Bulganin and Communist Party Secretary Khrushchev went to Afghanistan on December 15 for a 5-day visit.

SYDNEY N. FISHER,

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AFRICA. The second largest of the continents. Estimated area, 11,703,000 square miles; pop. (est. 1954), 214 million. Africa consists mainly of possessions and territories of France, Great Britain, Belgium, Portugal, and Spain. Independent African nations are Ethiopia, Egypt, the Union of South Africa, Liberia, and Libya. The former condominium of the Anglo-Egyptian Sudan declared itself an independent republic on Jan. 1, 1956. Somaliland, a United Nations trust territory administered by Italy, is scheduled to obtain independence in 1960. Other trust territories are British Cameroons, French Cameroons, British Togoland, French Togoland, Tanganyika (British administered), and Ruanda-Urundi (Belgian administered). Tangier, part of the sultanate of Morocco, is under an international administration. Certain French, Portuguese, and Spanish territories are administered as provinces or departments of the mother country. The former mandated territory of South West Africa is governed virtually as a fifth province of the Union of South Africa, although its legal status is not settled. (See also articles on African countries.)

AFRICAN-ASIAN CONFERENCE. See **ASIAN-AFRICAN CONFERENCE.**

AGRICULTURAL RESEARCH SERVICE. This agency conducts all of the U.S. Department of Agriculture's production and utilization research (except forestry research) and crops and livestock regula-

tory programs. Some of the more recent developments of interest are summarized below.

Crops Research.—Growth-regulating chemicals, which in lethal dosages clear lands of weeds and unwanted brush, continue to show amazing diversity in constructive use on crop plants. Low-dosage application of 2,4,5-T produced lima bean plants $2\frac{1}{2}$ times the size of unsprayed ones and increased yields of fresh beans 200 to 300 pounds per acre. Sprays of this chemical increase size, advance maturity, and prevent fruit drop of apricots.

A chemical spray caused foul-smelling fruit of the highly prized ornamental ginkgo tree to fall off. A new sprout inhibitor has proved highly effective for stored Irish potato tubers, but will not be released for commercial use until proved safe for consumers.

Antibiotics, already widely useful in combating animal diseases, hold promise of controlling not only many bacterial but also some fungus diseases of plants. They have proved effective experimentally, in varying degrees, against such bacterial diseases as leaf spot of sesame, angular leaf spot of cucumber, bacterial spot of pepper, wetwood of trees, and rot of the giant cactus. They are also effective against certain fungus diseases, such as bean rust and downy mildew of lima bean.

A recent discovery that fungi (which contain no chlorophyll) respond to light, may mean that they can serve even better than green plants as tools for studying plant reactions to light.

As a result of chemical and clinical examinations of many plant collections, andromedotoxin, a substance extracted from *Rhododendron maximum*, is now being tested clinically on humans. From the seeds of a tropical tree in Puerto Rico was found a new source for the drug Bufotenine, a valuable narcotic for heart and mental conditions.

New Crop Varieties.—Improved crop varieties recently developed include a long-grain rice variety; oat varieties resistant to all known races of oat stem rust; a superior winter barley; a superior dryland stripper cotton; a blight-resistant cotton; a hybrid disease-resistant spinach; a hardy, resistant orchard grass; two nonshattering sesame varieties; an early-maturing, shatter-resistant castorbean; an early, resistant onion; a superior Zoysia hybrid lawn grass; a disease-resistant sugar beet; a wildfire resistant burley tobacco; and a high-yielding early soybean.

Grain sorghums have been developed that are shorter-stalked, straighter-necked, faster-maturing, and more disease-resistant. Hybrid grain sorghum seed will be available to growers for the first time in the spring of 1956, with potential yields of 20 to 40% over currently used varieties. Sorghum and Johnsongrass are being crossed to develop a new perennial forage crop for the South.

Entomological Developments.—Screwworms were eradicated from the Caribbean island of Curacao by an entirely new method of biological control—release of male flies, made sterile by radioactive rays, to mate with wild female flies. (See also **ZOOLOGY.**)

Three diseases of harmful insects look especially promising as control agents: a virus disease of armyworms, a bacterial disease of pink bollworm, and a fungus disease of several pests.

Free-choice phenothiazine, properly employed, may present an entirely new approach to cattle-grub control, and may also be the most powerful weapon available for combatting losses

from parasitism in cattle. Water-soluble insecticides offer real hope for control of mosquitoes that breed in irrigation water.

Beneficial insects are increasingly utilized. Honeybees, long proved valuable as pollinators of alfalfa and other crops, recently proved equally good pollinators of carrot seed and cotton. Their use may make commercial production of hybrid cotton practical.

A mite so small it cannot be seen without a microscope has been identified as the carrier of peach mosaic, destructive virus disease of stone fruits.

Crops Regulatory Programs. Plant Pest Control.—A federal quarantine against the European chafer, a serious agricultural pest first recognized in the United States in 1940, went into effect in September to guard against spread from infested areas of Connecticut, New York, and West Virginia.

The soybean cyst nematode, previously unknown in the United States, was found in North Carolina. It causes the soybean condition known as "yellow dwarf."

Spread of insects into new areas caused concern during the year. Surveys revealed the yellow clover aphid in previously uninfested areas of the West, a few citrus blackflies in Texas, the gypsy moth southwest of the 80-year-old New England infestation, and the Mexican fruit fly in Lower California.

A cooperative federal-state program to control the burrowing nematode that causes spreading decline of citrus got under way in Florida. The malady was first noted in Florida in the late 1920's, but not until 1953 was the nematode proved responsible for the condition.

In large-scale control operations against older pests, more than 1½ million acres of Western range land in 11 states were insecticide-sprayed for grasshopper control; almost 100,000 acres in 6 states were treated for Mormon cricket control; and more than a million New England acres were sprayed, using aircraft to control the gypsy moth.

Plant Quarantines.—Enforcement of both foreign and domestic plant quarantines continued to protect the United States against entry and distribution of foreign plant pests. Some 18,500 destructive plant pests—11,500 insects and 7,000 plant diseases—from throughout the world were intercepted during the fiscal year 1955 in agricultural products in cargo, stores, baggage, mail, or as stowaways aboard vessels, planes, railway cars, and vehicles.

More than 48,000 vessels and nearly 90,000 planes from overseas were inspected at United States ports; over a third carried prohibited or restricted plant materials. During inspection of over 15,240,000 vehicles, 2,265 Pullmans and coaches, and 85,800 freight cars arriving from Mexico, in excess of 4,000,000 pieces of baggage were examined. Out of more than 3¼ million foreign mail packages inspected at various ports of entry, some 1,550 contained prohibited plant material and were refused entry.

Plant quarantine inspection of bulbs continued in Holland, Belgium, and France during the 1954-55 shipping season. These included inspections in Holland of 416 million bulbs; in Belgium, of 12,465,000 bulbs; and in France of 2,062,000 bulbs. Performance of this work in Europe again resulted in gardeners' and bulb growers' getting cleaner, healthier bulbs, at less inspection cost to the government.

Farm and Land Management Research. Agricultural Engineering.—More efficient mechanical

means of producing and processing crops are constantly being developed, adapted, or improved. Recent developments include an improved, inexpensive hose pump for metering liquid fertilizer; a new mechanical silage feeder that reduces hand labor and cuts time spent in feeding animals by two thirds; two devices for tipping beehives that considerably reduce hand labor required for handling hives; a new method of mechanical harvesting and curing of Virginia-type peanuts that saves labor and materials; fertilizer-placement machines; a mechanical tung nut harvester; a sugar beet thinner using counter-rotating heads; and equipment for cutting leaves of and transplanting sansevieria, a long-fiber crop.

Mechanization continues to improve cotton-production efficiency. A cotton ginning research laboratory has been established at Clemson, S.C., to seek solutions of Southeastern ginning problems. An opener and fluffer developed a few years ago is already handling 25% of the domestic cotton processed. A test machine recently developed, a combined opener and cleaner, would replace 4 or 5 machines now needed. A new cotton-planting attachment for use with lister planters in the Southwest could ultimately save \$6-10 million annually in cost of replantings. Handling operations for ginning extra-long-staple cotton have been improved. Pink bollworms remaining in wastes from cotton ginning and oil mill operations are killed by inexpensive equipment developed to impede the insect's spread and permit use of gin wastes on land to control erosion and build soil.

Soil and Water Conservation.—A new, rapid, easily applied method determines in advance the probable degree of wind erosion of any soil during the next windy season. This will permit better selection of practices for emergency control programs and—more important—should help point out required cropping and tillage practices.

Charts and formulas have been developed for use of designers of spillways to assure satisfactory performance of these key structures for channel stabilization in soil conservation.

Using radioactive phosphorus as a research tool, soil scientists have learned to measure available phosphate in any soil so accurately that it can be expressed in terms of pounds of superphosphate equivalent per acre. By using a radioactive isotope of sulfur as a tracer, they have found that cotton plants absorb part of their sulfur requirements from the air as sulfur dioxide.

Financial Condition of Farmers.—Total value of farm assets—farms, livestock, machinery, crop inventories, household goods, bank deposits, and other financial assets owned by farmers and other farm-property owners—was about \$163 billion at the beginning of 1955, 1% above a year earlier but about 4% below 1952's peak. Total farm debts rose nearly a billion dollars in 1954, from \$17.1 billion to \$18.0 billion. Total farm-mortgage debt increased in 1954 for the ninth consecutive year, and at the start of 1955 totaled \$8.2 billion, 72% above the postwar low in 1946. It continued to rise in 1955. Farm real estate values rose slightly during the year ended in March 1955; farm sales volume was 5% above the previous year's volume. Taxes on farm real estate increased in 1954 for the 12th consecutive year, pushing the average tax per acre to an all-time high. Farm personal property taxes for 1954 declined about 3%, mainly in livestock assessments. Farm fire losses continued to mount, totaling \$157 million in 1954.

Livestock Research.—Preliminary results of stilbesterol-feeding experiments refuted widespread reports that using the hormone-like chemical as a growth stimulant for feed-lot animals resulted in poor-quality carcasses. They showed instead that stilbesterol can increase rate of gain without adverse effect on meat quality.

A research-developed mammary-gland scoring system enabling dairymen to rate the milk-production potential of 4- and 5-month-old calves, now under test in 15 states, may soon make it possible to choose potentially high-producing replacement cows from young calves.

Fatty acids usually produced in the rumina of cattle and sheep by other bacteria and used by important fiber-digesting bacteria have recently been identified as essential for the latter's growth. It may be possible to add such factors to ruminant rations to increase digestion and thus speed up growth.

Noteworthy gains on the livestock disease front will permit advances in research on the virus of foot-and-mouth disease, make for more positive early diagnosis and improved control of vesicular stomatitis, and will make possible, for the first time, an extensive United States survey of anaplasmosis. Ways have been found to differentiate vibrios—a genus of bacteria—that cause vibriosis in cows from those that do not, and to cut the number of brucellosis-vaccinated animals classified as suspect and increase numbers classified as negative.

Recent swine disease research has made practical the diagnosis of atrophic rhinitis and the prevention of "yellow fat" disease, and aids in checking the spread of vesicular exanthema.

With a vast saving in time and work, scientists may be able to immunize at one time large numbers of chickens or small fur-bearing animals by spraying live virus vaccine into an enclosed area. They have recently discovered that resistance to the cancerous poultry disease, visceral lymphomatosis, may be passed to chicks through eggs from vaccinated hens inoculated with massive doses.

Livestock Regulatory Programs.—All horses, ruminants, swine, and poultry offered for importation into the United States were carefully inspected at coastal, air, and border ports of entry. Certain animals and poultry are quarantined upon arrival, to prevent bringing diseases of foreign origin into the United States. Eight times during the year, Newcastle disease was detected in quarantined poultry. Strains isolated proved to be highly lethal.

Mexico was declared free of foot-and-mouth disease on Dec. 31, 1954, and the border was reopened on Jan. 1, 1955, resulting in an influx in the importation of cattle from Mexico.

Particular attention was given to preventing the landing of fresh, chilled, or frozen meats, or garbage derived therefrom, from air and ocean transports provisioned in countries where foot-and-mouth disease or rinderpest exists.

Unsterilized hay and straw used as packing materials from such countries was destroyed. During the year ended June 30, 1955, 28,542 first-port-of-call coastal vessels and 52,386 airplanes arrived in the United States in foreign commerce.

Cooperative research and regulatory action is being taken against several apparently new diseases of cattle recently reported from scattered locations throughout the United States in various forms under such names as viral diarrhea, mucosal disease, and rhinotracheitis.



WIDE WORLD

U.S. Secretary of Agriculture Benson tours Colorado's drought area in April 1955.

Home Economics Research.—Three branches of the Agricultural Research Service, dealing with research on human nutrition, clothing and housing, and household economics, were established during the year to replace the two former human nutrition and home economics research branches.

A reference diet for human nutrition studies has been developed as a research tool for determining individual needs for practically any important nutrient except amino acids and for measuring their use by the body.

New food composition tables were issued, in which calories for hundreds of individual foods have been calculated from specific factors—replacing general factors developed some 50 years ago. They are especially useful in calculating calories for individual foods, special diets, and international food supplies.

Studies of school children's diets showed that boys' intake of food energy and key nutrients at successive years increased fairly consistently, except in the case of calcium. Girls increased their intake irregularly, and beyond the age of 12 their consumption leveled off or declined, falling below desirable allowances in most nutrients. Children tested tended to eat small breakfasts and large snacks, getting 13 to 17%—or even more, among the older children—of their calories from food between meals.

Utilization Research.—Transforming perishable foods into more storable form continued to help adjust marketing to demand. Newly developed were a lemonade powder rich in natural flavor, and tasty new French-fried vegetable snacks—chips from sliced carrots, beets, and parsnips, and "nuggets" from whole peas and lima beans.

Dehydrofreezing, a combination food-processing technique now coming into commercial use, may soon help to place on the market apples, apricots, green peas, and pimientos that combine space and weight economies of dehydration with convenience and freshness-retention of freezing.

A new direct-consumption sugar suitable for candymaking without refining has been produced at low cost from sugarcane.

Two complex chemicals, discovered in the tubers of a rare Mexican yam, show promise as superior raw materials for synthesis of the drug cortisone.

E. G. MOORE,
Director, Information Division.

AGRICULTURE. United States agriculture in 1955 produced a new all-time record output of food and fiber. As the year neared its end, total farm output was estimated to be about 4% above 1954, about 12% more than the 1947-49 aver-

age, and almost 50% above the 1935-39 average output. Crop production was equal to the 1948 record and about 6% more than the 1947-49 average, while livestock production set a new record. Crop yields per acre were the largest in United States history, exceeding the 1948 peak by about 9%.

Farm prices reached their all-time peak in February 1951, after rising sharply during the latter half of 1950. Following the February peak, a declining trend set in and continued through 1952-55. In November 1955, prices received by farmers averaged 7% lower than in the same month of 1954, and some 28% below the February 1951 level. Farm production costs, on the other hand, reached an all-time high in 1952 and had declined but little through 1955.

Food consumption per person in the United States during 1955 was estimated to be 13% above the 1935-39 average, and about 1% larger than in 1954. In 1956 food supplies per person are expected to continue at about the same level. No great change in general farm prices or retail food prices was expected in 1956.

U.S. Farm Production.—Despite the third successive year of damaging drought in important areas of the nation, record yields elsewhere raised crop production 6% above the 1947-49 average. Record production of soybeans, hay, and oats contributed to the high crop output, as did above-average crops of sorghum grain, barley, corn, rye, flaxseed, cotton, dry beans, tobacco, sugarcane, sugar beets, cherries, grapes, apricots, and cranberries. Output of wheat, peaches, pears, apples, peanuts, potatoes, sweet potatoes, dry peas, pecans, and hops was relatively small.

Acreage.—Wheat and cotton acreages were curtailed sharply by the production control programs in effect during 1955; however, larger acreages of some crops tended to balance out these declines. Major crops were grown on about 353 million acres, about 5 million fewer than in 1954.

Food and Feed Grains.—Production of the 8 food and feed grains in 1955 was far above average. The large output and extremely large carry-overs resulted in the largest supplies of grains for the 1955-56 marketing year ever accumulated in United States history.

Total wheat production in 1955 was estimated at 916 million bushels, compared with 970 million in 1954 and an average of 1,154 million bushels in 1944-53. Wheat supplies for the marketing year were estimated at a record high 1,940 million bushels. This included the 1955 crop, expected imports of 4 million bushels of feeding-quality wheat, and carry-over stocks of 1,020 million bushels. Domestic requirements of wheat in 1955-56 may total around 625 million bushels, and exports may run about as high as in 1954-55—274 million bushels. This would result in a carry-over on July 1, 1956 of some 1,041 million bushels.

Because of record heavy supplies of wheat, acreage allotments and marketing quotas on 1956 wheat were proclaimed by Secretary of Agriculture Ezra Taft Benson during the summer of 1955 and submitted to a vote by the nation's wheat producers. In a national referendum (July 1955), 78% of the producers voting cast affirmative ballots. A two-thirds approval is required.

The wheat acreage allotment for 1956 is 55 million acres, the same as in 1955. With average yields, this could produce a crop of 860 million bushels, which might result in some reduction in carry-over in July 1957. It should be noted,

however, that harvested acres in 1955, totaling only 47 million, brought a crop of 916 million bushels. This illustrates the difficulty of bringing production and consumption into line through acreage and marketing restrictions alone.

The 1956 wheat crop will be price-supported at not less than \$1.81 per bushel, which is 76% of the parity price at the beginning of the marketing year. This compares with \$2.06 (82.5%) on 1955 wheat.

Corn production for 1955 was estimated in November at 3,183 million bushels, 7% more than the 2,965 million of 1954, and 3% above the 1944-53 average of 3,080 million bushels. Drought in the western part of the corn belt reduced yields, but there were bumper crops in the northern and eastern parts of the belt. The support level for 1955 corn was at 87% of parity, or \$1.57. Corn supply for 1955-56 was estimated at about 4,200 million bushels. This was 9% larger than the 1949-53 average, and a new record. (See also GRAINS.)

Cotton.—A cotton crop of 14.8 million bales was forecast on the basis of November 1 information. This was 8% more than the 1954 crop of 13.7 million bales and about 15% above the 1944-53 average of just under 13 million bales. Cotton supplies for the marketing year ending July 31, 1956, were estimated at more than 25 million bales. Requirements for the year may be about 12 million bales. Because of these extremely large supplies, acreage allotments and marketing quotas of 10 million bales were proclaimed for 1956 cotton.

Other crops.—The biggest soybean crop on record—372 million bushels—29% more than the previous record of 1954 and 56% above the 1935-39 average, was a striking feature in the 1955 agricultural picture.

The rice crop of 52.4 million 100-pound bags was 11% below the 1954 record, but one third above average.

Production of sorghum grains, totaling 227 million bushels, was 11% more than in 1954 and two thirds larger than the 1944-53 average.

Output of commercial fresh vegetables was somewhat below 1954, and prices were better. Output of all vegetables was estimated to be about 3% below a year earlier.

Production of deciduous fruits was slightly less than in 1954, but a little above average.

Tobacco production was estimated at 2,278 million pounds, compared with 2,236 million pounds in 1954, and was 9% above average.

Potato production—384 million bushels—was 8% above 1954 but 4% below average.

Late summer storms and fall hurricanes and floods did considerable damage to tobacco fields and caused losses to fruit producers in the Eastern states. (See also FRUITS; TOBACCO; VEGETABLES.)

Livestock.—Production of livestock and livestock products reached a new high in 1955. Aggregate production of beef, veal, lamb, mutton, and pork was estimated at 26.7 billion pounds. This was 5% larger than the 1954 total, and a new record. (See also MEAT INDUSTRY.)

From 1945 through 1948, cattle numbers declined. From 1949 through 1954, a rising trend was in effect, and cattle numbers increased by about 19 million to a total of 95.4 million head at the beginning of 1955. There was very little change in numbers during 1955.

Hog production in 1955 was estimated at 101 million head, about 9% more than in 1954.

The 1955 lamb crop, about 20 million head,

was slightly below 1954. From a peak of 56 million head in 1942, sheep and lamb numbers dropped sharply to 29.8 million at the beginning of 1950. There was some recovery in 1950 and 1951 and relative stability in 1952, followed by another decline. Sheep and lamb numbers at the beginning of 1955 were thought to be about 30.9 million head.

The poultry industry continued to set new records in 1955. Broiler production increased for the eighth consecutive year of record output. About 60% of all chicken meat consumed in 1955 was from broilers. Egg production was about 2% above the previous high of 1954 for the seventh successive year of increase.

Milk production for 1955 was estimated at a record-breaking 124.5 billion pounds, as against the previous high of 123.5 billion a year earlier. Milk production per cow continued to rise, and averaged more than 5,600 pounds for the year. (See also DAIRY PRODUCTS.)

Agricultural Income and Prices.—Farm net income fell sharply again in 1955. Gross income, comprising cash receipts plus the value of home-consumed farm products, rental value of farm dwellings, and government payments, totaled \$32.9 billion, compared with \$34 billion the year before. Farm production expenses amounted to \$22.3 billion, slightly above the \$22.2 billion in 1954.

Total net income derived by farm operators from farming was about \$11 billion in 1955, more than \$1 billion less than in 1954, and \$6.7 billion less than the peak income of \$17.7 billion (revised figure) reached in 1947. In terms of buying power, farm operators' net income was lower in 1955 than in any year since 1940.

Farm prices reached an all-time high in February 1951, after which they went into a prolonged decline which was still in progress during 1955. The index of prices received by farmers on Nov. 15, 1955, stood at 225% of the 1910-14 average. This contrasted with 242% for the corresponding date a year earlier, and the high of 313% in February 1951. Prices paid by farmers on Nov. 15, 1955, were 259% of the 1910-14 average, compared with 262 in November 1954.

In terms of the parity ratio (parity being the price at which farm products would have the same buying power as they had in 1910-14) farm prices in November 1955 were down to 81%, compared with 87% a year earlier, and the record high of 123% in October 1946.

Consumption of Food.—Domestic food utilization in 1955 was about 48% larger than in the prewar period, 1935-39. Civilian consumption of food per capita in 1955 was 1% larger than in 1954, and about 13% higher than in 1935-39. The people of the United States consumed per person record amounts of eggs, broilers, and beef, and slightly more butter, milk, and ice cream than in 1954. Pork consumption per capita was about 66 pounds, compared with 60 pounds in 1954. This, however, was well below the 72 pounds of 1952.

Civilian consumption of beef, at 81 pounds per person, set a new record for the third consecutive year. Per capita consumption was 79 pounds in 1954 and 77 pounds in 1953. Per capita consumption of all "red meats" was about 161 pounds, the second highest rate on record, exceeded only by the 163 pounds consumed in 1908.

Due to the heavy production of 1955, the large numbers of cattle and pigs on farms, and big feed supplies, prospects for 1956 indicated



SOVFOTO

Member of American agriculture delegation, touring USSR in July 1955, accepts gift from collective farmer.

continued large consumption of meat, dairy products, fats, and other foods.

Farmers' Share of the Food Dollar.—Farmers received about 42 cents out of each dollar spent for food in the family "market basket" during 1955. This contrasts with about 44 cents in 1954, 45 cents in 1953, 47 cents in 1952, and 53 cents in 1946.

Agricultural Assets.—The physical assets of United States agriculture increased 2% in dollar value in the year ended Jan. 1, 1955. Total assets were valued at \$163 billion, compared with \$159.8 billion a year earlier, and \$165.4 billion on Jan. 1, 1953. Proprietors' equities were \$145 billion, an increase of \$2.3 billion for the year. Debts owed by farmers rose from \$17.1 billion on Jan. 1, 1954, to \$18 billion on Jan. 1, 1955. During 1955, total farm debt probably increased considerably.

Land Values.—The steep rise in farm real estate values, stemming from the outbreak of fighting in Korea in mid-1950, reached a peak in 1952 and then began a decline which continued into 1954. In 1955 land values rose significantly. In November 1955 the average per acre value of farm land was 5% higher than in the fall of 1954, and equal to the November 1952 peak.

Agricultural Exports.—United States agricultural exports, at a postwar low in 1952-53, rose

Soviet agriculture delegate (with hat), on U.S. tour in August, examines Beltsville, Md., livestock.

WIDE WORLD



4% during 1953-54 and 7% more in 1954-55. The value of agricultural exports in 1954-55 was \$3,143 million, compared with \$2,900 million the preceding year and with the all-time record of \$4,100 million in 1951-52.

Factors contributing to the sharp decline in farm exports since 1951-52 included improved agricultural production outside the United States; reduced inventories in importing countries in response to the eased world supply situation; reduced U.S. foreign economic aid; a continued, though less stringent, dollar shortage abroad; and low world prices for several commodities, compared with United States prices. Much of the drop has been in exports to Europe, the biggest customer for United States agricultural exports.

The rise in shipments abroad during 1953-54 and 1954-55 was largely due to aggressive marketing and vast disposal operations by government. The Agricultural Trade Development and Assistance Act of 1954 provided for expanding world trade in farm products through exchange for foreign currencies, barter, donation, and other means. During the 12 months ended June 30, 1955, \$2.1 billion worth of surplus farm commodities were moved into consumption through domestic and export sales and other methods.

Price Support Operations.—Agricultural prices in 1955 averaged about 15% below parity, a drop of 4% from the 1954 parity ratio level. This declining price situation led to continued heavy price support activity. Support extended on 1954 crops (during the fiscal year 1955) totaled \$2,943 million. This was much less, however, than in the preceding year when \$4,306 million was extended on 1953 crops. Net losses on the price support program were the heaviest of record—\$799 million, compared with \$419 million in fiscal 1954 and \$61 million in fiscal 1953.

Agricultural Employment.—An estimated average of 7,993,000 persons (including farm operators, hired workers, and unpaid family labor) worked on United States farms in the January-August period of 1955, about 3% less than the 8,251,000 employed on farms for the corresponding period of 1954. An average of 11,500,000 persons were employed in agriculture in 1945-49. As in previous years, about three fourths of the persons working in agriculture were operators and unpaid members of farm families. Hourly wages for hired labor, exclusive of room and board, averaged 88 cents in July 1955, 1 cent more than in July 1954.

Other Highlights of 1955.—The Rural Electrification Administration (q.v.) celebrated the 20th anniversary of its existence during 1955. Less than 11% of all farms had power-line electric service in 1935. In 1955 about 93% of all farms had power-line electricity, more than half being served by REA lines. REA completed its sixth year of operation of its telephone lending program in October 1955. As of June 30, 1955, REA had allocated \$234 million in funds to extend and improve rural telephone service to an estimated 500,000 subscribers.

The Farmers Home Administration (q.v.) assisted farm families with \$293 million in credit services for improved farm management, soil and water conservation, and drought aid.

Legislative measures affecting agriculture in 1955 included increased appropriations for research and extension services. The borrowing authority of the Commodity Credit Corporation (the agency through which price support activities are carried out) was increased from \$10 billion to \$12 billion.

A rural development program was started by the Department of Agriculture to help farmers and rural dwellers in low-income areas acquire and take advantage of opportunities to improve their levels of living. The program was planned to get under way in 50 pilot counties. Congress failed, however, to provide the full funds requested, and the program was curtailed.

Under the Watershed Protection and Flood Prevention Act of 1954 and other legislation, significant progress was made in helping local groups in small watersheds plan small dams and other water-management facilities.

The national forests produced 6.38 billion board feet of timber, a record yield. The Forest Service suppressed nearly 10,000 fires. (See also **FORESTRY.**)

The program to wipe out brucellosis in cattle was expanded, with 14 million cattle tested for this disease during the fiscal year 1955.

The Foreign Agricultural Service celebrated its silver anniversary during 1955.

The World Food Situation.—Production of nearly all major food products in 1955 was larger than a year earlier. Forecasts of the 1955 bread grain crops—wheat and rye—indicated a total harvest of about 265 million short tons, about the same as the previous record crop of 1953 and nearly 5% above that of 1954.

In Canada (q.v.), conditions for the wheat crop were much better than a year earlier, and production was about two thirds above 1954. Crop conditions were also more favorable for wheat in the eastern European countries as a whole, and in the Soviet Union. In these areas crops were substantially larger than in 1954, and the total output of wheat may have been the largest for any postwar year. Throughout the rest of Europe the wheat crop was about as large as in 1954, but the quality was much better. France again had substantial quantities for export, and Italy, with a crop considerably larger than in 1954, required less exports after the 1955 harvest. The main European countries reporting smaller wheat crops in 1955 were Portugal, Spain, the Scandinavian countries, the Netherlands, and the United Kingdom and Ireland. Asia's wheat crop was nearly as large as in 1954, and declines in Africa and South America were partly offset by an increase in Australia.

Conditions for the 1955 rice crop were more favorable than in 1954, though production in India was hampered by early season floods. Japan reported a record rice crop, and conditions in several other Southeast Asian countries indicated some increases over 1954. United States production was down, but output continued at high levels in Europe. The South American countries harvested a record crop of rice in early 1955, and another large acreage was indicated for 1956.

Supplies of feed grain were large, the combined world production of barley and oats being the largest in any postwar year. Early indications pointed to a world record corn crop, with most of the increase being in North America, eastern Europe, and the USSR.

World sugar production continued at a high level despite the attempt of some surplus producers to curtail production. The first estimates of sugar beet production, 85% of which is in Europe and the USSR, were for production about 4% above 1954, due largely to favorable crop conditions in the USSR and eastern European countries. Turkey, Iran, and Japan also harvested larger crops. (See also **SUGAR.**)

World production of edible fats and oils has

been gradually increasing, and continued to do so in 1955 because of larger soybean and peanut crops and increased lard production. World consumption and trade were at high levels, however, and stocks of edible oils were reduced to manageable proportions in nearly all areas. (See also **FATS AND OILS.**)

Meat production increased during 1955 and the high level of production is likely to be maintained in 1956. World pork output continued to increase in almost every pork-producing country. World cattle and sheep numbers were at record levels and were still increasing during 1955. Further moderate expansion in supplies of pork, beef, and mutton is indicated for 1956 on the basis of these large animal numbers.

Dry weather during the late summer months reduced the output of milk in some areas, and world production was slightly below that of 1954.

World trade in food products was at a high level in 1955 and is likely to continue high in 1956. While some important deficit areas, such as Japan and Yugoslavia, will need less food imports because of their large 1955 output, industrial activity is continuing at a high level throughout the world. Thus, there is a continued active demand for food products, particularly the non-staple products such as meat, dairy products, and fruits.

(For further references, see the Index entry, *Agriculture.*)

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AIR CONDITIONING AND REFRIGERATION. The value of shipments by United States manufacturers in 1954 is estimated at \$695 million, approximately 10% over 1953. Estimates of 1954 shipments, by major product groups, are as follows:

MANUFACTURERS' SHIPMENTS, 1954

Product group	Units	Value (\$'000)
Condensing units.....	545,200	\$ 61,525
Compressors, compressor units.....	2,150,000	106,802
Centrifugal refrigeration systems.....	530	19,471
Heat exchangers, all types.....		119,684
Room air conditioners (1½ hp. and less).....	1,215,200	229,569
"Residential" air conditioning products.....	56,400	40,053
Self-contained air conditioners (over 1½ hp.).....	78,500	84,360
Ice makers (unitary).....	23,100	12,127

(Estimates are by the author.)

Packaged air conditioning products constitute approximately one half of the industry's output, including room air conditioners which alone account for one third of the total. While there was a reduction in shipments of self-contained air conditioners (over 1½ hp.) during 1954, room air conditioner shipments increased. Unfavorable weather during 1954 reduced retail sales below expectations. Production control and other favorable factors corrected the situation in 1955, when the retail sales rate jumped to 1,300,000 units, as compared with 1,000,000 in 1954. According to the Air Conditioning and Refrigeration Institute, August 31 factory and distributor inventories were a "healthy" 206,700 units in 1955, as compared with 512,471 in 1954.

Comfort air conditioning (central station systems) in public buildings kept pace with construction in 1954 and 1955, and this strong trend continues without signs of contraction of demand. Of particular importance are new and

existing office buildings, banks, hotels, hospitals, department stores, and shopping centers.

Residential air conditioning is viewed as one of the most promising markets of the industry, and is being developed vigorously by manufacturers of heating and cooling equipment. The author estimates that 55,000 installations were made in 1954; installations in 1955 may have totaled between 90,000 and 95,000.

New markets are developing in the transportation field: air conditioning for passenger cars, buses, and subway trains, and mechanical refrigeration for freight cars, short-haul delivery trucks, and intercity trucks. Most significant in numbers are air-conditioned passenger cars; in 1954 approximately 75,000 automobile air conditioning units were sold, and 1955 sales were estimated to reach 200,000. As of Jan. 1, 1954, there were 377 mechanical refrigerator cars in service, and 282 on order; when present car-building programs are completed, however, there will be over 1,100 mechanical refrigerator cars in frozen food service. The present programs are primarily experimental.

In the area of product development, there is a trend toward air-cooled apparatus, and larger sizes in room air conditioners and self-contained air conditioners.

V. T. KARTORIE,
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AIR FORCE, U.S. The predominant role of air power in American military planning as a deterrent to aggression or in actual war, so clearly defined in 1954, was further emphasized by the appropriations for fiscal year 1956, passed by Congress on June 30, 1955. Of the total military appropriations of \$31,882,815,726, approximately 46% (\$14,739,763,170) was for the U.S. Air Force.

Research and Equipment.—The place of guided missiles in the USAF was likewise emphasized by several actions. A fourth squadron of Matadors (ground-to-air missiles) was activated; the Falcon, the air force's first air-to-air missile, was put into accelerated production; announcement was made of the Bomarc, the Navaho, and other missiles under development, and of the Atlas, an intercontinental ballistic missile (ICBM) to be launched by rocket motors. A new air force regulation of Aug. 15, 1955, stated air force intention to integrate guided missiles with manned aircraft in accordance with a program designed to achieve operational capabilities as soon as possible.

The first of the new heavy eight-jet B-52's were delivered in June 1955 to replace the propeller-driven B-36's, which are no longer in production. All medium bomber and reconnaissance units have now been converted to jet B-47's, production of which will end in 1956. All fighter aircraft in the air force are now jet-propelled, and the F-84 and the F-86 are gradually being replaced with newer types.

Intelligence concerning the numbers and types of new Russian jet aircraft caused the USAF to take certain immediate and specific steps to speed its weapons program. Production of the B-52 was accelerated by 35 per cent, and accelerated production of the fast F-101 Voodoo all-weather interceptor and the supersonic F-104 day fighter aircraft was also ordered. The scope and volume of basic scientific effort was increased through a new Office of Scientific Research. Acceleration of the weapons system development cycle was attempted by eliminating



UNITED PRESS

Former Secretary of the Air Force Talbott (resigned Aug. 1, 1955) examines drawing of new U.S. Air Force Academy.

preliminary design competitions before award of contracts. Conversion of domestic bases to handle the new aircraft has proceeded, as has construction of bases overseas, especially in Spain (q.v.). The USAF is developing an atomic-powered airplane which, with its greater range, should eventually free the air force from all dependence on overseas bases.

A radical aeronautical development of several years ago was revealed in September 1955 with the first announcement of the reasons for a new pinch-waisted design in military aircraft which has produced increases in supersonic speeds of up to 25 per cent. The indentation of the fuselage at the point where the wings are attached greatly reduces the "drag rise" that occurs as speed approaches and goes beyond the sound barrier. This enables the aircraft to attain greater speed without an increase in power. This new development has already been applied to the supersonic jet F-102-A, a delta-wing interceptor first flown in 1954.

Acceleration in the defense effort included progress on the distant early warning (DEW) line across the Canadian Arctic. The first of the "Texas towers," or radar stations on man-made islands on Atlantic shoals extending from northern New England to the Virginia capes, was also constructed.

Personnel.—Continuing the build-up to the programed goal of 137 wings by 1957, the USAF had by December 1955 reached a strength of 951,000 personnel (143,000 officers and 808,000 airmen) in 127 wings, with 24,000 combat aircraft. Air force civilian strength on this date was 406,000.

The air force continues to stress the Reserve and Air National Guard as essential components of the ready air force which would be required for immediate action in the event of an international emergency. To this end, the air force has revitalized the Reserves by encouraging or requesting the retirement or resignation of officers not actively participating in training. It has also pushed the activation of Reserve units and regular participation by the members thereof and the re-equipping of all reserve units with jet combat aircraft. By the end of October 1955, the U.S. Air Force Reserve (24 wings) had an assigned strength of 262,300 men, which shows an increase of about 2,700 men a month for the

past year and a half. The strength of Air Force Reserves on pay status showed more than a 100 per cent increase from 23,000 to 54,200. By the end of October the Air National Guard (27 wings) had reached 63,200, including 6,850 officers.

U.S. Air Force Academy.—On July 11, 1955, the U.S. Air Force Academy was dedicated at the temporary site at Lowry Air Force Base, Denver, Colo., and some 300 cadets were sworn in as the first class. Work at the permanent site of the academy, near Colorado Springs, Colo., scheduled for completion by 1958, was begun with an appropriation of \$27 million by Congress.

Flight Records.—A number of new records were established in 1955. In February, a B-47 set a new nonstop transcontinental speed record, in a 2,090-mile flight from Riverside, Calif., to Savannah, Ga., in 3 hours 19 minutes 35 seconds at an average speed of 622.88 miles per hour. A Republic F-84F made the longest nonstop flight by a jet fighter bomber without refueling—2,390 miles from California to Virginia in 3 hours 55 minutes at an average speed of 605 miles per hour. In March, the air force broke its year-old speed record for the Los Angeles-New York course (2,445 miles) when an F-84F made the nonstop flight in 3 hours 46 minutes 33 seconds at an average speed of 652.5 miles per hour, with two mid-air refuelings.

In May, four F-84 Thunderjets completed a routine nonstop flight of 2,840 miles from Tokyo, Japan, to Newcastle, Australia, in 12 hours 2 minutes, with mid-air refueling. Also in May, an Air National Guard pilot, Lieut. John M. Conroy, flying alone in an F-86 Sabrejet, made air force history on a coast-to-coast round trip. In little more than 11 hours, the pilot breakfasted in Los Angeles, lunched in New York, and returned to Los Angeles for dinner; the return trip was made in 5 hours 27 minutes 37 seconds, breaking the former east-to-west flight record by almost two hours. In-flight refueling was used.

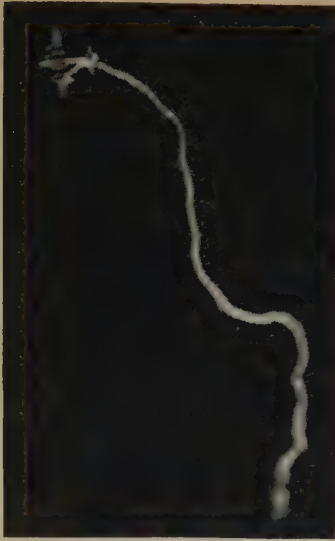
In August, ten F-84F jet Thunderstreaks set two new world's records, one for time, one for nonstop mass flight distance, by flying 5,118 miles from England to Texas in 10 hours 48 minutes, at an average of 480 miles per hour. In-flight refueling was again used. Also in August, an F-100C Super-Sabre set the world's first speed record for straightaway supersonic flight—just over 822 miles per hour, or 1.23 times the speed of sound.

History's biggest troop airlift—the "swapping" of more than 7,000 army paratroopers between the United States and Japan—took place between July 7 and July 17, 1955. The 18th Air Force performed "Operation Gyroscope" with giant C-124 Globemasters conveying the 508th Airborne Regimental Combat Team from Fort Campbell, Ky., to Ashiya Air Base, Japan, and returning the 187th Airborne Regimental Combat Team to Fort Bragg, N.C.

Administration.—The appointment of Donald A. Quarles (q.v.), for the past two years assistant secretary of defense in charge of research and development, to succeed Harold E. Talbott as secretary of the air force, was announced on Aug. 11, 1955; Mr. Quarles was sworn into office on August 15. In June 1955, Gen. Nathan F. Twining was reappointed for a second term as chief of staff, U.S. Air Force.

(See also AERONAUTICS and the Index entry, Air Force, U.S.)

AUBREY H. STARKE,
Office of the Secretary of the Air Force.



(LEFT AND CENTER) U.S. NAVY; (RIGHT) UNITED PRESS

U.S. Air Force's Falcon (shown at right), a guided aircraft rocket, which is fired automatically from electronically controlled interceptor plane, steers toward maneuvering bomber (left) and scores direct hit (center).

AIR RECORDS. See AERONAUTICS.

AIRCRAFT AND AIRLINES. See Index entry, *Aeronautics*.

ALABAMA. South Central state, United States; admitted to the Union, Dec. 14, 1819. The "Cotton State" ranks 28th in area and 19th in population (1955) among the 48 states.

Area and Population.—Area: 51,609 square miles (land, 51,078; inland water, 531), divided into 67 counties. Population: (1950) 3,061,743; (est., July 1, 1955) 3,006,000. Urban places with populations above 10,000 in 1950, unless otherwise indicated, are as follows:

Alexander City.....	12,473 ¹	Mobile.....	129,009
Anniston.....	31,066	Montgomery	
Auburn.....	12,939	(capital).....	106,525
Bessemer.....	28,445	Mountain Brook....	10,937 ¹
Birmingham.....	326,037	Opelika.....	12,295
Decatur.....	19,974	Phenix City.....	23,305
Dothan.....	21,584	Prichard.....	19,014
Fairfield.....	14,186 ²	Selma.....	22,840
Florence.....	27,465 ¹	Sheffield.....	13,324
Gadsden.....	55,725	Talladega.....	13,134
Homewood.....	12,866	Tuscaloosa.....	46,396
Huntsville.....	16,437		

¹ Special census, 1955; ² Special census, 1954.

Executive.—Chief state officers in 1955:

Governor: James E. Folsom (Democrat)

Lieutenant Governor: W. Guy Hardwick

Secretary of State: Mary Texas Hurt

Treasurer: John Brandon

Attorney General: John M. Patterson

Superintendent of Education: Austin R. Meadows

Constitution and Judiciary.—The present constitution was adopted in 1901. The Supreme Court comprises seven justices; chief justice in 1955 was J. Ed Livingston.

Legislature.—The legislature (Senate, 35 members; House of Representatives, 106) convenes in regular session in odd-numbered years on the first Tuesday in May.

In a special session held during April, a \$50 million program of rural road construction, to be supervised by a new highway authority, was adopted. Bonds for the project were to be financed from a one-cent increase in gasoline and diesel fuel taxes. Other legislation increased the franchise tax on out-of-state corporations doing business in Alabama from \$2 to \$2.50 on each \$1,000 of assets invested in the state; increased taxes on insurance company premiums; and approved additional taxes on cigarettes, beer, and whisky—all of which were to finance an old-age pension system.

During the regular session (May 3 to September 2), the lawmakers passed a new school placement law giving city and county school boards almost unlimited power in assigning both white and negro children to schools, regardless of their home address (see also below, **PRINCIPAL EVENTS**, 1955).

Finances.—Treasury receipts (fiscal year ending Sept. 30, 1954): \$451,071,272.89; expenditures, \$454,863,631.15; treasury balance, \$46,818,452.71; long-term indebtedness, \$61,287,000.

Taxation.—State tax revenue (1955 fiscal year): \$163,205,000, including \$119,443,000 from a 3% general sales tax and selective sales and gross receipts taxes; \$14,093,000 from licensing; \$17,556,000 from individual and corporate income taxes; and \$9,681,000 from property taxes. There is also a \$1.50 poll tax.

Banking.—As of June 30, 1955, the state's 71 national banks had \$1,215,318,000 in assets, \$880,824,000 in demand deposits, and \$233,863,000 in time deposits; the state's 164 other banks and 3 branches had \$427,866,054.71 in assets, \$278,681,222.85 in demand deposits, and \$109,541,173.04 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for public elementary and secondary education in the 1953-54 fiscal year comprised (including a balance from 1952-53): \$21,504,590 from local school districts; \$69,363,034 from the state; and \$2,137,323 from the federal government. Per capita cost per pupil was \$135.22. Expenditures for construction and improvements totaled \$12,481,651. Salaries of all teachers averaged \$2,729 (of high school teachers, \$2,872; elementary school teachers, \$2,628).

ALABAMA SCHOOL STATISTICS: 1953-54

Type of school	No.	Teachers	Students
Public elementary (1-6).....	13,351	448,970	
Public junior high (7-9).....	5,171	160,824	
Public senior high (10-12).....	4,273	93,853	
Total.....	2,855	...	...
Private and parochial elementary and secondary.....	89	972	16,621
Public and private trade schools..	6	114	3,499
State teachers colleges.....	4	292	7,516
Colleges and universities.....	5	2,030	40,687

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$40,842,991.64, including \$26,525,993.46 for old-age assistance, \$9,148,562 for dependent children, \$665,369 for the needy blind, \$4,148,034 for the permanently and totally disabled, and \$313,719.68 for child foster care; a monthly average of 98,939 persons received a monthly average of \$34.60 in public assistance. Operating ex-

ALABAMA

penditures for correctional and penal institutions in the 1953-54 fiscal year totaled \$4,116,863.84.

ALABAMA WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic (Aug. 31, 1955)	1	1,458
Hospitals for the mentally ill (Aug. 31, 1955)	2	7,222
Schools for the blind (May 27, 1955)	2	199
Schools for the deaf (May 27, 1955)	2	495
Industrial schools for Negro children (Sept. 7, 1955)	1	375
Industrial school for white boys (Nov. 1, 1955)	1	171
Training schools for white girls (Sept. 8, 1955)	1	75
Prisons (Sept. 30, 1955)	4	3,390
Prison cattle ranches (Sept. 30, 1955)	1	30
Prison camps (Sept. 30, 1955)	31	1,594

Labor Force.—The state's labor force (July 1955) numbered 1,166,000, including 271,000 agricultural workers. Nonagricultural employment in July 1955 was 839,400, and for the 12 months ending June 30, 1955, averaged 831,500. There were 55,600 unemployed workers in July 1954, and \$15,835,041 in unemployment insurance claims was paid to insured workers during 1954.

Manufacturing.—Establishments numbering an estimated 4,000 in 1954 had 225,700 employees. Investment in new plant and equipment in 1953 totaled \$98,571,000. Weekly earnings of production workers in manufacturing averaged \$55.91 for an average work week of 39.1 hours in 1954 and \$60.49 for 40.6 hours in the first six months of 1955.

MAJOR ALABAMA MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
<i>All manufactures</i>	227,000	\$926	\$2,605
Primary metals.....	43,000	275	656
Textiles.....	49,000	132	439
Food products.....	16,000	56	305
Lumber.....	33,000	65	186
Petroleum & coal products.....	3,000	34	165
Chemicals.....	10,000	55	156
Paper and pulp.....	9,000	51	138
Transportation equipment.....	11,000	59	126
Apparel.....	18,000	33	96
Fabricated metals.....	9,000	40	84
Rubber products.....	6,000	33	71

(Source: *The Blue Book of Southern Progress*, 1955.)

Mining.—Alabama normally stands second among the states in production of bauxite, and third in output of iron ore. In 1953 it was the third largest graphite producer. In that year it stood 18th in the value of its mineral output with 1.31% of the United States total.

ALABAMA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement.....	10,427,542	\$ 25,701,421
Clays.....	1,198,093	1,815,606
Coal.....	12,532,061	79,370,036
Coke ¹	6,278,239	72,501,622
Ferrous alloys ¹	123,956	20,432,763
Iron ore (long tons).....	7,446,130	55,640,338
Iron, pig ¹	4,669,388	217,756,777
Lime.....	470,541	5,018,156
Petroleum (bbl.).....	1,694,000	3,290,000
Sand and gravel.....	3,710,707	3,002,683
Stone ²	4,111,889	8,953,656
Other minerals.....	.....	5,108,503
Total.....	.....	\$187,900,399

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Fisheries.—The commercial catch of salt and brackish water species was valued at \$2,200,000

for the year ending Sept. 30, 1955, including principally 37,366 barrels of shrimp (\$1,212,395). The fresh-water catch for the year ending June 30, 1954, was valued at \$830,825, principally 2,217,600 pounds of catfish (\$620,928).

Forestry.—Pulpwood production in 1954 totaled 1,831,889 standard cords, including 1,764,912 of pine and 66,977 of hardwood. Six companies were drawing pulpwood from the state in 1954. Other output (1953) included 1,064,531,000 feet of pine lumber, 542,834,600 of hardwood lumber, and 37,613.8 barrels of crude turpentine.

Agriculture.—Cash farm income in the first half of 1955 totaled \$121,784,000, and for the full year 1954 comprised \$187,114,000 from livestock and livestock products, \$209,166,000 from crops, and \$5,499,000 from government payments. Receipts from livestock and livestock products in 1954 included: cattle, \$51,448,000; hogs, \$49,453,000; broilers, \$32,653,000; and dairy products, \$30,423,000.

The state's 176,956 farms (20,810,492 acres; harvested cropland, 4,812,086) had an average of 117.6 acres and \$6,230 in value of land and buildings per farm in 1954. Livestock on farms (Jan. 1, 1955) included 1,804,000 cattle, 1,097,000 hogs, and 7,605,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 302,459 family and hired workers engaged in farming. There were 28,138 farms with telephones; 155,123 with electricity.

ALABAMA CROP INCOME

Crop	Cash receipts
	1953 1954
Corn.....	\$ 5,778,000 \$ 6,471,000
Cotton lint.....	162,855,000 126,058,000
Cottonseed.....	15,246,000 13,769,000
Hay.....	1,811,000 1,471,000
Oats.....	1,151,000 1,240,000
Peaches.....	2,082,000 2,328,000
Pecans.....	4,408,000 2,338,000
Potatoes.....	4,137,000 5,012,000
Soybeans.....	4,429,000 2,821,000
Strawberries.....	542,000 477,000
Sweet potatoes.....	717,000 461,000
Watermelons.....	1,922,000 1,538,000
Wheat.....	654,000 680,000

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$89,200,000, and newly completed construction and reconstruction aggregated an estimated 1,200 miles.

Highways and roads on Dec. 31, 1954, totaled 62,241 miles (16,534 paved and 29,392 soil-surfaced or graveled). Registered *motor vehicles* numbered 876,670 on Sept. 30, 1954, including 684,507 passenger cars. There were 28 *railroads* (1955) which, in 1953, operated 4,675 track miles, and (1955) 5 regularly scheduled *airlines* and 118 *airports and airfields* (59 commercial and municipal, 15 military, 6 private, and 38 other).

Communications media in 1955 included 95 AM and 15 FM *radio stations* and 10 operating *television outlets* (8 VHF and 2 UHF); 21 daily *newspapers* (circulation, 700,858) and 124 other newspapers; and (Jan. 1, 1955) 149,647 business and 396,717 residential *telephones*.

Principal Events, 1955.—Educational developments dominated much of Alabama's news in 1955. A large and representative group of Alabamians met at the University of Alabama's Medical Center in Birmingham on May 22 for the inauguration of the center's first vice president. At

the end of its spring quarter, Alabama Polytechnic Institute granted its first doctoral degrees.

A federal judge in Birmingham ruled on June 29 that the University of Alabama could not refuse enrollment to two Negro women because of their racial origin. Two days later he held that the university had to admit all scholastically qualified Negroes. The U.S. Supreme Court on October 10 backed up the earlier decree by ordering the university to admit the Negro women.

Gov. James E. Folsom refused to sign a school placement bill passed by the legislature, but it automatically became law anyway on the governor's declining either to veto or approve it. The measure seeks to preserve separate schools for white and Negro students by giving local school boards discretionary power to determine where each pupil must attend school. The enactment does not apply to the state's higher educational institutions.

The Alabama Methodist Conference in 1955 approved a resolution asking the Methodist General Assembly not to pass any legislation that would interfere with the policy of maintaining separate racial customs in churches, schools, colleges, assemblies, and conferences within the Methodist Church.

Places in the news during 1955 included Huntsville, which celebrated its 150th anniversary; Point Clear, scene of the Southern Governors' Conference; and Citronelle (Mobile County), near which Alabama's first deep oil well went into production in October.

Principal Events by: GLADSTONE H. YUEVELL,
Professor and Chairman, Department of
History and Philosophy of Education,
University of Alabama.

ALAND (or AALAND) ISLANDS (Finn. AHVENANMAA). An archipelago of some 6,500 islands and reefs (50 inhabited) in the Baltic Sea at the entrance to the Gulf of Bothnia. Area, 581 square miles, of which Åland, the largest island, comprises 285. The population (est. 1953, 21,400) is Swedish-speaking. Maarianhamina (Mariehamn, pop., 3,264) is the capital and chief city. The islands form an autonomous department of Finland and have an elected county council and an executive council. Chief industries are fishing and shipping. Crops include rye, barley, flax, and vegetables.

ALASKA. Largest territory of the United States, Alaska is bounded on the north by the Arctic Ocean, on the east by Canada, on the south by the Pacific Ocean, and on the west by the Bering Sea, Bering Strait, and the Arctic Ocean. The territory was acquired by purchase from Russia in 1867.

Area and Population.—Area: 586,400 square miles (land, 571,065; inland water, 15,335). Estimated total population (July 1, 1953): 222,100, including seasonal workers and 49,000 military personnel; estimated civilian population (Jan. 1, 1954): 151,900. The 1950 census population of 128,643 included 33,863 Eskimos, Indians, and Aleuts. Alaska has 29 incorporated towns and cities, principal of which (with 1950 census figures) are: Anchorage, 11,254; Juneau, the capital, 5,965; Fairbanks, 5,771; and Ketchikan, 5,305.

Executive.—Chief territorial officers in 1955 included B. Frank Heintzleman, governor, and Waino Hendrickson, secretary of Alaska, both appointed by the president of the United States and confirmed by the Senate. Other officials included Hugh Wade, treasurer; J. Gerald Williams, attorney general; John A. McKinney, director of finance; Karl F. Dewey, tax commissioner; and Donald Dafoc, commissioner of education.

Judiciary.—There is a federal district judge for each of the four judiciary districts. United States commissioners act as lower-court magistrates, and United

States marshals and district attorneys serve as law-enforcement officers.

Legislature.—The Territorial Legislature comprises a 16-member Senate and a 24-member House of Representatives, both popularly elected. The legislature meets in odd-numbered years commencing on the fourth Monday in January for a session of 60 legislative days. Alaska is represented in the U.S. House of Representatives by a nonvoting delegate (Edward L. Bartlett, a Democrat, in 1955).

Finances.—In the 1954 calendar year, treasury receipts totaled \$33,685,572.82; expenditures, \$35,506,725.35. On Dec. 31, 1954, the net treasury balance was \$10,288,369.42.

Taxation.—Revenue from taxes in 1954 totaled \$14,591,561.03, of which \$6,057,351.72 was obtained as Alaska's share of locally paid federal income taxes. Other sources were gross receipts taxes, \$1,424,799.42, and licensing, \$1,307,791.39.

Banking.—On June 30, 1955, Alaska's 18 banks, including six national banks, held assets of \$157,568,565.68, demand deposits of \$92,475,436.68, and savings deposits of \$54,926,904.82.

Education.—School attendance is compulsory for all between the ages of 6 and 16, inclusive, who have not completed the eighth grade. Operating expenditures for public elementary and secondary education in the 1953-54 school year totaled \$8,444,760.96 (cost per pupil, \$414.22); and teachers' salaries averaged \$5,300.

ALASKA SCHOOL STATISTICS, 1954-55

Type of school	No. Teachers	Pupils
Public elementary (K-8).....	132 1,167 [*]	26,480
Public senior high (9-12).....	30 236	4,227
Private and parochial.....	15 57	1,181
Junior colleges.....	1 23	151
University of Alaska.....	66 [*]	453 [*]

^{*}Teaching in or registered for the regular campus sessions.

In addition, the Alaska Native Service in 1953-54 operated 86 day schools and two boarding schools for 5,000 native students in grades 1 through 12.

Social Welfare.—Expenditures for social welfare in 1953-54 totaled \$10,362,855, including \$1,209,169 in old-age assistance to a monthly average of 1,667 persons; \$37,166 in aid to a monthly average of 52 blind persons; \$907,141 for dependent children; and \$111,704.50 for general relief.

Principal territorially maintained institutions include 9 tuberculosis units, of which 3 are separate and 6 are located in the territory's 25 general hospitals. Epileptics, the mentally ill and deficient, and persons sentenced to prison terms are sent to the United States mainland for treatment or confinement.

Labor Force.—On Aug. 5, 1955, Alaska's labor force numbered 80,350, including 650 agricultural workers. Nonagricultural employment was 75,060 on the same date, and unemployed workers totaled 5,285 on Aug. 15, 1955, compared with 6,108 a year earlier. Alaska paid \$8,027,324 in unemployment compensation claims for the year ending June 30, 1955.

Manufacturing.—There were 286 manufacturing establishments in Alaska in 1955, employing an average of 4,476 persons and paying \$23,307,000 in wages. Leading manufactures (with figures for the year ending March 31, 1955) include food processing, mostly fish canneries, employing 3,723 persons and paying \$13,644,729 in wages; pulp and wood products and lumber (1,225; \$8,119,225), printing and publishing (323; \$1,756,153); fish oil reduction; and ship and boat building and repairs.

Mining.—Mineral production in 1954 was valued at \$24,328,000 and employed 2,000 persons as of Sept. 1, 1954. Alaska outranked any of the

states of the Union in tin and platinum output and stood third in gold production.

ALASKA MINERAL PRODUCTION, 1954

Mineral	Quantity	Value
Gold (fine ounces).....	252,794	\$8,847,790
Coal (short tons).....	653,000	8,162,500
Sand and gravel (short tons).....	7,750,000	5,119,710
Tin (long tons).....	170	342,000
Mercury (flasks).....	1,023	270,584
Stone (short tons).....	49,000	176,610
Chromite (short tons).....	3,360	146,000
Silver (fine ounces).....	35,140	31,803
Other.....		1,231,003

Fisheries.—Valued at \$31,251,041, the commercial fisheries catch during 1954 totaled 337,-628,720 pounds. There were 23,079 persons employed in the industry, of whom 12,444, using 6,499 vessels and boats, were actually engaged in fishing. Total landings of salmon in 1954 were 247,032,557 pounds (\$24,597,049); of other fish, 76,227,409 pounds (\$5,172,777); and of shellfish, 14,368,754 pounds (\$1,481,215). (See also below, *Principal Events, 1955.*)

Fish products prepared for market in 1954 by Alaska's 186 wholesale and processing establishments (employing 8,980 persons) totaled 222,-377,520 pounds valued at \$77,879,446. Included were 174,484,964 pounds of salmon (\$68,206,-971); 27,345,889 pounds of halibut (\$4,477,-799); and 2,857,599 pounds of crabs (\$2,994,518). Fur seal pelts are taken from Alaska's Pribilof Islands (q.v.).

Forestry.—Alaska's Chugach and Tongass national forests cover 20,777,294 acres and have an estimated commercial stand of 84,760 million board feet. Timber cut and scaled from these forests in the 1953-54 fiscal year totaled 70,283,-000 board feet, valued at \$224,588.

Agriculture.—Cash farm income in 1953 totaled \$2,819,836, of which dairy products accounted for \$1,016,877; vegetables, \$1,155,949; poultry, \$350,936; and beef, pork, lambs, and wool, \$142,444. Production is largely centered in the Anchorage area and the Matanuska Valley.

In 1953, some 1,400 persons worked the approximately 8,000 acres under cultivation on Alaska's 500 farms. Farms covered 421,799 acres (1950) and had an estimated 1953 value of \$7 million in land and buildings.

Transportation and Communications.—Territorial and federal funds spent for roads and highways in the 1954-55 fiscal year totaled \$15.2 million, and newly completed construction aggregated 106.4 miles.

Highways and roads in July 1955 totaled 3,860 miles (950 surfaced), and on Dec. 31, 1954, registered motor vehicles numbered 56,062, including 39,388 passenger cars.

The transport of passengers and mail is largely by air service, with airlines carrying more than half of the persons traveling between the United States mainland and Alaska. Alaska, Northern Consolidated, Pacific Northern, Cordova, and Northwest airlines operate flights from the Anchorage International Airport; and Pan-American Airways and Northern Consolidated, Alaska, Wien Alaska, and Canadian Pacific airlines operate from Fairbanks.

Other transport is furnished by 2 railroads, operating 509 miles of single track in 1954, and several American and Canadian steamship lines regularly serving Alaska and its 18 customs ports and stations (1954).

Communications media in 1955 included 24 AM radio stations, 3 operating television outlets, 7 daily newspapers, and 10 other newspapers. The Alaska Communication System, established in 1900 as a function of the U.S. Army Signal Corps, handles military communications within Alaska and processes all commercial telephone, radio, and telegraphic communications within and to and from Alaska. Some 248 post offices are scattered throughout the territory.

Principal Events, 1955.—Although statehood for Alaska in 1955 was defeated in the 83d Congress,

the Territorial Legislature authorized a constitutional convention to be convened in Fairbanks beginning on Nov. 8, 1955, and to extend a maximum of 75 days. Fifty-five delegates were elected.

The year 1955 experienced the lowest salmon pack (only 2,386,676 cases) in Alaska in 46 years. Drastic measures were planned to be taken in the 1956 season to prevent destruction of the industry—which seems imminent owing to over-fishing.

An important discovery of uranium ore made on Prince of Wales Island in Moira Sound, west of Ketchikan, in the spring of 1955 promised a new Alaskan industry. The ore averaged from 4% to 5% uranium.

Probably the most significant industrial development in Alaska in 1955 was the sale of 7.5 billion board feet of timber by the U.S. Forest Service to the Georgia-Pacific Plywood Company. The timber, which will bring more than \$15 million stumpage, is located principally on Admiralty Island, near Juneau. The company will construct a huge paper mill in the vicinity of Juneau. Earlier the Pacific Northern Timber Company of Wrangell, Alaska, and Portland, Oreg., purchased 3 billion board feet of timber in the Wrangell area. The firm will be required to have a sawmill of 40 million board feet annual capacity in operation by Dec. 31, 1957, and a pulp mill by 1962. Bids were open in November 1955 for the sale of 5¼ billion board feet of timber in the Sitka area on Jan. 25, 1956. Plans call for a pulp mill in that vicinity with a 500-ton daily capacity.

Petroleum research was still continuing in Alaska in 1955. Eight major companies and numerous smaller ones were active in exploration work in the various favorable localities.

On Oct. 12, 1955, the \$40 million, 626-mile Alcano Pipeline, connecting Haines and Fairbanks, was formally turned over to the Alaskan Command of the U.S. Army. Placed in full operation a month earlier, this multiple fuel pipeline is regarded as the most spectacular project of Alaska's defense construction program.

(See also HIGHWAYS; RECLAMATION.)

EDWARD L. KEITHAHN,
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ALBANIA. A country of the Balkan Peninsula, Albania is bounded on the west by the Adriatic Sea, on the north and east by Yugoslavia, and on the south by Greece. It has an area of 10,629 square miles and a population (est. mid-1954) of 1,260,000. The principal cities, with their 1952 population estimates, are Tiranë (Tirana), the capital, 63,000; Shköder (Scutari), 30,000; Korçë (Koritsa), 28,000; Elbasani, 18,000; Gjinokastër (Gjorokastron), 12,000; Berati, 11,000; Vlonë (Valona), 10,000; and Durrës (Durazzo), 9,000.

Government.—Since Jan. 11, 1946, Albania has been a people's republic, controlled by the Communist Party, which is called officially the Albanian Workers' Party. In 1948, when Yugoslavia's Communists were expelled from the Cominform, the Albanian government remained loyal to the Soviet Union, thereby losing Yugoslav support, which had been instrumental in establishing the regime in the wake of World War II. There has, however, been an easing of tension since the Soviet attempt to restore the old ties of friendship with Yugoslavia through the visit of Nikolai A. Bulganin and Nikita S. Khrushchev to that country on May 26-June 3, 1955.

The constitution now in force was adopted on March 7, 1946, and amended on July 4, 1950. According to its provisions, all Albanian citizens, male and female, who have completed their 17th year are eligible to vote. The 121 deputies whom they elect constitute the People's Assembly, which is the sole legislative body and serves for a period of four years. The assembly in turn

elects the Presidium of the People's Assembly, which consists of a president, two vice presidents, a secretary, and seven members. The president, who is equivalent to a chief of state, is Hadji Lechi. The cabinet, which is appointed and dismissed by the assembly, is presided over by Premier Mehmet Shehu. Enver Hoxha, founder of the Communist regime, is first secretary of the Central Committee of the Albanian Workers' Party and president of the Democratic Front, which is the wartime National Liberation Front and the outer organization of the Communist Party.

Education, Press, and Radio.—The school system is completely under the control of the government. Elementary education, which lasts seven years, is compulsory. In 1953 there were 2,150 elementary schools with 162,500 pupils. Secondary schools, numbering 390 with 80,250 students in 1953, exist in the chief towns. Higher education is offered in three institutes, devoted respectively to pedagogical, agricultural, and industrial studies, and a medical school; in 1953 they had an estimated combined enrollment of 1,500.

Adult education is encouraged as a means of combating illiteracy and of promoting the ideas and plans of the government. An evening "university" in Tiranë with a two-year curriculum offers special training in Marxism-Leninism. In the fall of 1954 the Museum of V. I. Lenin and J. V. Stalin was opened in Tiranë as another center of Communist schooling. *Pravda*, which published this information on June 16, 1955, also stated that over 1 million copies of the works of Karl Marx, Friedrich Engels, Nikolai Lenin, and Joseph Stalin had been sold in Albania in Albanian translation.

The daily and periodical press is controlled and subsidized by the government. Radio Tiranë, the national broadcasting station, is also in the service of international communism.

Religion.—The constitution guarantees freedom of religion, but in reality it is supervised and directed by the government, to whose interests the church is subservient. The population consists of Moslems (66%), Greek Orthodox (23%), and Roman Catholic (11%). A considerable part of the Moslem community is affiliated with the dervishes (monks) of the Bektashi order. In 1951 the Catholic Church of Albania was declared independent of the Vatican, while the Orthodox Church was placed under the authority of the patriarch of Moscow and all Russia.

Finance.—The 1955 national budget, approved by the People's Assembly on April 1, called for revenues of 12.3 billion leks (50 leks = U.S.\$1) and expenditures of 11.6 billion. Leading items of expenditure were 4,575 million leks for the national economy, 2,162 million for cultural and social purposes, and 1,410 million for the armed forces.

Economy.—Albania's principal agricultural products are livestock, grain, eggs, butter, wool, hides, and timber, while her chief minerals are lignite and aluminum. According to the First Five-Year Plan (1951–55), the number of cattle and buffaloes was to increase from 129,000 in 1950 to 139,000 by the end of 1955; sheep, from 1,707,000 to 1,844,000; and goats, from 830,000 to 847,000. Sugar beet production was scheduled to rise from 6,000 to 100,000 metric tons.

Major emphasis is placed on industrial and mineral resources. Production of important items in 1953, with 1955 planned output in parentheses, is as follows: cotton textiles, 50 million square meters (21.5 million); refined sugar, 7,560 metric tons (11,000); petroleum, 341,000 metric tons (263,000); chrome ore, 55,000 metric tons (120,000); and copper ore, 50,000 metric tons (145,000). It was also planned to increase the production of lignite from 28,300 metric tons in 1950 to 168,300 in 1955; that of coal from 42,000 to 250,000 metric tons, cement from 15,000 to 58,000 metric tons, timber from 51,000 to 82,000 cubic meters, and electric power from 21,000 to 121,000 kw.

It is not known whether any of the 1955 goals have been reached, but on June 24, 1955, the government published in *Pravda* a report of percentages attained in some areas of production as compared with the 1954 level. This stated that there was a 26% increase in cereals, 87% in cotton, 65% in tobacco, 102% in sugar beets, 50% in potatoes, 66% in the number of machine tractor stations, 83% in the number of tractors in operation, and 127% in the number of combines.

The area under cultivation rose by 18,690 hectares during the year. Despite these impressive figures, however, there has been unemployment and a nationwide shortage of consumer goods, especially food and wearing apparel.

Principal Events, 1955.—On March 4, President Dwight D. Eisenhower offered to send free food to Albania through the League of Red Cross Societies, to meet current shortages in food supplies. The offer was rejected three days later with slanderous expressions in the Albanian press and radio. The motives of the United States were denounced in *Pravda* as "imperialistic" and "insincere."

At the same time, the dependence of Albania on the USSR became more conspicuous. There was a new influx of Soviet advisers in 1955, as well as missions from other Communist countries. Enver Hoxha, speaking in June at the Third Congress of the Democratic Front, stressed the "peaceful intentions" of Albania and her favorable reaction to Soviet-Yugoslav friendship.

On Dec. 2, 1954, Albania signed in Moscow a defense pact with the USSR, Poland, Czechoslovakia, Rumania, Bulgaria, Hungary, and East Germany. On May 14, 1955, the signatories of this pact concluded at Warsaw, Poland, a treaty of friendship, collaboration, and mutual aid. The Albanian delegation to the Warsaw Conference was composed of Premier Mehmet Shehu, Deputy Premier and Defense Minister Bekir Balluku, and Foreign Minister Behar Shtylla.

Following the Soviet example, the Albanian government announced on Sept. 3, 1955, its decision to reduce its armed forces by 9,000 by December 31. The discharged men would be employed in agriculture and industry. After the decrease, the number of men in the armed forces would total about 50,000.

There were several attempts to improve relations with Western nations. On March 18, 1955, the Albanian government declared the termination of the state of war with Germany. Then, on July 7, it was announced in Rome that Italy and Albania had concluded negotiations providing for the settlement of reparations payments due Albania under the 1947 peace treaty at \$2,600,000, chiefly in capital goods.

Attempts were also made to resume normal relations with Greece. On July 2, the Albanian government announced that it had requested the U.N. Secretariat on June 30 to assist it to this end. Although Greece agreed on August 3 to resume relations under certain conditions, Albania rejected the Greek offer on August 14.

On December 14, Albania, along with 15 other countries, was elected to membership in the United Nations.

G. G. ARNAKIS,
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ALBERTA. Covering an area of 255,285 square miles, of which 6,485 square miles are water, Alberta is the fourth largest of the ten Canadian provinces, and is the most westerly of the three Prairie provinces. It is bounded by Saskatchewan on the east, British Columbia on the west, Montana on the south, and the Northwest Territories on the north.

Population.—The population (1955 est.) totals 1,050,000 (1951 census, 939,501), and by national origin is 48% British, 17% American, 11% German, 9% Ukrainian, 7% Scandinavian, and 5% French. Principal urban centers (with estimated 1955 populations) are Edmonton, the capital (209,353), Calgary (168,840), Lethbridge (28,300), Medicine Hat (20,000), Red Deer (11,688), and Camrose (6,100).

Government.—A lieutenant-governor (John James Bowlen in 1955) is appointed by the Canadian government to administer the province; he is advised by a Legislative Assembly of 61 members, 13 of whom form the Cabinet or Executive Council. Ernest C. Manning served as premier in 1955. The Social Credit Party, which has been in power since Aug. 22, 1935, was returned with a majority of 24 members at the general election of June 29, 1955. The province is represented in the Canadian Parliament by 17 members elected to the House of Commons, and by 6 appointed senators.

Education.—There are 3,811 school districts grouped in 58 school divisions or counties; in addition, there are 179 city, town, and separate school districts. Classrooms numbered 6,946 and school enrollment totaled 210,000 in 1955. The Department of Education also maintained a correspondence school branch with an enrollment of 8,000 pupils for the benefit of those without organized school facilities in Alberta and the Northwest Territories. There are 56 recognized private schools. Teacher training is supervised by the faculty of education at the University of Alberta at Edmonton; the university offers degree courses in the sciences and arts. The Provincial Institute of Technology and Art is located at Calgary, and schools of agriculture are administered by the Alberta government at Olds, Vermilion, and Fairview.

Religion.—The United Church of Canada comprises Alberta's largest religious group, followed by the Church of England in Canada (Anglican), Roman Catholic, and Eastern Orthodox communions. Lutherans, Presbyterians, Baptists, and Mormons also are represented.

Finance.—Revenue for the fiscal year which ended March 31, 1955, was \$151,973,865; estimated revenue for the fiscal year 1955–56 was \$171,875,115. The total debt as of Dec. 31, 1954, was \$91,185,211, representing a reduction of more than \$75 million since 1936. A debt reorganization program provides for the retirement of all debt by 1973.

Production.—Agriculture is Alberta's most important industry, although the value of manufacturing production is currently equalling the value of agricultural production. Production of major crops in 1954 included: wheat, 95,000,000 bushels; oats, 74,000,000 bushels; barley, 70,000,000 bushels; potatoes, 1,900,000 bushels; and sugar beets, 440,000 tons. Livestock marketings for 1954 totaled 749,976 sheep and lambs, and 2,046,079 hogs.

Petroleum production in 1954 totaled 87,713,855 barrels, representing 92% of Canada's total oil production. In 1954, 135 billion cubic feet of natural gas was produced.

The total value of mineral production in 1954 was \$281.5 million. Coal reserves are estimated at 47,874,300,000 tons; in 1954, coal production totaled 4,859,136 tons. There are large salt deposits at Lindbergh and McMurray in northern Alberta.

Production of lumber in 1954 amounted to 354,000,000 board feet, valued at \$17,761,000. Alberta lakes abound in whitefish, trout, perch, pike, tulibee, and pickerel. Commercial fishing in 1954 yielded 7,807,500 pounds of fish valued at \$1,168,000.

Manufacturing.—Alberta is benefiting from industrial expansion. During 1954, 90 firms established operations in the province, representing an investment of approximately \$94 million and providing new jobs for 2,300 persons. Foods and beverages provide the largest share of manufacturing production, followed by petroleum and coal products, wood products, iron and steel products, and chemicals. Petrochemical production is being developed on a large scale at Edmonton, Calgary, Fort Saskatchewan, and Medicine Hat. Calgary is a prominent battery manufacturing center, while three sugar refineries in southern Alberta produce more than a million pounds of sugar annually. Meat packing is the most important single manufacturing industry. Recent industrial developments include a \$30 million pulp mill being built at Hinton, west of Edson, steel mills at Edmonton, and a large chemical fertilizer plant constructed at Medicine Hat.

Trade and Commerce.—Lumber products are sold in Canada and the United States, and fish are exported to Chicago. Coal is sold mainly to the western provinces of Canada. Alberta is supplying 43,800,000 cubic feet of natural gas to the Anaconda Mining Company of Montana over a 5-year period (1951–56). In March 1955, the Interprovincial Pipeline was carrying about 134,000 barrels of crude oil daily to Saskatchewan, Manitoba, Wisconsin, and Ontario refineries; and the Trans Mountain Oil Pipeline was transporting 77,000 barrels of oil daily from Alberta to Vancouver. Plans are being made to export natural gas to eastern Canada, British Columbia, and the Pacific Northwest of the United States.

Transportation and Communication.—Alberta is served by three railway systems—the Canadian National, Canadian Pacific, and Northern Alberta Railways. There are 5,085 miles of railroad and 29,860 miles of graveled and surfaced highway. The province is on the air route to the Orient, and from Edmonton there is much air transportation into northern Canada. Canadian Pacific, Trans-Canada, Northwest, and Western Airlines serve the province. The telephone system is owned and operated by the province, except at Edmonton and Banff. Certain rural telephone lines are operated by mutual companies.

Principal Events, 1955.—Alberta, which became a province on Sept. 1, 1905, celebrated its golden jubilee during the year with enthusiastic provincial and local programs.

Two members of the legislature resigned their seats when it was revealed that they were part-owners of an Edmonton building rented to the provincial government. They were later re-elected in the provincial general election of June 29, which returned the Social Credit Party to the government but with a decreased majority.

In the most tragic mountaineering accident in Canadian history, seven young Americans were swept to death by an avalanche while attempting an ascent of Mount Temple, a 11,636-foot peak in Banff National Park, on July 11. Two other boys of the party of 11 were injured.

A. R. PATRICK,
Minister of Economic Affairs.

ALCOHOL. See Index entry.

ALCOHOLIC BEVERAGES. See BREWING INDUSTRY; DISTILLING INDUSTRY; WINE.

ALEUTIAN ISLANDS. A chain of islands extending some 1,200 miles westward from the Alaskan mainland, politically part of Alaska. Area, 6,821 square miles; pop. (1950 census), 5,600. Chief island groups are the Fox Islands, Andreanof Islands, Rat Islands, and Near Islands. United States airbases are at Shemya, Adak, and Cold Bay. The airport at Shemya is used by commercial lines in the northern route to the Far East. The natives, an Eskimo group known as Aleuts, number fewer than 700.

ALGERIA. A French territory on the Mediterranean coast of Africa. Area, 846,124 square miles (including about 695,000 of desert); pop. (est. Oct. 31, 1954), 9,530,486, chiefly Moslems (Kabyles, Berbers, and Arab Bedouins). The European population, mainly French, totals about 1,029,000, including over 100,000 native Jews. Chief cities and populations (1954): Algiers, the capital, 355,000 (including 162,000 Moslems); Oran, 292,000; Constantine, 144,000; and Bône, 112,000. French is the official language, although the Moslems speak mainly Arabic.

Government.—Algeria comprises 4 French overseas departments—Alger, Oran, Constantine, and Bône (created a department in 1955)—and the sparsely populated Southern Territories (under semimilitary administration). The head of the government is the French-appointed governor general, who is under the French minister of interior. Jacques Soustelle was appointed governor general on Jan. 26, 1955, succeeding Roger Léonard, who had served since 1951. The Algerian Assembly is elected for 6 years and consists of 60 representatives of the first electoral college (Europeans and qualified Moslems) and 60 of the second (the Moslem majority). The Assembly's powers are limited and are mainly in the field of finance. Algeria sends 30 deputies (15 Europeans and 15 Moslems) to the French National Assembly in Paris.

Education.—The proportion of Moslem children attending school is small, and illiteracy among the Moslems is widespread. In 1953-54 there were 2,369 primary schools (410,627 pupils) and 44 secondary schools (31,196). The University of Algiers had 5,149 pupils. There are also several normal schools, vocational schools, and Moslem higher schools.

Finance.—Estimates of the 1953-54 budget (including the extraordinary budget) were: revenue, 110,629 million francs; expenditure, 110,363 million. The Algerian franc is equal to the metropolitan franc.

Production.—About three fourths of the population is engaged in agriculture. The fertile areas along the coast are owned mostly by Europeans. Moslem farmers are chiefly smallholders or tenants, employing primitive techniques. Output of chief cereal crops in 1954 was (in bushels): wheat, 44.8 million; barley, 37.2 million; and oats, 7.6 million. Wine exports totaled 1,473,000 metric tons in 1954. Production of citrus fruits in 1954-55 was 10.9 million boxes; olive oil, 30,000 short tons; wool (prelim. 1954), 26 million pounds (greasy basis); and tobacco (prelim. 1954), 40.6 million pounds. Dates, figs, pulses, esparto grass, livestock products, and cork are also produced.

Chief industries are wine making, tobacco products, silk spinning, metallurgy, chemicals, glass, construction materials, foodstuffs, and textiles. The index of industrial production (base: 1948 = 100) rose from 137 in 1953, to 149 in 1954. Electricity output totaled 826.8 million kw.-hr. in 1954, a rise of 7% over 1953. A 5-year (1955-59), \$77 million, power expansion program will add 135,000 kw. to existing capacity. Chief minerals, with 1954 output in metric tons, are: iron ore (55% metal content), 2,922,900; phosphates, 758,000; iron pyrites, 33,500; barites, 13,600; zinc ore, 50,100; lead ore, 15,000; and coal, 303,000.

Foreign Trade.—Exports in 1954 totaled 140,279 million francs; imports, 217,724 million. Wine, the chief export, had a value of 56,875 million francs; iron ore, 10,909 million. In exchange for its agricultural products and minerals, Algeria obtains chiefly agricultural machinery, petroleum products, sugar, textiles, and other manufactures, foodstuffs, and raw materials. France took 73% of Algeria's 1954 exports and provided 79% of imports.

Transportation and Communications.—Algeria has 2,805 miles of railroads (1953) and 9,087 miles of surfaced highways (1952), supplemented by local and rural roads. Main airfields are at Algiers, Oran, and Bône. Passenger cars numbered 86,600 in 1955; telephone subscribers, 70,380 (1953); radio sets, 255,000. In 1952, Algeria had 11 daily newspapers with a total circulation of 260,000.

Principal Events, 1955.—The outbreak of violence by guerrilla nationalists in November 1954 took on the proportions of a serious rebellion in 1955. The guerrillas, operating in small bands based mainly in the rugged Aurès Mountains, termed themselves the National Liberation Army and were led by the National Liberation Front. Guerrilla effectives reportedly numbered only a



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Captured Algerian terrorist suspects are brought to a base camp by French Foreign Legionnaires during nationalist revolt in September 1955.

few thousand. Because of the nature of their operations and the inaccessibility of their bases, however, more than 100,000 French troops plus colonials and paramilitary formations were engaged in their suppression. The guerrilla actions, which spread during the year to the Kabylia coastal region east of Algiers, the area between Constantine and Philippeville, and the eastern Nemencha Mountains, included attacks on villages and outposts, ambushes of French contingents, sabotage of communications, and assassinations of French settlers and pro-French Moslems.

The peak of violence was reached during the week beginning August 20 (coinciding with the outbreak in French Morocco), in the Department of Constantine. In that uprising a reported 123 French and pro-French Moslems and 1,275 rebels were killed, although Moslem sources charged that French repressive action and French civilian counter-terrorism took a toll of at least twice that number of Moslems. French "mopping-up" operations continued during the remainder of the year, mainly in eastern Algeria and the Department of Constantine. According to a French report, the rebellion took 2,946 French and Moslem lives in the period Nov. 1, 1954—Sept. 30, 1955.

In contrast to the autonomy offered to Morocco and Tunisia in 1955, French policy with regard to Algeria was based on further Algerian integration with France. The French also projected democratic reforms on the local level, increased capital investment to reduce unemployment and land reforms to aid the Moslem tenant farmer, and cultural concessions, including the use of Arabic in the schools.

On Nov. 29, 1955, Governor General Jacques Soustelle addressed a special session of the Algerian Assembly, calling for approval of these reforms. Algerian leaders, however, rejected the policy of integration. Ferhat Abbas, head of the Democratic Union of the Algerian Manifesto, termed the Soustelle program a "false remedy" and demanded the right of self-determination, although the moderate nationalist leader refused to align himself with the rebels in seeking to eject the French by force. The French general elections scheduled for early January 1956 were indefinitely postponed in Algeria by the Paris government on December 12, because of a threatened Moslem boycott and the uncertain security conditions in the territory.

ALIENS. See Index entry.

ALLERGIES. There is an increasing appreciation on the part of physicians that many disease complexes whose causes have heretofore been obscure are definitely due, wholly or in part, to a condition known as allergy or hypersensitivity of the individual to ordinarily harmless substances. These substances, called allergens, may be taken into the body by being inhaled or swallowed, by contact with the skin, or from a bacterial infection in the body.* When one of these allergens is taken into the body, the tiny cells in the tissues produce special substances called antibodies which react upon it and attack it.

Allergic diseases are prevalent and potentially serious, as well as often distressingly painful, disrupting normal family life and often destroying a person's ability to work. Asthma and allergy have a greater incidence in the United States than polio, cerebral palsy, multiple sclerosis, and arthritis combined. Asthma is more crippling, more incapacitating, and produces more real physical suffering than do most of these ailments.

Respiratory Allergies.—The literature in this field during the past year has stressed the respiratory allergies. In the United States there are two million people, or one out of every 75, who suffer from asthma, and millions of Americans also have hay fever. One out of every three with untreated seasonal asthma develops a chronic irreversible, intractable asthma which may lead to permanent structural changes in the pulmonary system, and in turn eventually to heart failure. There is increased evidence that psychic disturbances are important factors in the cause of death from asthma, and there is a continued increase in deaths due to the promiscuous use of aspirin, both in children and adults.

Although the hormones, ACTH, cortisone, and hydrocortisone, are unable to prevent the development of respiratory allergies, they are valuable adjuncts in the treatment of them, if properly used under a physician's direction. Inhalants and occupational environment remain the most frequent causes of respiratory disease, although food, infections, and reactions to drugs play an important part. In treating patients whose asthma is complicated by infection, antibiotics and vaccines continue to be used.

Dermatologic Allergies.—Emphasis in the past year has been on contact agents and experiences with them in the fields of new technology and new industrial processes, and on new and old drugs and allergic reactions to them. New agents, used in creams containing zirconium and an antihistamine, are reported for the inactivation of contact eczema caused by certain metals and poison ivy. A new drug, diphenmethanil methyl-sulfate, has also been used successfully. These preparations block the itching and reduce materially the eczema aggravated by scratching or infection due to scratching. Various silicone protective creams to prevent the infecting agent from contacting the skin have also proved to be successful. The so-called atopic dermatitis, caused by offending agent's reaching the skin through the blood stream or by inhaling or ingesting, is now considered to be a constitutional disorder with allergic, psychosomatic, and dermatologic aspects.

American Foundation for Allergic Diseases.—Early in 1953 two leading groups of allergy spe-

* Some of the common allergens are pollens, molds, house dust, animal danders, feathers, orris root, cornstarch and gums in certain cosmetics, kapok, wool, cottonseed, dyes, perfumes, metals, chemicals; such foods as eggs, milk, nuts, fish, and wheat; drugs and serums; and the stings of wasps and bees.

cialists, the American Academy of Allergy and the American College of Allergists, jointly established the American Foundation for Allergic Diseases to meet the growing needs in the field of allergy. The foundation has four basic objectives: (1) stimulation of basic research in allergic diseases; (2) promotion of professional training in allergy in medical schools and hospitals; (3) extension of hospital and clinic facilities for patients; and (4) development of home care and ambulatory treatment for those unable to finance long-continued illness. The foundation has launched a program of public information on allergic diseases to bring about early recognition and prophylactic treatment. The office of the foundation is located at 274 Madison Avenue, New York 16, New York.

FRED W. WITTICH,
Secretary-Treasurer, American College of Allergists; President, International Association of Allergology.

ALLWARD, Walter Seymour, Canadian sculptor: b. Toronto, Ont., Nov. 18, 1876; d. Toronto, April 24, 1955. Recognized as one of Canada's most distinguished sculptors, he was the creator of the massive Canadian National War Memorial on Vimy Ridge in France.

Leaving school at the age of 14, Walter Allward subsequently became an apprentice to a firm of architects, where he remained for five years. After turning his attention to sculpture in 1895, he won a commission, his first, for the figure of Peace which surmounts the Northwest Rebellion Monument in Queen's Park, Toronto. He was then appointed to execute the busts of a number of famous Canadians for the art gallery of the Royal Ontario Museum in Toronto. Following the completion of these came a series of works designed on a grand scale, including the heroic statue of Sir Oliver Mowat in Queen's Park; the massive National South African Memorial; the allegorical Bell Memorial in Brantford, Ont.; and World War I Memorials in Stratford and Peterboro, Ont., and Montreal, Que.

Going to London in 1922, Allward began work on the Canadian National War Memorial on Vimy Ridge, which, overlooking the scene of the Canadian Corps' great victory in 1917, honors the Canadians killed in World War I. The stone monument, with its massive pylons and the figure of a woman brooding over her two dead sons, took 14 years to complete. Dedicated in 1936 by King Edward VIII, it is considered by many as the grandest World War I memorial in Europe.

ALUMINUM. Production of primary aluminum in 1954 was 1,460,565 tons in the United States and 560,900 tons in Canada. United States output during the first ten months of 1955 totaled 1,291,347 tons, an increase of more than 6% over the same period of 1954. Total 1955 production was expected to exceed 1,550,000 tons, a new record high for the fourth consecutive year.

All North American producers increased output during 1955 by more complete utilization of facilities built after the start of the Korean War, and all have more expansion under way. In August, the Anaconda Aluminum Company poured its first aluminum in a new 60,000-ton capacity smelter at Columbia Falls, Mont. In September, the Harvey Machine Company signed a government supply contract which will enable it to become the fifth United States producer by erecting

a 54,000-ton plant at The Dalles, Oreg. In December, Kaiser Aluminum and Chemical Corporation announced a \$280 million expansion program which will include a new 220,000-ton coal-powered smelting plant at Ravenswood, W. Va., and a 500,000-ton alumina plant near Gramercy, La.

Aluminium Limited announced plans in mid-March 1955 for investing \$190 million in expansion of its Kitimat (B.C.) smelter to a yearly capacity of 331,500 tons; and in October, Aluminium Limited announced that it would undertake immediate expansion of its Isle Maligne, Quebec, smelter to provide an additional 22,000 tons of aluminum per year.

Rising United States manufacturing costs resulted in price increases for basic aluminum in January and August 1955. Pig and ingot aluminum advanced to 22.5 and 24.4 cents per pound, respectively. Demand for aluminum during 1955 reached an all-time high, forcing the government to bolster the available civilian supply by deferring a substantial portion of the metal earmarked for delivery by producers to the national stockpile.

Construction continued to demand more aluminum in 1955, with windows, representing the building product consuming the most aluminum. Colored aluminum finishes for exterior wall panels have aroused great interest among architects. A new office building in Cincinnati, Ohio, has one side blue, the other gold.

Automobiles used a record quantity of aluminum during 1955, averaging 30 pounds per car. Trim applications were growing rapidly, and forged aluminum wheels made their first appearance. Refrigerators, freezers, steam irons, room air-conditioners, and outdoor furniture also represented fast-growing aluminum applications. Rapid progress in the electrical field continued, as the price and scarcity of copper increased, and distribution lines and telephone cable offered a tremendous market potential for aluminum. Use of aluminum foil for packaging continued to grow rapidly. Aluminum tanks for domestic hot water heaters were in full-scale production in 1955, and the popularity of aluminum irrigation pipe continued to grow. Highway engineers were specifying more aluminum for signs and bridge railings, and sportsmen were exhibiting increasing preference for aluminum boats and canoes.

During 1955 the Aluminum Company of America (ALCOA) began producing large forged aircraft parts on mammoth 35,000- and 50,000-ton capacity presses installed at Cleveland, Ohio, to meet U.S. Air Force requirements. Mills capable of producing aluminum foil in widths exceeding 60 inches were also in operation in 1955.

Outstanding among new aluminum alloys introduced in 1955 was the ALCOA alloy X2219. It has exceptionally good mechanical properties at elevated temperatures (500° to 600°F), and shows considerable promise for supersonic aircraft and automotive engine parts.

STANLEY V. MALCUI,

Head, Industrial Economics Section, Public Relations Department, Aluminum Company of America.

traordinary and minister plenipotentiary; L = liaison officer; M = diplomatic agent with rank of minister).

Country	From the United States	To the United States
Afghanistan	Angus Ward (A)	Mohammad Kabir Ludin (A)
Anglo-Egyptian Sudan	Arthur E. Beach (L)	...
Argentina	Albert F. Nufer (A)	Adolfo Vicchi (A)
Australia	Amos J. Peaslee (A)	Sir Percy Spender (A)
Austria	Llewellyn E. Thompson (A)	Karl Gruber (A)
Belgium	Frederick M. Alger, Jr. (A)	Baron Silvercrus (A)
Bolivia	Gerald A. Drew (A)	Victor Andrade (A)
Brazil	James C. Dunn (A)	João Carlos Muniz (A)
Burma	Joseph C. Satterthwaite (A)	U. Win (A)
Cambodia	Robert McClintock (A)	Nong Kimny (A)
Canada	R. Douglas Stuart (A)	A. D. P. Heeney (A)
Ceylon	Philip K. Crowe (A)	R. S. Gnewardene (A)
Chile	Willard L. Beaulac (A)	Mario Rodríguez Altamirano (A)
China	Karl L. Rankin (A)	V. K. Wellington Koo (A)
Colombia	Philip W. Bonsal (A)	Francisco Urrutia (A)
Costa Rica	Robert F. Woodward (A)	Fernando Fournier (A)
Cuba	Arthur Gardner (A)	Miguel Ángel Campa (A)
Czechoslovakia	U. Alexis Johnson (A)	Karel Petrzelka (A)
Denmark	Robert D. Coe (A)	Henrik de Kauffmann (A)
Dominican Republic	William T. Pheiffer (A)	Joaquín E. Salazar (A)
Ecuador	Sheldon T. Mills (A)	José R. Chiriboga V. (A)
Egypt	Henry A. Byroade (A)	Ahmed Hussein (A)
El Salvador	Thomas C. Mann (A)	Héctor David Castro (A)
Estonia	...	Johannes Kaiv (acting CG in charge of legation)
Ethiopia	Joseph Simonson (A)	Yilma Deressa (A)
Finland	John D. Hickerson (A)	Johan A. Nykopp (A)
France	C. Douglas Dillon (A)	Maurice Couve de Murville (A)
Germany	James B. Conant (A)	Heinz L. Krekler (A)
Great Britain	Winthrop W. Aldrich (A)	Sir Roger Makins (A)
Greece	Cavendish W. Cannon (A)	George V. Melas (A)
Guatemala	Edward J. Sparks (A)	José Luis Cruz-Salazar (A)
Haiti	Roy T. Davis (A)	Jacques Léger (A)
Honduras	Whiting Willauer (A)	Johan A. Nykopp (A)
Hungary	Christian M. Ravndal (E)	Károly Szarka (E)
Iceland	John J. Muccio (A)	Thor Thors (A)
India	John S. Cooper (A)	Gaganvihari Lalubhai Mehta (A)
Indonesia	Hugh S. Cumming, Jr. (A)	Moekarto Notowidigdo (A)
Iran	Selden Chapin (A)	Ali Amini (A)
Iraq	Waldemar J. Gallman (A)	Moussa Al-Shabandar (A)
Ireland	William Howard Taft, 3d (A)	John Joseph Hearne (A)
Israel	Edward B. Lawson (A)	Abba Eban (A)
Italy	Clare Boothe Luce (A)	Manlio Brosio (A)
Japan	John M. Allison (A)	Sadao Iguchi (A)
Jordan	Lester D. Mallory (A)	Abdul Monem Rifa'i (A)
Korea	Carl W. Strom (CE)	You Chan Yang (A)
Kuwait	William D. Brewer (C)	...
Laos	Charles W. Yost (A)	Ourot R. Souvannavong (A)
Latvia	...	Arnolds Spekke (CA)
Lebanon	Donald R. Heath (A)	Victor A. Khouri (A)
Liberia	Richard L. Jones (A)	Clarence Lorenzo Simpson (A)
Libya	John L. Tappin (A)	Saddigh Muntasser (A)
Liechtenstein	Howard Donovan (CG)	...
Lithuania	...	Povilas Žadeikis (E)
Luxembourg	Wiley T. Buchanan, Jr. (A)	Hugues Le Gallais (A)
Mexico	Francis White (A)	Manuel Tello (A)
Morocco	Julius C. Holmes (M)	...
Nepal	John S. Cooper (A)	Ram Prasad Manandhar (A)

Country	From the United States	To the United States
Netherlands	H. Freeman Matthews (A)	J. H. van Roijen (A)
New Zealand	Robert C. Hendrickson (A)	Sir Leslie Munro (A)
Nicaragua	Thomas E. Whelan (A)	Guillermo Sevilla-Sacasa (A)
Norway	L. Corrin Strong (A)	Wilhelm Munthe de Morgenstierne (A)
Pakistan	Horace A. Hildreth (A)	Mohammed Ali (A)
Palestine	William E. Cole, Jr. (CG)	
Panama	Julian F. Harrington (A)	Joaquín José Val-larino (A)
Paraguay	Arthur A. Ageton (A)	Guillermo Enciso-Velloso (A)
Peru	Ellis O. Briggs (A)	Fernando Berckemeyer (A)
Philippines	Homer Ferguson (A)	Carlos P. Romulo (A)
Poland	Joseph E. Jacobs (A)	Romuald Spasowski (A)
Portugal	James C. H. Bonbright (A)	Luis Esteves Fernandes (A)
Rumania	Robert H. Thayer (E)	Anton Moisesescu (E)
Saudi Arabia	George Wadsworth (A)	Sheikh Abdullah Al-Khayyal (A)
South Africa	Edward T. Wailes (A)	J. E. Holloway (A)
Spain	John Lodge (A)	José M. de Areilza, Count of Motrico (A)
Sweden	John M. Cabot (A)	Erik Boheman (A)
Switzerland	Frances E. Willis (A)	Henry de Torrenté (E)
Syria	James S. Moose, Jr. (A)	Farid Zeineddine (A)
Thailand	Max Waldo Bishop (A)	Pote Sarasin (A)
Turkey	Avra M. Warren (A)	Haydar Görk (A)
USSR	Charles E. Bohlen (A)	Georgi N. Zaroubin (A)
Uruguay	Dempster McIntosh (A)	José A. Mora (A)
Venezuela	Fletcher Warren (A)	César González (A)
Viet-Nam	G. Frederick Reinhardt (A)	Tran Van Chuong (A)
Yemen	George Wadsworth (E)	Sayed Abdurrahman Ibn Abdussamed Abu-Taleb (CA)
Yugoslavia	James W. Riddleberger (A)	Leo Mates (A)

AMERICAN ACADEMIES AND ASSOCIATIONS.

For organizations whose titles begin with the word American (excepting American Federation of Labor and American Library Association, which are reviewed below) see the article SOCIETIES AND ORGANIZATIONS.

AMERICAN FEDERATION OF LABOR. During the past year the American Federation of Labor continued to grow, and at the close of the fiscal year of the federation on June 30, 1955, the total paid-up membership was 9,615,333. Activity was continued in the legislative and political fields on both national and state levels. The concern of the federation for matters of general concern to all citizens was reflected legislatively in efforts to secure better housing for all; to secure improvements in the social security program; for adequate defense appropriations; federal aid for education, etc. While the federation continued its work in the field of political education, Labor's League for Political Education remained the political instrumentality of the federation to comply with the law.

In line with the conviction of the federation that the economic well-being of the peoples of other lands inevitably affects the economic status of America's workers, constant watch was kept on economic and employment trends throughout the free world.

The activities of the AFL in the general field of adult education was conducted mainly through its Department of Education, which directs projects in its field on both state and local levels. This work was greatly expanded during the past year, and a number of international unions either in-

stituted or increased educational activity. The need for a vocational program was emphasized as necessary to meet the need for skilled craftsmen to develop the fullest possible production strength of the nation.

During the past year the AFL not only continued but increased its efforts to combat Communist influence throughout the free world. Through the International Confederation of Free Trade Unions (ICFTU), the Inter-American Regional Labor Organization (ORIT), International Labor Organization, and active participation wherever afforded in advisory government groups, the federation energetically endeavored to promote the democratic free way of life. Through the Free Trade Union Committee, which was established more than ten years ago, aggressive anti-Communist activity has been conducted through assistance to weak free trade union forces, not only in Europe but also in Asia and Africa, as bulwarks against subversive influences. Full cooperation has also been given to government agencies charged with the development of better understanding between the people of the United States and other countries. The AFL was represented on the Labor Advisory Committee of the Foreign Operations Administration, and the Department of Labor's Trade Union Advisory Committee on International Affairs.

In the introduction to its final report, the Executive Council reaffirmed the purpose of the federation, which was unanimously approved: "Our first responsibility must be to our country. We must so conduct ourselves, both in the formulation and implementation of basic policies, as to promote at all times the peace of the world, the security of the free American way of life and its economic and social progress."

One of the most important developments in the labor movement of the country during 1955 was the merger of the American Federation of Labor and the Congress of Industrial Organizations, which was effected in December. This merger created the largest single labor federation in the free world, with a membership of more than 15 million. (For further details, see CONGRESS OF INDUSTRIAL ORGANIZATIONS AND LABOR.)

GEORGE MEANY,
President.

AMERICAN LIBRARY ASSOCIATION. Founded in Philadelphia in 1876, the ALA is the oldest professional association for librarians in the world. As the chief spokesman for the modern library movement in North America, it has considerable influence in other countries as well. In 1955, its membership was approximately 20,000, with representation from the United States and possessions, Canada, and more than 50 foreign countries.

The year 1955 saw the completion, continuance, and start of many projects. Outstanding among the new projects was the authorization for a management survey of the association, which was conducted by the firm of Cresap, McCormick and Paget. Plans were under way for the implementation of the recommendations of the survey, which was accepted by the ALA Council at its annual meeting in July.

The American Heritage Project, financed by a special grant from the Fund for Adult Education, was continued. During its four years of operation a total of 1,153 discussion leaders were trained, and 16,753 people participated in 1,063 groups all over the country. In the fall of 1955 a

new project was established with a grant from the Fund for Adult Education, to be known as the Library-Community Project. It will be concerned with the establishment of a soundly based and well-integrated program of adult education in four pilot libraries in Kansas, Maryland, Michigan, and Tennessee.

A special grant of \$30,000 from U.S. Steel Corporation has been given to the Association of College and Reference Libraries, a division of ALA, for the support of liberal arts college libraries throughout the country. The association was concerned with revising the standards for public and school libraries, and continued to promote the cause of intellectual freedom, to recruit able men and women to the profession, and to develop worthwhile reading habits for children and adults.

Headquarters of the Association are located at 50 East Huron Street, Chicago 11, Illinois, where a staff of 95, supplemented by over 700 members of volunteer boards and committees, carry on its work. David H. Clift is executive secretary, and Mrs. Grace T. Stevenson, associate executive secretary. A Washington office is located in the Hotel Congressional, where liaison with all federal agencies is maintained and libraries are represented on many projects. In 1955 this office worked particularly for the passage of the Library Services Bill (S. 205 and H.R. 2840) which was reported favorably out of the House Committee on Education and Labor in July and will be presented to the second session of the 83d Congress.

Conferences.—The 74th Annual Conference of the ALA was held in Philadelphia, July 3-9, 1955, with an attendance of 4,500. The conference theme, "Libraries in the Life of the Nation," was developed by many of the speakers.

The most important business taken up by the ALA Council at its annual meeting was the presentation and discussion of the management survey of the association. In addition it endorsed the School Library Bill of Rights and adopted the *Library's Pay Plan: A Statement of Principles*. At the midwinter meeting, held in Chicago, February 1-5, many ALA divisions and committees held business sessions for carrying on the work of the association. Future conference plans call for a midwinter meeting in Chicago, Jan. 31-Feb. 4, 1956; and annual conferences in Miami Beach, Fla., June 17-23, 1956; and in Kansas City, Mo., June 23-29, 1957.

Officers.—At the Philadelphia conference in July 1955, John S. Richards, Seattle Public Library, became president for 1955-56; Ralph R. Shaw, Graduate School of Library Service, Rutgers University, New Brunswick, N.J., became first vice president and president-elect; and Mrs. Frances L. Spain, New York Public Library, became second vice president. Raymond C. Lindquist, Cleveland Public Library, is the treasurer.

Awards and Citations.—The annual ALA citations for distinguished service as library trustees were awarded to Mrs. George R. Wallace, trustee of the Fitchburg (Mass.) Public Library, and to Ralph D. Remley, trustee of the Maryland County Library, Rockville, Md.

Meindert DeJong received the 34th Newbery Medal for *The Wheel on the School*, judged to be the most distinguished children's book published in the United States during the year. The winner of the 18th Caldecott Medal, Marcia Brown, was honored as the illustrator of the most outstanding picture book for children, *Cinderella*. Both medals are provided annually by Fred-

erick G. Melcher, publisher of the *Library Journal and Publishers' Weekly*.

Other important ALA awards and citations in 1955 were as follows:

The 1955 Joseph W. Lippincott Award of \$500 for distinguished service in the profession of librarianship went to Emerson Greenaway, director of the Free Library of Philadelphia.

The Ada McCormick *Letter Magazine* award of \$100 went to the Kentucky Library Extension Division for its contribution in extending the numbers and degree of an informed citizenry in the State of Kentucky through placing nearly 100 bookmobiles in service. The 1955 *Letter Librarian* Award was received by Helen M. Harris, librarian, Lawson-McGhee Library, Knoxville, Tenn., for her exemplification of the best traditions of library service.

Thirteen libraries received the John Cotton Dana Publicity Award, sponsored by the *Wilson Library Bulletin* in cooperation with the ALA Public Relations Committee. Six others received honorable mention, and nine were presented with a special award.

The Margaret Mann Citation was awarded to Seymour Lubetzky, consultant on bibliographic and cataloging policy in the Library of Congress, for his contribution to the field of cataloging and classification.

The Melvil Dewey Medal was given to Maurice F. Tauber, Melvil Dewey professor at the School of Library Service of Columbia University, for creative professional achievement both as a librarian and as a teacher.

The E. P. Dutton-John Macrae Award (\$1,000) for advanced study in the field of work with children and young people, went to Mrs. Barbara Davis Widem, assistant librarian in the Center for Children's Books, University of Chicago.

The Grolier Society Award (\$500) was given to Mrs. Charlemae Rollins, children's librarian at the Hall Branch of the Chicago Public Library, in recognition of her outstanding contribution to the reading of young people.

Arthur and Elizabeth Rose of State College, Pa., received the Oberly Memorial Award presented every other year for the best bibliography in the field of agriculture and related sciences, for their scholarly work, *Distillation Literature, Index and Abstracts 1946-52*. Honorable mention was given to Elizabeth Gould David, Josiah C. Folsom, Angelina Martinez, and C. Noel James for bibliographies in the field.

Income.—The ALA is financed by membership dues, endowment income, and occasional grants for special projects. Its endowment capital is approximately \$2,460,000. The total income in 1954-55 was about \$1,170,600, with approximately \$215,400 coming from membership dues.

Publications.—The ALA conducts a nonprofit cooperative publishing program. Periodicals published include the *A.L.A. Bulletin*, *The Booklist*, and *Subscription Books Bulletin*. ALA's divisions issue: *Public Libraries*, *Top of the News*, *College and Research Libraries*, *Journal of Cataloging and Classification*, *School Libraries*, and *Hospital Book Guide*. Among the books published in 1955 were: *Planning the Library Building*; *Charging Systems* and *Serial Publications*. (See also LIBRARIES.)

HELEN T. GEER,
Librarian, ALA Headquarters Library.

AMERICAN LITERATURE. The year 1955 witnessed neither the emergence of any new writer of great distinction nor the publication of a major work by an established writer of distinction. Robert Penn Warren's widely read *Band of Angels* was the most serious attempt at a novel of stature in 1955. It was a study of a woman, half-white, half-Negro, caught up in the events of the Civil War, searching for a sense of personal identity. Its failure to achieve the literary significance of Warren's earlier *All the King's Men* (1946) lay perhaps in the fact that its heroine's reactions to the crises in her life seemed too carefully maneuvered, too like the gestures of an actress not quite submerged in her role. Measured, however, against MacKinlay Kantor's *Andersonville* (also a best-seller in 1955), a carefully documented, fictionalized history of the infamous Civil War prison at Andersonville, Ga., Warren's *Band of*

Angels was an effective imaginative novel, and a minor work of art.

More characteristic of the widely read novels of 1955 by authors of established reputation were a series of documentary studies of the social attitudes and the morals of men and women from varying strata of contemporary American life. The most professional of these, the one realized with the greatest skill and precision of phrase, was John P. Marquand's *Sincerely*, Willis Wayde, a portrait of a successful American businessman loyal only to his own economic ambitions. Lacking somewhat in the suavity of Marquand's style, but also examples of the novel as document, were Herman Wouk's *Marjorie Morningstar*, the experiences and the moral decisions of a young girl from New York's Jewish community; John O'Hara's *Ten North Frederick*, the private life of a public figure; and Norman Mailer's *The Deer Park*, life among the ignoble savages of Hollywood.

In so innocuous a literary year as 1955, one of the curiosities of criticism was *Time's* eulogy, in its September 5 issue, of Wouk's *Marjorie Morningstar* as "a mutiny against . . . three decades of U.S. fiction dominated by skeptical criticism, sexual emancipation, social protest and psychoanalytic sermonizing." *Life* magazine of September 12, following *Time's* lead, in an editorial, "Wanted: An American Novel," demanded a more moral and spiritual type of fiction than that given American readers by the "overripe school of the Truman Capotes," and by the "obscurity-obsessed school of 'new realism.'"

This *Time-Life* identification of the great American novel with a fictionalized tract on morality and joy, a kind of public square monument to the success of the American businessman and to the personal virtue of American citizens, tempted Harvey Breit to reply (*New York Times Book Review*, October 9): "demand a specific literature and you will get a specific mediocrity." The critic Maxwell Geismar, in an article entitled "The Age of Wouk" (*Nation*, November 5), further described the *Time-Life* plea for a literature of moral conformity as "a program for a new slap-happy optimism" that would avoid "all serious human issues."

More sober appraisals of the contemporary American novel, in 1955, included the novelist William Faulkner's assertion that its greatness should be measured by its attempt "for the impossible," by its effort "to reduce all human experience to literature" ("A Walk with Faulkner," *New York Times Book Review*, January 30). Hiram Haydn's "What's Wrong with the American Novel," a report in *The American Scholar's* autumn issue of a symposium of three editors and three young American novelists, emphasized the alienation of the contemporary writer from his audience. Arthur Mizener's "The Thin, In-

telligent Face of American Fiction," in the autumn issue of *Kenyon Review*, defined the tone of much present-day writing. The young novelist Herbert Gold, in "Truth and Falsity in the Novel" (*Hudson Review*, fall issue), rejected the work of the Truman Capotes and the Paul Bowleses as decisively as had *Time* and *Life*, but not for its failure to celebrate the American dream of life as an endless success story. Rather, Gold argued, the failure of the novel which suggests that humanity is "ugly and obscene . . . unfit for adventure and decision . . . doomed to incoherence and suicide," is a failure of the novelist's sense of truth.

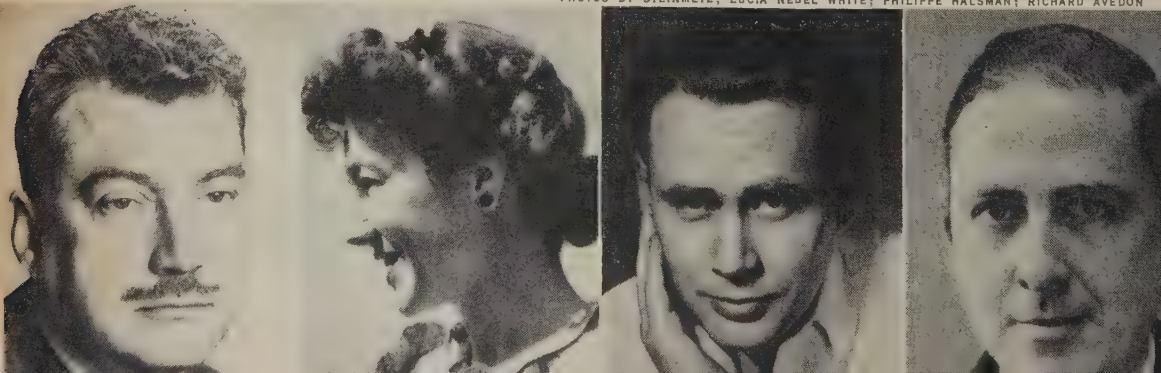
With the death of Bernard De Voto (q.v.) in November 1955, American letters lost the last member of the school of Mencken who practiced literary and cultural criticism as the art of energetic assertion of personal opinion. De Voto was a sturdy advocate of literature as a vehicle for social criticism, and with his death, the post-World War II critics of the literary journals lost a favorite target. He was their most useful enemy in their advocacy of a literature which, in Allen Tate's phrase, "has no useful relation to the ordinary forms of action." Another significant loss was that of the skilled dramatist and historian, Robert E. Sherwood (q.v.), who also died in November.

Despite the apprehensions voiced by *Time* and *Life* magazines, the reading habits of Americans, in 1955, remained stubbornly wholesome. Norman Vincent Peale's *The Power of Positive Thinking* and Mrs. Peter Marshall's *A Man Called Peter*, both easily classifiable as "uplift" books, remained nonfiction best-sellers in 1955, more than three years after publication. They were most seriously challenged by Anne Lindbergh's new work of 1955, *Gift from the Sea*, a quietly speculative study of the American woman's social role and her spiritual needs. *Gift from the Sea* had sold well over a quarter of a million copies by the end of the year. Of the new fiction in 1955, Herman Wouk's *Marjorie Morningstar*, heralded by *Time* for its depiction of normal aspects of contemporary America, had sold 150,000 copies within a few weeks of publication, and seemed destined to be the most widely read novel of the year.

The Novel.—Robert Penn Warren's *Band of Angels* was the most nearly successful example of the novel of formal artistry in 1955. Its story of Amantha Starr, raised as a lady of the ante-bellum South, and after her father's death sold as a slave in Civil War New Orleans upon the discovery of her Negro blood, was in no sense an attempt at fictionalized American history. Rather, Warren involved his heroine with a violent civil crisis of time past in order to give perspective to her sense of being engulfed by history and by the events of her life, without ever being able to

(Left to right) MacKinlay Kantor, Anne Morrow Lindbergh, Sloan Wilson, and Herman Wouk.

PHOTOS BY STEINMETZ; LUCIA NEBEL WHITE; PHILIPPE HALSMAN; RICHARD AVEDON



grasp some fragment of meaning as to the significance of these events. MacKinlay Kantor's *Andersonville*, by contrast, was a wholly successful example of the novel as document. His romantic, highly episodic prose pageant of Andersonville Prison, the Dachau of the American Civil War, was a novel in which hundreds of characters were carefully and accurately dressed in the ideas, the language, and the gestures of Americans of the mid-19th century. One got a sense of all the external details of living during the violence of 1861-65, but little sense of the "truth" of his characters, of their essential nature as thinking, feeling human beings.

Two of the most widely read and most widely commented upon documentary novels of 1955, depicting contemporary Americans in their endless quest for success, were John P. Marquand's *Sincerely*, Willis Wayde, and Herman Wouk's *Marjorie Morningstar*. Marquand's novel was by far the more brilliant of the two because of the cumulative effect of its mild, but sustained, satire of the titular hero, a young man who moves swiftly and capably from New England factory town to Harvard Business School to corporation executive. He is completely satisfied of his own integrity, and wholly incapable of a selfless deed. Wouk's novel of his titular heroine's attempt to become an actress, and the clash between her desire for moral respectability and her fascination by amorous adventure, lacked the intellectual vigor of Marquand. Wouk, like the 18th century Richardson with his famous *Pamela*, seemed unwilling to risk a novel sustained by an adult awareness of the vast difference between the merely prurient and the honestly innocent.

Norman Mailer's *The Deer Park*, and John O'Hara's *Ten North Frederick* were further examples of the novel as social document, and both perhaps verged on what *Life* called the "obscurity-obsessed school of 'new realism.'" Mailer's study of the love games played in Hollywood's desert colony, lacking any focus in concept or event, was a mere parade of a series of mindlessly dull, besotted self-seekers, and was a failure (in terms of Herbert Gold's essay) of Mailer's, or a reader's, sense of truth and reality. O'Hara's *Ten North Frederick*, the detailed examination of the sexual affairs and the political scandal lying behind the façade of the leading citizen of his fictional Gibbville, had the virtue and strength of its author's sense of value, and did not drift into meaninglessness, as did *The Deer Park*.

Novels by intellectuals included Mary McCarthy's *A Charmed Life*, less vitriolic than usual for her in its sketching of egotistical artists and their passions and intellectualizings; Paul Bowles' *The Spider's House*, the political difficulties between the French and the Arabs in Morocco; Elizabeth Hardwick's *The Simple Truth*, the ironic defeat of two people, committed to the life

of the mind, who try to fathom the character of a man on trial for murder.

Highly competent novels, not especially startling as to theme, by writers of established reputation, included *The Persistent Image*, written with sharp insight by Gladys Schmitt concerning a woman who returns to her first love; *The Farther Shore*, by Robert M. Coates, another of his novels of the pathology lurking in the minds of men; *Faithful Are the Wounds*, by May Sarton, the roles of the friends of a Harvard professor in his suicide; *Bell's Landing*, by Gerald Warner, the influence of two Victorian aunts on two nephews; *Blizzard*, by Phil Stong, reactions of an Iowa community caught by a storm; *The Sun at Noon*, by Charles Angoff, the lives of a Jewish-American family in Boston; and *The Years of the City*, by George Stewart, a chronicle of an imaginary Greek city, a kind of parable of mutability.

Popular studies in contemporary violence included such novels as Robert Ruark's best-selling *Something of Value*, about the Mau Mau uprising in Kenya; Budd Schulberg's *Waterfront*, a novelized version of his well-known motion picture of New York waterfront gangsters; and Don M. Mankiewicz' *Trial*, Harper's prize novel of 1954, about a Mexican boy on trial for murder, and the Communist Party's attempt to claim him their martyr.

Novels by newcomers receiving critical mention included Mario Puzo's *The Dark Arena*, an ex-GI in postwar Germany; Thomas Hal Phillip's *The Loved and the Unloved*, tensions leading to murder in the poor-white South; William Krasser's *North of Welfare*, life in Harlem; Davis Grubb's *A Dream of Kings*, Civil War America; and Anton Fereva's *The Year of August*, tragic involvements in a California valley town.

Adult entertainment, touched with overtones of serious ideas, made the following novels popular reading in 1955: C. S. Forester's *The Good Shepherd*, a North Atlantic convoy and its most exciting 48 hours; Sloan Wilson's *The Man in the Gray Flannel Suit*, New York suburban life with its tensions of job versus conscience, a thinned-out Marquand; and Thomas B. Costain's *The Tontine*, a historical romance by an expert who deals with the lives of a series of shareholders (and their descendants) of a Victorian insurance trust.

The Short Story.—If the novel as social document dominated the literary scene in 1955, it was the short story as autonomous art object which was most collected and most published. At its best, much as a poem does, such a short story of the dramatic or emotional moment gains its perceptive insight into the private, isolated world it evokes. At its worst, the merely artful short story—the literary thing-in-itself—is a beautiful, shining machine in a museum case, forever turn-

(Left to right) Robert Penn Warren, Norman Mailer, John P. Marquand, and Lionel Trilling.

PHOTOS BY PHYLLIS CERF; TALBOT; MARIE S. NEWBERRY; F. ROY KEMP



ing its wheels, but doing no work. The year 1955 witnessed a series of collections of short stories as autonomous art object, with examples of both sorts in each collection. The list included Eudora Welty's *The Bride of Innisfallen and Other Stories*; Shirley Ann Grau's *The Black Prince and Other Stories*; Flannery O'Connor's *A Good Man Is Hard to Find*; Elizabeth Enright's *The Moment Before the Rain*; Frances Gray Patton's *A Piece of Luck*; Jessamyn West's *Love, Death and the Ladies' Drill Team*; Nancy Hale's *The Empress's Ring*; Tennessee Williams' *One Arm and Other Stories*; *Prize Stories 1955: The O. Henry Awards* (ed. by Paul Engle and Hansford Martin); and *The Best American Short Stories 1955 and the Yearbook of the American Short Story* (ed. by Martha Foley).

Different in tone were William Faulkner's *Big Woods*, with drawings by Edward Shenton, a collection of stories revised to make a unified book of fiction dealing with hunting in Mississippi, and including the famous *The Bear* and *Delta Autumn* in altered form. Samuel Hopkins Adams' widely read *Grandfather Stories* were of early American life shortly after the Revolutionary War through reminiscences of Adams' grandfather.

Poetry.—As an innovation in publishing technique, to make the publication of new poets economically possible, Scribner's ventured a second anthology, or collection, *Poets of Today II*, containing the work of Norma Farber (*The Hatch*), Robert Pack (*The Irony of Joy*), and Louis Simpson (*Good News of Death and Other Poems*), the whole work edited by the well-known poet, John Hall Wheelock. Recent work by the most precise and most intellectual of American poets was W. H. Auden's *The Shield of Achilles*. The work of other established poets of Auden's generation, or a bit younger, included *Selected Poems*, by Randall Jarrell, the first major poet to emerge from World War II; *As If. Poems New and Selected*, by John Ciardi; *Poems*, by Elizabeth Bishop; and *The Salt Garden*, by Howard Nemerov. *Selected Poems*, by Robert P. Tristram Coffin (q.v.), the New England poet of the homespun and the seacoast, was a posthumous publication. *Gentlemen's Relish*, by Christopher Morley, was a small, 100-page collection of his work since 1951, and largely personal.

The Complete Poetical Works of Amy Lowell, a 670-page volume with an introduction by Louis Untermeyer, was a tribute to the imagist movement of the 1920's. *The Poems of Emily Dickinson. Including variant readings critically compared with all known manuscripts*, edited in three volumes by Thomas H. Johnson, was a definitive scholar's edition.

Literary History and Biography.—Two collections of critical essays, Lionel Trilling's *The Opposing Self: Nine Essays in Criticism*, and R. P. Blackmur's *The Lion and the Honeycomb; Essays in Solicitude and Critique*, helped summarize the points of view of two of the most highly valued contemporary American critics. Trilling's work emphasized the friction between the autonomous, creative "self" and the culture in which it worked. Blackmur emphasized, especially in the titular essay, the complementary relationship between scholarship and criticism. Other examples of literary criticism of a high order in 1955 were found in Alfred Kazin's *The Inmost Leaf, A Selection of Essays*; Leslie A. Fiedler's *An End to Innocence*; and Marianne Moore's *Predilections*, her comments on her contemporaries. *Party of One: The Selected Writings of Clifton Fadiman*

contained the literary and other comment of a highly literate journalist, including his famous attacks on Faulkner and Gertrude Stein. Robert E. Spiller's *The Cycle of American Literature* was scholarly criticism of a high order; Stanley T. Williams' two-volume, 1,009-page *The Spanish Background of American Literature* was a massive contribution of factual scholarship.

The following important critical biographies of American writers were published in 1955: *Thomas Wolfe, The Weather of His Youth*, by Louis D. Rubin, Jr.; *The Stature of Theodore Dreiser: A Critical Survey of the Man and His Work*, an anthology of criticism edited by Alfred Kazin and Charles Shapiro; *Young Henry James, 1843-1870*, by Robert C. Le Clair; *Longfellow: A Full-Length Portrait*, by Edward Wagenknecht; *The Solitary Singer: A Critical Biography of Walt Whitman*, by Gay Wilson Allen; *The Rungless Ladder, Harriet Beecher Stowe and New England Puritanism*, by Charles H. Foster; and *Henry Adams*, by Elizabeth Stevenson.

History and Biography.—*Memoirs by Harry S. Truman, Vol. I: Year of Decisions (1945-1946)* was a widely-read best-seller in 1955, at once a self-portrait of President Truman and an analysis of his first year in office. Richard Hofstadter's *The Age of Reform: From Bryan to F. D. R.* served as a scholar's study of the background of political and social ideas which Truman inherited.

New studies in the Civil War period included: Earl Schenck Miers' *The Web of Victory: Grant at Vicksburg*; J. Cutler Andrews' *The North Reports the Civil War*, an evaluation of the war correspondents; *Three Years With Grant, As Recalled by War Correspondent Sylvanus Cadwallader*, edited by Benjamin P. Thomas; and *Three Lincoln Masterpieces: Cooper Institute Speech, Gettysburg Address and Second Inaugural*, by Benjamin Baroness, a study of the historical background of the speeches.

Earlier America and its culture was analyzed in *Rebels and Democrats: The Struggle for Equal Rights and Majority Rule During the American Revolution*, by Elisha P. Douglas; *Cities in Revolt: Urban Life in America, 1743-1776*, by Carl Bridenbaugh, a study of the 18th century sophistication of five American cities; and *Culture on the Moving Frontier*, essays in evaluation by Louis B. Wright.

Biographies of key figures in 19th century America included Charles Albro Barker's 696-page study of the advocate of the single tax, *Henry George*; Stewart J. Holbrook's *James J. Hill, A Great Life in Brief*, an account of the builder of the Great Northern Railway; Harry Barnard's *Rutherford B. Hayes and His America*; J. G. Randall and Richard N. Current's *Lincoln the President: Last Full Measure*; Hudson Strode's *Jefferson Davis: American Patriot*, stressing the man in his early years, and based on private papers and letters; Llerena Friend's *Sam Houston: The Great Designer*; and John William Ward's *Andrew Jackson: Symbol for An Age*, a cultural history by a literary scholar. David P. Edgell's *William Ellery Channing: An Intellectual Portrait* and Arthur S. Bolster, Jr.'s *James Freeman Clarke: Disciple of Advancing Truth* were studies in key figures in beginnings of the Unitarian Church of New England.

Biographies and self-portraits of contemporary Americans of note included Edward Weeks' *The Open Heart*, by the editor of *Atlantic Monthly*; Van Wyck Brooks' *John Sloan, A Painter's Life*; *It's Me O Lord, The Autobiography of Rockwell Kent*, the American artist; Helen

Keller's *Teacher: Anne Sullivan Macy, A Tribute by the Foster Child of Her Mind*; Ludwig Bemelmans' *To the One I Love Best*, a sketch of Elsie de Wolfe, Lady Mendl, of café society; and Nathaniel Benchley's *Robert Benchley: A Biography*, the life of the humorist, critic, and actor by his son.

Lives of stage personalities in 1955 included Ethel Barrymore's *Memories: An Autobiography*; John Bainbridge's *Garbo*; Guthrie McClintic's *Me and Kit* (Katharine Cornell); and Richard Stoddard Aldrich's *Gertrude Lawrence as Mrs. A.*, the English actress as American wife.

Miscellaneous Nonfiction.—American humor in 1955 was represented by *Thurber's Dogs: A Collection of the Master's Dogs, Written and Drawn, Real and Imaginary, Living and Long Ago*; Betty MacDonald's *Onions in the Stew*; Emily Kimbrough's *So Near and Yet So Far*; and S. J. Perelman's *Perelman's Home Companion*.

The art of the essay flourished in *The Vintage Mencken*, gathered by Alistair Cooke for the 75th birthday of H. L. Mencken; *The Easy Chair*, 31 essays by De Voto, containing pugnacious criticism of America's cultural ways; *Notes of a Native Son*, by James Baldwin, studies in Negro-white relations by the young negro novelist; and *The Voice of the Desert: A Naturalist's Interpretation*, by Joseph Wood Krutch, dramatic critic and former Columbia University professor, attempting to capture the feel and sense of the Arizona desert.

Philosophical and political speculation in 1955 was represented by *John Dewey: His Contribution to the American Tradition*, edited by Irwin Edman; *The Letters of George Santayana*, edited with commentary by Daniel Cory, covering the period 1886-1952; *Reflections on the Failure of Socialism*, by Max Eastman, a long personal essay; *Grand Inquest: The Story of Congressional Investigation*, by Telford Taylor, a history of congressional practice since 1792; *Academic Freedom: An Essay in Definition*, by Russell Kirk, a challenge to the liberals; and *Essays in the Public Philosophy*, by Walter Lippmann, a trenchant discussion of American foreign policy by the most intellectual of American political commentators.

(See also BOOK PUBLISHING AND SALES; CHILDREN'S LITERATURE; PHILOSOPHY; PRIZES AND AWARDS; THEATER.)

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AMERICAN SAMOA. See SAMOA.

ANDORRA. An autonomous state on the south slope of the eastern Pyrenees, under the joint sovereignty of the president of France and the Spanish bishop of Urgel. Area, 175 square miles; pop. (1954 census), 5,664. Andorra la Vieja (1,100) is the capital. Andorrans speak Catalan and are of the Roman Catholic faith. There is a 24-member General Council of the Valleys elected for a 4-year term by heads of families. The council chooses a syndic as its executive. France represents Andorra in foreign affairs. French and Spanish currency are in use. Chief occupations are agriculture and sheep raising. There is a cigarette factory. Tourism and smuggling are major sources of income. A highway crosses the state from southwest to northeast. Radio Andorra is one of the most powerful stations in Europe.

ANGLING. See SPORTS, GAMES, AND SHOWS—*Fly and Bait Casting*.

ANGLO-EGYPTIAN SUDAN. A former African condominium (agreement abrogated in October 1951) ruled jointly by Great Britain and Egypt, the Sudan, with six northern and three southern provinces, each having a governor, was given self-government and a self-determination statute in 1953, and became an independent republic Jan. 1, 1956. With an area of 967,500 square miles, the Sudan extends southward from Egypt to Kenya, Uganda, and the Belgian Congo. It is bounded on the west by French Equatorial Africa and Libya, and on the east by the Red Sea and Ethiopia (with Eritrea). The Nile traverses its entire length.

Population.—The diverse population of 8,900,000 (unofficial midyear 1954 estimate) comprises predominantly Moslem Arabs (66% to 75% of the entire population) and Nubians in the north; and Nilotic, Hamitic, and Negro tribes in the south. The population is increasing rapidly, and about 2,327,000 inhabit the 60,475 square miles of the Blue Nile and Khartoum provinces. The city of Khartoum is the capital and, with the adjoining cities of Khartoum North and Omdurman, had an estimated 1954 population of about 257,300. Other important cities are: El Obeid (70,100), Port Sudan (60,600), and Wad Medani (57,300).

Government and Political Events, 1955.—On Feb. 12, 1953, Great Britain and Egypt signed an agreement to end the condominium and recognize the self-government statute of the Sudan. The statute provided for a governor general (Sir Alexander Knox Helm, whose appointment was announced on Dec. 30, 1954), who was in charge of foreign affairs and responsible to the contracting governments. He was assisted by an international commission, consisting of a Pakistani chairman and 1 British, 1 Egyptian, and 2 Sudanese members.

The statute also provided for a Sudanese cabinet to govern, under the governor general, during a 3-year transitional period to end not later than January 1957. The cabinet assumed office on Jan. 9, 1954, with Ismail el-Azhari as prime minister and minister of interior, and later (Dec. 25, 1954) as minister of defense. El-Azhari was forced to resign on Nov. 10, 1955, following a vote of no confidence, but was reappointed prime minister and accepted by Parliament on November 15.

Parliament, by another statutory provision, convened on Jan. 1, 1954, and has a Senate of 50 members, of which 30 are elected and 20 are appointed by the governor general, and a House of Representatives of 97 elected members. The National Unionist Party, which has been friendly with Egypt, holds the majority, with 21 seats in the Senate and 47 seats in the House of Representatives. Other parties are: the Umma (People's) Party, which was pledged to seek full independence; the Southern Freedom Party, which desired autonomy of the three southern provinces; the Republican Independence Party, which wished full independence, but pledged co-operation with Egypt primarily on economic and cultural questions; the Southern Unionist Party; and the Socialist Republican Party.

The convening of Parliament on Jan. 1, 1954, began the 3-year transitional period, which was to be followed by the election of a Constituent Assembly to determine whether the Sudan should become independent or retain some tie with Egypt. During the transitional period the Sudanization of the administration was to be effected under the supervision of a committee of 1 British, 1 Egyptian, and 3 Sudanese members. The committee held its last meeting on Aug. 7, 1955, and on August 16, Parliament voted for the final process of self-determination to begin. As agreed, British and Egyptian troops began immediate evacuation; and on August 22, Parliament voted for a commission of nationals from Sweden, Norway, Switzerland, India, Pakistan, Yugoslavia, and Czechoslovakia to supervise the election of the assembly, despite British objections to the inclusion of the latter two. Sudanese government opposition leaders have made various charges concerning Egyptian political activities in the Sudan with regard to the elections. (See also EGYPT.)

An agreement signed in Cairo by Great Britain and Egypt on December 3 cleared the way for the election, and on December 19 the House of Representatives adopted a resolution declaring the country's independence.

On Jan. 1, 1956, the Sudan became an independent republic, recognized by Britain and Egypt; and Premier El-Azhari, at ceremonies in Khartoum, raised the country's blue, green, and yellow flag. At the same time, a 5-man Supreme Commission was sworn in to govern until a constitution should provide otherwise.

Religion and Education.—About 5 million Sudanese are Moslems. In the southern provinces the citizens are for the most part, pagan. In addition, there are small numbers of adherents to Coptic, Greek Orthodox, Roman



U.S. NAVY

Scientists with U.S. Navy Antarctic Expedition (1954-55) study snow density atop a 15-foot hut, built at Little America III in 1939 and buried by ice and snow.

Catholic, Maronite, Greek Evangelical, and several Protestant groups, including Anglican.

Government schools, providing education from the elementary to university-entrance levels, are supplemented by various private schools (especially mission schools in the southern provinces), which the government furnishes with many supplies. In addition to 548 elementary schools, which became free in 1955, there were in 1953-54, 509 subgrade village schools, 119 *khalwas* (Koranic schools), and 5 secondary, 1 junior, and 33 intermediate schools. There are trade and technical schools, and a technical institute at Khartoum, 9 teacher-training colleges, and a military college. Women are educated separately, except at the University College of Khartoum, which is constitutionally independent of the government.

Finance.—The present currency of the Sudan is the Egyptian pound (£E1 = U.S.\$2.872), but in June 1955 new Sudanese currency was on hand for use when self-determination is a reality. The budget for the fiscal year 1954-55 showed estimated revenues of £E36 million and expenditures of £E31.9 million. The surplus revenues (£E4,194,222 in 1954-55) are being set aside for a 5-year development program, ending in 1958, which calls for expenditures of £E34 million for public utilities, health, communications, irrigation, and agricultural research.

Production.—The Sudan Gezira Board, which includes 5 Sudanese directors, is responsible to the government for the management of the cotton-growing enterprise in the Gezira, a 5-million-acre triangle between the Blue and White Nile rivers south of Khartoum. The Sennar Dam irrigates 1 million acres of the area, of which 250,000 acres are planted annually in cotton. The land is tenanted, and each tenant has about 40 feddans (1 feddan = 1.038 acres), of which 10 are planted in cotton and 7.5 are used for growing food and fodder crops. The tenant pays no rent or water rate, receives 40% of the cotton profits, and keeps the grain and fodder.

Plans for the extension of the area are being drawn in connection with the proposed Roseires Dam on the Blue Nile, to cost £E25 million over a ten-year period. The new dam would have a capacity of 3 billion cubic meters and irrigate an additional 800,000 acres in the Gezira. Unsuccessful negotiations with Egypt were held in 1955 in connection with water rights for this project.

In 1953-54 the total Sudanese area in cotton cultivation was estimated at 628,314 feddans, and the estimated 1953 crop was 170,000 metric tons of cottonseed and 89,000 metric tons of cotton.

Most of the Sudan's gum arabic, which supplies between 80% and 90% of the world's needs, comes from Kordofan Province. In 1953, 50,000 tons, valued at nearly £E3 million, were exported. Citrus fruits, dates, and mangoes—all cash crops—are grown in the north, in addition to millet (the people's principal food), corn, beans, peanuts, castor beans, and sesame seed (exports of the latter in 1953 were valued at £E1.3 million). In the southern provinces, to-

bacco, coffee, sugarcane, rice, and palm oil are produced. Sudanese livestock includes 2 million camels for transport and meat, 5.5 million cattle, 6 million sheep, 5 million goats, 700,000 donkeys, and 40,000 horses. Much meat is exported to Egypt and Saudi Arabia, and in 1953, hides, skins, and leather, valued at £E900,000, were exported. The principal minerals are gold and gypsum, and mahogany and other valuable woods and forest products are obtained from the forested slopes in the south.

Foreign Trade.—In 1953 the principal exports, with values in Egyptian pounds, were: cotton (26,764,000), cottonseed (3,138,000), gum arabic (3,000,000), and peanuts (1,956,000); principal imports were: textile piece goods (7,539,000), refined sugar (3,833,000), petroleum products (3,123,000), and metals and metalware (3,124,000). Other notable imports included motor vehicles, coffee, footwear, machinery, and wheat flour. The principal countries of export in 1953 were: the United Kingdom (41%), India (13%), and West Germany (11%); and, of import: the United Kingdom (42.6%) and Egypt (8.3%). In 1953 exports totaled £E44,410,000 and imports £E50,668,000, resulting in an unfavorable balance of trade of £E6,258,000.

Transportation and Communications.—The government-owned railway system (2,154 miles were open to traffic as of Sept. 30, 1954) extends from Wadi Halfa in the north (where it connects with the Egyptian State Railways by river steamer service to El Shallal) to Roseires in the south near the Ethiopian border. A branch extends westward to Kareima from near Abu Hamed, and another line runs eastward from the railway center of Atbara to Port Sudan, the country's principal port. From the Port Sudan line at Haiya, another line goes southward by way of Kassala and Gedaref to Sennar, from where it extends westward to El Obeid. The line south of Sennar to Roseires has been built since 1952. In 1955 work commenced on an extension from the El Obeid line at Er Rahad toward Abu Zabad in the southwestern part of Kordofan Province. A 2,618-mile river service operates steamers on the Nile and its tributaries. The Khartoum-Juba steamer service connects in the south by motor transport with the Kenya-Uganda transportation system at Lake Albert.

The Sudan has 26 airfields, and scheduled international service is available to Khartoum and other principal cities. The government-owned Sudan Airways operates intercity service within the country and weekly service to French Equatorial Africa.

Postal, telegraph, radio, and telephone services are government monopolies. In 1954 there were 85 post and telegraph offices and 11,648 telephones (Jan. 1, 1954) in operation. In 1955 telephone service was extended to Juba, El Fasher, Malakal, and Kassala at a cost of £E-850,000.

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ANGOLA. See PORTUGUESE TERRITORIES.

ANIMALS. See references under the Index entry.

ANTARCTICA. This continent, covering 5,100,000 square miles, or about one tenth of the land surface of the earth, is located almost entirely within the Antarctic Circle. Since the continent was first circumsailed by James Cook in 1775, and later sighted by sealers in the 1820's, 180 expeditions from many nations have attempted to

solve some of its geographic and scientific problems.

Official claims to the territory have been made by Great Britain, Norway, Chile, Argentina, France, Australia, and New Zealand, but none of these claims is recognized by the United States, which, like the USSR, reserves all rights for future claims. American expeditions have discovered, surveyed, mapped, and photographed more land on the continent than have the expeditions of all other claimant nations combined.

The Antarctic is separated from the rest of the world by the Atlantic, Pacific, and Indian oceans. Swept by winds which attain velocities of more than 120 miles per hour, and with winter temperatures registering more than 80 degrees below zero Fahrenheit, more than nine tenths of the continent is covered with snow and ice to a depth of several thousand feet. Such climatic conditions support only those animals which derive their food from crustacea flourishing in cold water, such as whales, seals, penguins, and marine birds. Four fifths of the interior remains unexplored even by air.

In January 1955 the U.S. Navy icebreaker, *Atka*, reconnoitered the Ross Sea area to determine the suitability of the Bay of Whales as a location for United States activities during the forthcoming International Geophysical Year, 1957-58. For the second time on record (the first was in 1923) it was found that a huge segment of the 120-foot-high Ross Ice Shelf had sloughed off. Five airplanes, some buildings, food, and much equipment left there by the navy in 1947 had floated out to sea. Because of heavy ice, the *Atka* was unable to reach the coastal shores of the Pacific quadrant to obtain ground control points for previously recorded aerial photographs; and later, the vessel was forced to abandon its attempt to penetrate the Weddell Sea pack ice because of the lateness of the season and damage to one of the propellers. The *Atka* returned to Boston on April 12, 1955, after its 28,000-mile survey cruise.

In the Danish chartered vessel, *Kista Dan*, a party of Australians went through heavy ice floes off MacRobertson Coast of Enderby Land in February 1955, and relieved the 15 men who had wintered at Mawson Base for one year. Food and equipment were replenished, and a new detachment of scientists was landed to prepare for their part in the International Geophysical Year.

Secretly, in January 1955, the Argentine icebreaker, *General San Martin*, penetrated the Weddell Sea pack ice and reached the Gould Bay area on Lassiter Ice Shelf (discovered by the Ronne expedition in 1947). There the Argentines erected their fifth and southernmost station (called Base General Belgrano) in their claimed sector of the Palmer Peninsula. The new station, situated less than 800 miles from the South Pole and manned by 32 men, represented an attempt to get ahead of scheduled British activities in the same area in December 1955.

Helicopters from naval transports relieved a 19-man Argentine garrison marooned by impenetrable pack ice for two years at their Marguerite Bay base. A new group of men was flown in from the transports anchored 140 miles from the base. The Argentines also set up a new base, Camp Esperanza, on the extreme northern end of Palmer Peninsula in the vicinity of the British Hope Bay station, which has been in operation since 1951. In 1955 Argentina set up a civil administration and a branch of the National Bank of Argentina in the sector which she claims.

The 1955 season saw the British occupy two new Antarctic bases off Palmer Peninsula, with four or five men stationed at each. One is located at Anvers Island, and the other at Horseshoe Island in Marguerite Bay.

In addition to making regular weather observations and performing local survey work, the



AUSTRALIAN NEWS AND INFORMATION BUREAU

Antarctic relief ship *Kista Dan* moves through ice floe in Sandefjord Bay on way to Mawson Base, Australian post.

Argentines at five bases, the Chileans at four, and the British at eight, are all maintaining continuous occupation and administration, with magistrates, post offices, etc., in order to strengthen their overlapping claims to the disputed Palmer Peninsula sector. In May 1955, Great Britain proposed that her dispute with Argentina and Chile over the Falkland Islands (q.v.) and the Antarctic territories be submitted to the International Court of Justice. This proposal was rejected by the other two countries.

During 1955, plans were made for 40 nations to participate in the Third International Geophysical Year, 1957-58. The first such year was observed in 1882, and the second, in 1932. Eleven nations, including the USSR, are scheduled to set up bases on the Antarctic continent and offshore islands. United States participation is being sponsored by the National Science Foundation and the National Research Council. The U.S.S. *Arneb*, the last of 7 vessels of Task Force 43, headed by Rear Admiral George Dufek, USN (Ret.), left Wellington, New Zealand, on December 16 for the McMurdo Sound area in the Ross Sea to provide logistic support for United States participation in the International Geophysical Year program. Two bases will be established during the Antarctic summer, and five other bases will be set up in the field during the 1956-57 season. By direction of President Eisenhower, Rear Admiral Richard E. Byrd USN (Ret.) was designated on October 21 as "officer-in-charge" and the senior representative charged with maintaining effective monitorship over those political, scientific, legislative, and operational activities which comprise the United States Antarctic program.

The Soviet Antarctic expedition sailed from the USSR on Nov. 30, 1955. The French expedition, aboard the Norwegian sealing ship *Norsel*, departed from Hobart, Tasmania for Adelie Land on December 26; and the Australians left Melbourne for Mawson Base in the Danish vessel *Kista Dan* on December 27.

FINN RONNE,

Captain, USNR; Leader, Ronne Antarctic Research Expedition, 1946-48; Author of "Antarctic Conquest."

ANTHROPOLOGY. The past year was a normal one in cultural anthropology. Research showed a trend toward ecological and demographic problems; a few new serials were added, one of major significance; and a number of interesting meetings were held.

Group Research.—The West African Institute of Social and Economic Research (Ibadan) sponsored a number of plantation and labor studies in the Cameroons. The East African Institute of Social Research (Makerere) sponsored a study of the African and Asian populations of Kampala. A broad research program emphasizing physical anthropology and medicine and involving extensive field work in central New Guinea has begun at the University of Sydney. Cultural anthropologists will assist by determining, for example, the effects of social organization on the determination of breeding units. The Nuffield Foundation is sponsoring the project. In May 1955 the inter-institutional project for anthropological study in the Philippines, directed by Dr. Fred Eggan, conducted meetings reviewing past research, and laid plans for future work.

The Southwest Project in Comparative Psycholinguistics, which took shape under the Linguistics and Psychology Committee of the Social Science Research Council (SSRC), is financed by the Carnegie Corporation. The early phases of the program have involved research training and seminars at the University of New Mexico, and field studies are beginning. A new research program, "Man in the Tropics," has been initiated with funds from the Rubin Foundation. Involving staff and students from Brandeis, Columbia, Vassar, and Yale Universities, the initial research, directed by Drs. Wagley (chairman), Manners, Mintz, and Murra, will be in the Caribbean.

Individual Research.—Aided by numerous foundations, the number of research projects involving one or two field workers continues to be large. A sampling, showing the diversity of interests, includes: SSRC sponsorship of R. Cohen and W. L. D'Azevedo, both of Northwestern University, doing individual projects in West Africa; F. L. K. Lehman of Columbia University and Human Relations Area Files (HRAF), to do a study on caste and community in India; R. Millon of Columbia University and HRAF, to do ethno-archaeological research in Mexico; H. B. Nicholson of Harvard University, to do research in Mexico; and M. J. Swartz also of Harvard, to do research in Truk.

Anthropologists continue to work among American Indians, as three SSRC grants testify. David McAllester of Wesleyan University is continuing his study of Navajo and Apache music; Helen Codere of Vassar continues to investigate the Kwakiutl; and D. M. Schneider is working on the kinship system of the Mescalero Apache. John P. Harrington, ethnologist of the Bureau of American Ethnology, retired in 1954 but continues his studies of American Indian languages. J. J. Honigsmann continued personality and cul-

ture studies among the Cree in Ontario with a Wenner-Gren grant.

Allen Spitzer of St. Louis University is making a study of the work of Dr. Robert Redfield, and will test his conclusions in the field in Mexico. The National Science Foundation is sponsoring an ethnological and demographic study in Sierra Leone by Dr. and Mrs. V. Dorjohn of Northwestern University. Ford Foundation grants have gone to Miss Paula Hirsch of Northwestern, to study the status of women in Acholi (Uganda); and to Peter Hammond, who will work among the Mossi, as will Dr. Elliott Skinner of Columbia. Prof. Marvin Harris will make an ethnological study in Mozambique.

Among the recently completed researches are: the completion of a grammar and dictionary of Yoruba by Dr. R. C. Abraham, who is now beginning a treatment of Ibo. Prof. J. H. Greenberg has returned to Columbia after a year of linguistic field work in West Africa. Arnold Pilling, University of California, completed 16 months of research in Bathurst and Melville Islands. A. P. Vayda, Columbia University, returned from New Zealand where he made an extensive study of Maori warfare as a Fulbright grantee.

Archives and Publications.—One of the outstanding events of the year was the appearance of the first *Yearbook of Anthropology*, edited by W. L. Thomas, Jr. and others, and sponsored by the Wenner-Gren Foundation. Rather than simply chronicling the anthropological events of the last few years, the *Yearbook* is mainly composed of original articles on major topics.

The Middle East Institute is initiating an annual *Survey of Current Research in the Middle East*, with emphasis on the social sciences. The Sierra Leone Society, founded in 1954, now publishes a journal, *Sierra Leone Studies*, including articles of anthropological interest. Two new items in the Ethnographic Survey of Africa are *The Galla of Ethiopia* and *The Peoples of the Horn of Africa*.

Anthropologists will be interested in the new *Malayan Journal of Tropical Geography*, published by the University of Malaya. Contributions are not limited to Malaya, and frequently treat general tropical problems of agriculture, population, and even culture history.

Education and Anthropology, embodying the results of a conference sponsored by Stanford University and the American Anthropological Association (AAA) in June 1954, was published in 1955.

The International African Institute has received a Ford Foundation grant so that it may reproduce and distribute its bibliographical card index of about 40,000 entries on African studies. The historical documents of Nigeria, including Arabic writings from the 10th century and the British administrative records of the last century, will receive special care and preservation. Steps are being taken in Nigeria to prepare suitable permanent archives.

In Salisbury, Southern Rhodesia, the Central African Archives announced plans to publish some 20 volumes reproducing original manuscripts of importance in the history of eastern and central Africa. The period covered by the documents is 1487 to the early 19th century. Several colonial governments, including Mozambique and the Federation of Rhodesia and Nyasaland, will participate.

Anthropology in Government.—While general employment of anthropologists by the government

seems to remain relatively constant, some specific reductions of interest may be noted. The Foreign Service Institute has reduced its staff and, consequently, the amount of anthropological orientation required of Foreign Service officers and other personnel. In the Trust Territory of the Pacific, where five anthropologists had been employed as advisers to administrators, the promotion of one to island affairs officer, and the return of Saipan to U.S. Navy jurisdiction reduced the number of advisers to three. Gordon MacGregor reports that a summary of the research carried out in the trust territory up to July 1, 1953, is available in the *Clearing House Bulletin of Research in Human Organization*.

The Indian Claims cases, based on a 1946 act of Congress which permits American Indians with tribal affiliations to sue as groups for indemnities claimed as the result of broken treaties or other injustice, continues to employ the services of a large number of professional anthropologists and graduate students, mostly on a part-time basis. These anthropologists work either for the Department of Justice, preparing the government's case, or for the plaintiffs. Theoretical anthropology will ultimately gain from the research in this litigation. Extensive discussions of implications of the new data recovered in this work have already been given considerable space on the program of the annual meeting of the AAA. Prof. Ralph Beals also has prepared one of the most intensive cultural-ecological studies yet undertaken, and is expected to present his findings to the profession when his materials are released from judicial restriction. The study relates to the distribution of Indians in California in the middle of the 19th century.

Meetings.—In addition to the regular meetings which are held annually by professional societies, a number of special conferences were held. The second congress of the Pan Indian Ocean Science Association was held in Perth, Australia, in August 1954. Ecology and demography were the most frequently discussed subjects. The association, headed by A. P. Elkin, meets next in Madagascar in 1957.

An international symposium on Man's Role in Changing the Face of the Earth was held at Princeton University in June 1955. The papers are being prepared for publication in 1956 by the Wenner-Gren Foundation, which sponsored the meeting.

A Symposium on Cross-Cultural Regularities was organized by Julian H. Steward at the University of Illinois in June 1955. Papers were presented by K. Wittfogel, E. Wolf, M. Harris, R. Murphy, R. Adams, and M. Fried. Tentative plans have been made for subsequent meetings. The papers presented at an earlier meeting of scholars with similar interests were published in 1955 in both Spanish and English editions. The English title is *Irrigation Civilizations: A Comparative Study*, Monograph No. 1 of *Ciencias Sociales* (Pan American Union).

Anthropologists are at work preparing the program for perhaps the largest meeting of the profession yet to be held. This is the Fifth International Congress of Anthropology and Ethnology, to be held in Philadelphia in the fall of 1956.

Medals and Awards.—The Frazer Lectureship in Social Anthropology, which rotates among Oxford, Cambridge, Glasgow, and Liverpool universities, was awarded in 1954 to I. Schapera. The 1955 award went to Raymond Firth. The Henry Myers Lecture of the Royal Anthropologi-

cal Institute, 1954, was delivered by E. E. Evans-Pritchard. The Huxley Memorial Medal and Lecture, 1954, went to Ralph Linton. His untimely death was followed by the appointment to this honor of Henri Vallois. The Viking Fund Medals and Awards, 1954, were: in general anthropology, Robert Redfield; in archaeology, William Duncan Strong; in physical anthropology, W. W. Howells.

(See also ARCHAEOLOGY and the Index entry, *Anthropology*.)

MORTON H. FRIED,
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ANTIBIOTICS. See Index entry.

ANTIGUA. See LEEWARD ISLANDS.

ANTIMONY. See MINERAL PRODUCTION.

ANZUS COUNCIL. See PACIFIC COUNCIL.

APPLES. See FRUITS.

APRICOTS. See FRUITS.

ARAB LEAGUE. This organization of Middle East nations, whose inhabitants are predominantly Moslem in religion and Arab in culture, was formed in 1945. The member states in 1955 were Egypt, Iraq, Jordan, Lebanon, Libya, Saudi Arabia, Syria, and Yemen.

The purposes of the Arab League are to strengthen ties between participant states; to coordinate their political, social, and economic programs; to preserve their independence; and to consider in general the affairs and interests of the Arab countries and peoples. Headquarters are in Cairo, and there is a league publicity office in New York City. Abdul Khaliq Hassouna, former foreign minister of Egypt, has been secretary general since 1952. Each state has one vote in the Arab League Council, which may meet in any of the Arab capitals. The Political Committee of the council consists of the foreign ministers of member states.

In 1955 a number of special meetings and congresses were held. One was the Arab Conference on Free and Compulsory Education at Cairo. Another was a meeting of the Cultural Committee at Jidda, which discussed the teaching of Arabic in Eastern and Western countries. The Arab League Council approved Yemen's request for consideration of her dispute with Britain. The league also took a stand that French measures being taken in Algeria were threats to world peace and security.

With the signing of the defense pact between Turkey and Iraq on Feb. 24, 1955, there was great consternation among the Arab League members, and many observers stated that the Arab Collective Security Pact was a failure and that, by signing with Turkey, Iraq had killed the Arab League. Iraq, of course, denied this. Almost immediately, in an effort to rejuvenate the league, Egypt signed pacts with Syria and Saudi Arabia, and encouraged Lebanon and Yemen to join. The agreements proposed a unified command for their armies, which would be made ready to act collectively against any state which might attack any member nation. Egypt's later move to purchase arms from countries of the Soviet bloc presumably could bring Syria and Saudi Arabia into closer ties with the USSR. (See also articles on the Arab League countries.)

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ARABIA. This peninsula in southwestern Asia (area, 1,180,280 square miles; est. pop., 13,000,000) is bounded by the Persian Gulf and the

Gulf of Oman on the northeast, the Indian Ocean (Arabian Sea) and the Gulf of Aden on the south, the Red Sea on the west, the Gulf of 'Aqaba on the northwest, and Iraq and Jordan on the north. Saudi Arabia and Yemen (qq.v.) are independent states and members of the United Nations; the state of Muscat and Oman is a semi-independent sultanate under British aegis. Aden Colony and Aden Protectorate (both British) are in the southwestern part of the peninsula, and Trucial Oman (Trucial States), Qatar, Bahrain (Bahrein), and Kuwait are British-protected states along the coast of the Persian Gulf.

Petroleum Resources and Development.—Production from Arabian fields was approximately 2 million barrels daily in 1955, exclusive of the fields in Iraq and Iran. Besides tankers exporting oil through the Persian Gulf, there are pipelines to the Mediterranean—from Saudi Arabia to Sidon (Saida), Lebanon, and from Iraq to Tripoli, Lebanon, and to Baniyas, Syria. After a lapse of three years oil was again exported in quantity from Iran in 1955 but the competition of these exports did not seem to curtail oil production in Arabia.

Oil concessions for all Saudi Arabia and the Persian Gulf waters off Saudi Arabia are held by the Arabian American Oil Company (Aramco), jointly owned by four American companies (see SAUDI ARABIA). The concession for Bahrain is held by the Bahrain Petroleum Company, owned in equal shares by Standard Oil of California and the Texas Company. The Kuwait Oil Company is owned equally by the British Petroleum Company (formerly the Anglo-Iranian Oil Company) and the Gulf Oil Corporation. The oil concessions for Qatar, Muscat and Oman, and Trucial Oman are held by subsidiaries of the Iraq Petroleum Company (IPC); those for the neutral zone between Iraq and Saudi Arabia are divided between Aramco and IPC; and for the neutral zone between Kuwait and Saudi Arabia, between the American Independent Oil Company (AMINOIL) and the Pacific Western Oil Corporation (PACWES).

The International Marine Oil Company, owned by the Superior Oil Company of California, and the Central Mining and Investment Company, has the offshore rights around the peninsula of Qatar. The sheik of Qatar has granted an underwater oil concession in the Persian Gulf to the Shell Overseas Exploration Company, Ltd., which has formed a subsidiary company to exploit the concession. The British Petroleum Company possesses offshore rights from Trucial Oman, and IPC has the concession for Eastern Aden Protectorate. Two oil companies have been formed in Yemen, one German and one American, to develop oil resources. (See also PETROLEUM.)

Aden Colony and Aden Protectorate.—Aden Colony has an area of 75 square miles exclusive of the Kuria Muria Islands (30 square miles) and Kamaran Island (22 square miles), constituting a dependency of Aden, and Perim Island (5 square miles). Population (est. 1955) is 140,000. Aden Protectorate (112,000 square miles) comprises 16 units (7 sultanates, 6 sheikdoms, 1 amirate, 1 confederation, and 1 sharifdom) in the western group, which has a population of approximately 350,000 and an area of 45,000 square miles; the eastern group of five protectorate states (Hadhramaut) has a population of 300,000.

The governor of the colony (Sir Tom Hickinbotham, appointed in 1951) is assisted by a 6-member Executive Council and a 16-member appointed legislative council which has legislative initiative except in matters of taxation and Orders in Council. The governor has absolute veto power. The executive branch has a number of departments whose heads and key officials are British

and members of the Overseas Service. The law is still that of British India, and one judge serves as the Supreme Court of Aden. There are no Moslem courts in Aden. The sultanate of Lahej, bordering on Aden, is the most progressive of the political units. It has a written constitution vesting legislative power in the sultan and a 21-member appointed council which can be changed to an elective body. The Eastern Aden Protectorate differs from the western in that it has greater cultural ties with India, Indonesia, and Malaya. The sultanate of Shihr and Mukalla is under Salih ibn Ghalib al-Qu'aiti, and the sultanate of Say'un is under Husayn ibn Ali al-Kathiri. Other divisions are the sultanate of Qishn and Socotra and the sultanates of Wahidi in the west and Mahra in the east. In the Kathiri and Qu'aiti states many of the government personnel are Pakistanis and Sudanese.

Aden, the capital (pop., 98,000, including surrounding area), is the third busiest port in the Commonwealth of Nations (second only to London and Liverpool), and is the major distribution center of western goods for East Africa and all southern Arabia. In 1954 the port was entered by 4,816 ocean ships with a total tonnage of over 21 million. The port is duty-free, but there are excise taxes on terminal consignments of tobacco, wines, spirits, and gasoline. Imports were valued at £64,883,735 and exports at £44,347,635 in 1954. Salt and fish are the only two exports from Aden that originate there. In 1954, 193,000 tons of salt were exported, all to Japan, and over 2,000 tons of fish were exported to Ceylon, West Germany, and East Africa. Overland trade with the protectorate is carried over desert tracks by truck and camel caravan.

Six airways serve Aden and connect with worldwide flights and Middle Eastern and African locations. These are Aden Airways, Arab Airways, Ethiopian Airlines, Air India, Alitalia (Italian), and Misr Air (Egyptian). Air transport for the protectorate has been developing quickly owing to the lack of roads.

In 1952 a 5-year Colonial Development plan was originated, financed from general revenue, from Great Britain, and from a 20-year loan. On April 1, 1955, the balance in the development fund was £2,289,679. In 1955 a project of 1,520 modern apartments (63 units of 24 apartments each) was being completed for the expanding population. Other projects are for schools and irrigation.

Aden Petroleum Refinery (British Petroleum Company) was finished in 1954, and has a capacity of 5 million tons of crude oil annually. In 1955 it operated at 75% capacity. Aden, for its size, is the wealthiest of all British colonies and has sufficient cash reserves to operate for two years.

In 1955 guerrilla warfare broke out in the Qu'aiti sultanate when British trucks began carrying foodstuffs eastward and took away the business from native camel caravans. British troops were flown to Aden from Suez as other revolts were imminent in Lower Awlaqi sultanate and Upper Awlaqi sultanate. The Aden government accused Yemen of supplying arms and fomenting rebellion. Also in 1955, Petroleum Concessions Ltd. (IPC) discovered oil at Nabroht in Eastern Aden Protectorate.

Bahrain or Bahrein.—This sheikdom consists of one large island (Bahrain) and several small islands in the Persian Gulf, 20 miles off the coast of the Saudi Arabian province of al-Hasa. Its area is 213 square miles, and its population is about 120,000. Sheik Sir Salman ibn Hamad al-Khalifa (accessed in 1942) resides at Manama (pop. 40,000) on Bahrain. There are several British officers in his service, including Sir Charles Belgrave, his chief adviser since 1926. Bahrain is the headquarters of a British political agent for the sheikdom, as well as of the British resident for the Persian Gulf. Detachments of the British Navy and the Royal Air Force are stationed on the island of Muharraq near Manama. Iran claims sovereignty over the sheikdom, which has been under British protection since 1820.

The Bahrain Petroleum Company produces 30,000 barrels of oil daily and refines crude oil from Saudi Arabia. The latter oil reaches the Awali refinery (200,000 barrels daily capacity) through the largest underwater pipeline in the world. In 1952 the sheik began to receive oil royalties under a 50-50 profit-sharing agreement, and in 1954 his oil income was £2.5 million. Other income was about £1 million.

Slightly more than half of the Moslems are Shi'ites, and disorders between them and the Sunnites are frequent. Education is not compulsory because there are not enough schools. There is a labor shortage and it is difficult to find domestic servants. The minimum daily wage is 5 rupees. The Muharraq airfield is used by international airlines.

Kuwait.—This sheikdom (about 6,000 square miles; pop., 200,000) is at the head of the Persian Gulf between Iraq and Saudi Arabia; in part it is separated from the latter by an uninhabited neutral zone of about 3,000 square miles. Sheik Abdallah al-Salim al-Sabbah (accessed in 1950) resides at the seaport of al-Kuwait (pop., about 150,000). He rules with the aid of a council of nobles and elders. The minister at the head of each department is a member of the ruling family. Oil revenues are allocated evenly among current expenses, develop-

ment, and investment. There is no local currency. Indian rupees are the legal exchange, and foreign exchange is controlled by Great Britain. At the official rate, £1 equals Rs.13.4, on the free market, \$1 equals Rs.4.875.

The proved oil reserves of Kuwait are about 15% of the world's known reserves. The Kuwait Oil Company has the concession for all oil in the state until the year 2009, and AMINOIL and PACWES have the concession in the neutral zone. The sheik receives as large a share of the profits as any company pays any other Middle East state (50% in 1955). In 1954, oil royalties were over £60 million, and production was 347 million barrels, 11% above 1953. One third of the oil income is being put aside by the sheik, who has an investment board in London which invests the savings. There is a 6-year development program (1952-58) to cost \$410 million, but in March 1954, new development projects were suddenly suspended, creating great confusion in business circles. Later in the year a new housing program was launched. The first water distillation plant, with a capacity of 1 million gallons per day, went into operation in 1954, and the pipeline to bring water from the Shatt-al-Arab in Iraq was given top priority.

There is great enthusiasm for education, and progress is being made in this field. A large number of Egyptian, Iraqi Lebanese, Syrian, and Palestinian (but not Western) teachers are employed. Foreign interference in education is not allowed, although guidance from Egypt has been sought. A modern university has been built, but boys tend to leave school before they reach the upper levels.

Muscat and Oman or Oman.—This sultanate (82,000 square miles; pop., about 750,000), lying at the south-eastern corner of Arabia, is technically independent. The British government is represented by a consul who reports to the political resident in Bahrain, and a Briton is minister of foreign affairs. A 1951 treaty of friendship, commerce, and navigation governs relations with Britain. Sultan Sayyid Said ibn Taymur ibn Faysal (ascended in 1932) resides in Muscat (pop., 4,200); nearby Matrah (8,500) is the commercial center. Petroleum Development (Oman) Ltd., a subsidiary of IPC, holds Muscat and Oman oil concessions. Other chief products are dates, fish, limes, and pomegranates; camels are raised. In June 1955, a raiding attack was made upon Oman with regard to oil. Imam Ghalib ibn Ali appealed to the Arab League and the United Nations for investigation.

Qatar.—This sheikdom (about 5,000 square miles; pop., 20,000) is a great barren peninsula on the Persian Gulf north of Trucial Oman. A British political officer, under the political agent at Bahrain, resides at Dohah (pop., 10,000), capital of Sheik Ali ibn Abdallah ibn Qasim al-Thani, who also has a British adviser. Qatar Petroleum Company, associated with IPC, has its headquarters at Dukhan in the center of the oilfield about 60 miles from Dohah on the west coast of the peninsula. The senior staff of the company is British and American; clerks and artisans are Indians, Iranians, Pakistanis, Lebanese, and Palestinians; unskilled labor is local. The company has developed a port at Umm Said on the east coast 19 miles south of Dohah. The sheik's oil income in 1954 was about £5 million. Shell Company of Qatar, which holds the offshore oil concessions, has its camp and installations near Dohah, which is becoming a busy modern town.

Trucial Oman or Trucial States.—This territory (6,000 square miles; pop., 115,000), extending for 400 miles along the southern end of the Persian Gulf, is composed of the seven sheikdoms of Abu Dhabi, Dubai, Sharjah, Ajman, Umm-al-Qaywayn, Ras al-Khaymah, and Kalba. A British political agent under the authority of Bahrain is stationed at Sharjah, where there is a detachment of the Royal Air Force; Dubai is the chief port. Pearl fishing and the raising of dates and sorghum are the chief occupations. Petroleum Development (Trucial Coast) Ltd., a subsidiary of IPC, holds the oil concessions, and in 1954 a strike was made in Abu Dhabi.

Since 1949 a dispute over the potentially oil-rich Buraimi Oasis has been raging with Saudi Arabia. The oasis borders Saudi Arabia, Muscat, and Abu Dhabi. In 1955 the Buraimi Arbitration Tribunal opened hearings regarding the dispute on September 11. Great Britain, which controls foreign relations for Muscat and Abu Dhabi, accused Saudi Arabia of bribing tribesmen with several million pounds and using pressure upon some of the arbitrators when the decision was being drawn. As a consequence, Sir Reader Bullard, British member of the tribunal, resigned. In October 1955, troops from Muscat, Abu Dhabi, and Trucial Oman, led by British officers, occupied Buraimi. Saudi Arabia protested, claimed that its police force had been attacked, and announced it would report the affair to the United Nations. Great Britain announced that all Saudi Arabian persons in Buraimi would be repatriated.

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ARCHAEOLOGY. World archaeological research is reviewed below in two sections: (1) Western Hemisphere; and (2) Eastern Hemisphere.

For related activities, see ANTHROPOLOGY and the Index entry, Archaeology.

WESTERN HEMISPHERE

American archaeology continued to prosper and expand in 1955, and the many surveys conducted will pave the way for excavations in coming years. A relatively new branch—colonial archaeology, or the excavation or restoration of early European settlements in America—has come into prominence and seems destined to take its place alongside the more traditional fields of archaeological research in the Western Hemisphere.

Arctic.—Henry B. Collins of the Smithsonian Institution continued his researches at the Sadlermiut and Dorset sites at Native Point on Southampton Island. Both sites are extensive and should reveal for the first time an adequate picture of the two cultures.

Richard MacNeish of the National Museum of Canada surveyed the Arctic coastal region between Tuk-tuk, just east of the MacKenzie River, and the Canadian-Alaskan border. A major discovery was the site of Engitsciak, artifacts from which belong to the Denbigh Flint Complex.

William Irving tested several sites around a large lake some 40 miles east of Howard Pass in the Brooks Range. The evidence suggests long and intensive human occupation in that area.

Canada.—Charles E. Borden of the University of British Columbia carried out salvage excavations at the Fraser midden near Vancouver. A projected hotel will complete the destruction of the mound, already looted by amateurs. Borden also tested the important interior Tsimshian site of Gitsumkalum on the Kalum River.

Thomas E. Lee of the National Museum of Canada found evidence from the site of Sheguiandah on Manitoulin Island which suggests that the quartzite blade industry, heretofore known from George Lake, may be of later date than was previously suspected.

United States.—In the field of early man, the University of New Mexico continued work at the Leucy site in the Estancia Valley, N. Mex. Clovis, Sandia, and other preceramic point types were found in association with elephant, bison, horse, and mastodon bones.

Mark R. Harrington of the Southwest Museum reinvestigated the Tule Springs site in Nevada. Radiocarbon tests showed that charcoal from the site is more than 23,800 years old. Harrington states that human cultural remains were directly associated with the ash beds. Extinct fauna, principally camel, were found at the site. Elsewhere in the United States, William Ritchie of the New York State Science Service and State Museum excavated burials at Rockway Point above the St. Lawrence River. The burials belonged to three distinct periods, ranging from Late Archaic to Late Woodland.

Hale G. Smith and Charles Fairbanks of the Florida State Museum excavated a Weeden Island II burial mound on Ochlockonee Bay. Clemens DeBaillou began final work on the Cherokee capital of New Echota in Georgia to determine the relationship of official buildings to the road system, the Cherokee Phenix print shop, and other structures. The National Park Service, the Virginia Jamestown Commission, and the federal Jamestown-Williamsburg-Yorktown Celebration Commission have made a number of discoveries at Jamestown which throw new light on the first permanent English settlement in North America.

James A. Ford of the American Museum of Natural History conducted excavations at Poverty Point, La. Some microliths recovered from the gigantic octagonal mound have typological resemblances to artifacts of the Upper Paleolithic of Europe.

Reynold J. Ruppé excavated nine burial mounds in Iowa, probably dating from Late Archaic to Late Woodland times. One campsite shows affiliations with the Amana culture.

Jack T. Hughes of the Panhandle-Plains Historical Museum in Texas has excavated sites which show signs of Pueblo-Caddo mixture. These sites bear directly on the problem of the relationship between the Southeast and Southwest. Clement Meighan of the University of California at Los Angeles carried on excavations for a second year at a large village site near Paragonah, Utah. Adobe granaries and pit houses were uncovered.

William J. Wallace of the University of Southern California carried out salvage operations at Malaga Cove, a key site in southern California, which was leveled to make room for a housing development. Edith Taylor and Wallace conducted excavations at a large site in the Vermillion Valley, Fresno County, Calif. They found remains of modern Indians and of prehistoric, dart-using peoples.

B. Robert Butler supervised continued excavations at the Wakemap mound on the Columbia River. L. S. Cressman of the University of Oregon excavated the Five Mile Locks site on the Columbia River. Faunal and geological evidence from the bottom of the 23 feet of occupational deposit suggests a terminal Pleistocene date for the earliest occupation of the site.

Middle America.—The Dirección de Prehistoria of the Mexican government's Instituto Nacional de Antropología e Historia excavated a second mammoth at Iztapan in the dry beds of Lake Texcoco. One of the three artifacts associated with the mammoth resembles the ancient Angostura point of the North American Great Plains, and the other two would be classified in Europe as Solutrean.

J. Charles Kelley of the Southern Illinois University excavated near Durango the Schroeder site, the basic affiliations of which are with the Chalchihuites culture. Students from Mexico City College continued their work at Yagul, which proves to be almost a twin of Mitla. Dr. Waltraut Hangert of Germany, Philip Drucker of the Bureau of American Ethnology, and Eduardo Contreras of the Instituto Nacional de Antropología e Historia carried out joint excavations at La Venta, where half a dozen important sculptures were unearthed.

In the Maya area, the Belize Valley Expedition of the Peabody Museum of Harvard, directed by Gordon Willey, was in British Honduras for the third season. The Carnegie Institution of Washington completed its final season at Mayapan.

Alfred M. Tozzer of the Peabody Museum and Harvard University died Oct. 5, 1954. For more than 50 years he was a leader in Middle American research.

South America.—Fernando Altenfelder Silva of the University of Paraná excavated Estirão Comprido, a site on the Rio Ivaí, which should provide information on the prehistoric sequence in a part of southern Brazil that is archaeologically almost completely unknown. Vilma Chiara of the Museo Paulista, reported on a site on the Rio Solimões, Brazil, where the ceramic complex is

unlike anything previously recognized in the Amazon area. Julio Cesar Zerboni of the Instituto Nacional de Colonización in Uruguay excavated three mounds in a salvage operation. The mounds, of a type previously found in nearby Uruguayan localities, may be associated with the Arechane Indians.

Clifford Evans and Betty J. Meggers of the United States National Museum have isolated for the first time evidence of cultural affiliations between lowland Ecuador and the early cultures of Peru.

John H. Rowe and associates from the University of California at Berkeley continued a program of research on Peruvian highland and coastal cultures, with special reference to the Nazca, Ica, Tiahuanaco, and Inca sequences. Col. Hans Rudel explored ruins on Llullaillaco, a high peak on the Chilean-Argentinean frontier. In Bolivia, Alfred Kidder, 2d of the University of Pennsylvania conducted excavations in an attempt to clarify the origin of the Tiahuanaco culture.

Thor Heyerdahl is leading a 10-month expedition to eastern Polynesia. While Easter Island will be emphasized, Pitcairn Island, Mangareva, the Tubuai group, and the Marquesas will also be studied.

RICHARD G. FORBIS,
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EASTERN HEMISPHERE

The year's most important archaeological discoveries in the Eastern Hemisphere were made in southwestern Asia where the spade of the excavator continues to throw light on ancient history. Other significant finds are summarized, by continents, as follows:

Europe.—Thomas C. Lethbridge discovered two "earth giants," each about 200 feet long, cut into the chalk of the Cambridge uplands. They depict a goddess with her horse and an ancient British warrior giant beside his chariot. The former appears to be Belgic (1st century B.C.).

In a Roman villa at Isca near Caerleon, Monmouthshire, V. E. Nash-Williams found a mosaic gaming board with 16 panels and 60 coins of the late 4th and early 5th centuries.

In southeastern Kent, behind Folkestone, 36 graves, presumably Jutish, were discovered by Alan Warhurst. From the 100 gold and silver ornaments, this cemetery is dated in the 6th century A.D., probably following the invasion by the Angles and Saxons under Hengist and Horsa.

Near Halle in Germany, a Neolithic site has yielded wheat and domestic animal bones.

Africa.—C. B. M. McBurney found a human mandible in Haua Etah cave in Cyrenaica. Believed to be about 40,000 years old, this discovery will shed light on the relationship between Neanderthal and modern man in North Africa.

In Egypt the so-called "solar boat" discovered by Kemal el-Mallek in May 1954* is being moved into a permanent building beside the pyramid of Khufu (Cheops). Mohammed Zakaria Ghoneim continued work at Saqqara, where the royal burial chamber in the center of the Step Pyramid, completed about 2750 B.C., contained an empty sarcophagus. At Memphis near Cairo, the University of Pennsylvania Expedition cleared the Rameses II temple. Two graves (800-700 B.C.) yielded gold ornaments, including an amulet of the god Ammon.

At Bahr el-Ghazali in the Anglo-Egyptian

* See THE AMERICANA ANNUAL, 1955, p. 220.

Sudan, the former commissioner for archaeology, Peter L. Shinnie, excavated a stone church and monastic buildings surrounded by a massive stone wall. A section of the north wall lay flat, as though deliberately pushed over. Nearby was a bathhouse with a water tank inside the open dome; this was of a type not previously known in the Sudan. In addition to medieval Nubian pottery, several Coptic and Greek tombstones were unearthed. These suggest that Bahr el-Ghazali was a Coptic monastery because the Nubian church used Greek as its Liturgical language and for funerary inscriptions.

A French expedition led by Jean Vercoutter conducted excavations at the New Kingdom town of Kor on the west bank of the Nile near Wadi Halfa. Robbers from Karnak had pillaged the site about 30 years ago.

Near Saldanha in Cape Province, South Africa, M. R. Drennan and R. Singer found part of a large human lower jaw similar to that of Heidelberg man. Four years ago they had found a fossil calvaria at this site. Raymond Dart excavated extremely primitive stone artifacts at Makapan in the Transvaal. Since these tools were collected in river deposits immediately over strata which yielded remains of the Australopithecines (ape men), it would seem probable that we are not dealing with an ape, but with an early form of man.

Asia.—The year's principal discoveries were made in Syria. Carleton S. Coon excavated a Stone Age skeleton from a cave near Palmyra. At Ras Shamra (ancient Ugarit), Claude Schaeffer explored the eastern and southern wings of the royal palace, one of the largest residences known in the ancient Near East. The area cleared covered nearly 30,000 square feet. Excavations during 25 years have revealed that Ugarit was inhabited from before 3000 B.C. until its final destruction about 1,800 years later. A harbor town, Ugarit became the capital of a Canaanite or proto-Phoenician kingdom about 1900 B.C. During the last centuries of the 2d millennium, the scribes wrote their own Canaanite language, which we call Ugaritic, in the earliest alphabetic script known. However, state documents were written in Babylonian, the old syllabic script of Mesopotamia. The inhabitants of Ugarit were in correspondence with those of Egypt, Cyprus, Greece, Anatolia, and the Tigris-Euphrates Valley.

Among important objects found during the past season were an ivory portrait head of one of the kings of Ugarit, wearing a helmet inlaid with gold and silver. A small kiln for baking cuneiform tablets had collapsed with 100 documents in it, some incompletely fired. Most of these were written in the Ugaritic script, but several of the tablets contained the texts from neighboring monarchs addressed to the kings of Ugarit, probably translations from the Babylonian, the diplomatic language of the period. They are addressed to Hammurabi, last known king of Ugarit; he had the same name as the king of Babylon, who reigned about 2100 B.C. This indicates that the royal house of Ugarit might have been of Babylonian origin.

Near the kiln was unearthed a bronze sword, engraved with the name of Mineptah, successor of Rameses II, in Egyptian hieroglyphs, suggesting that this pharaoh ordered weapons from the Ugarit arsenal. Other letters in the kiln indicated active sea trade. In addition, there were inventories of minerals and other goods, such as salt, wool, cereals and oil. One order for 1,000 jars



ISRAEL OFFICE OF INFORMATION

Ruins of Herod's Palace at Masada, Israel, near western shore of Dead Sea, showing three levels of construction.

of olive oil was recorded. The nearby archive room contained 200 tablets in Babylonian cuneiform, the majority being treaties and other documents, such as royal letters and commercial agreements. Each tablet is stamped with the Royal Hittite seal or with that of the kings or officials of Amurru of Carchemish. The seal inscriptions are in Babylonian and hieroglyphic Hittite, the latter only partially deciphered. These excavations at Ras Shamra have thrown great light on the ancient history of the Near East. Future work may yield the clues to the complete decipherment of the Ugaritic tablets.

On the summit of Mount Nimrud (7,400 feet) in the Anti-Taurus Mountains southeast of Malatya in Turkey, F. K. Doerner and Theresa Goll obtained evidence of Hittite influence in two royal tombs of the Hellenistic kingdom of Commagene, an independent state founded during the 1st or 2d centuries B.C. and incorporated in the Roman Empire by Vespasian in 72 A.D. Several Mount Nimrud figures wore typical Hittite pointed headdresses, although their clothes were characteristically Greek and Persian. These headdresses are of especial interest, because the last great Hittite Empire was overthrown in the 12th century B.C., although cultural survivals continued in the Commagene region into the 7th century B.C. Lions, also of Hittite type, adorn wall reliefs in two courts. While searching on nearby Mount Kahta for the tomb of Antiochus I, king of Commagene, and that of his father, Mithridates II, the excavators found an 8-foot stele bearing a Greek inscription warning, "Those who come to plunder will suffer dire consequences." Despite this warning, the search for these tombs will continue, using modern geophysical equipment.

At Beycesultan in western Turkey, the British Institute of Archaeology continued its investigation of a large Bronze Age palace of the Arzawa culture. New discoveries include remains of a heating system and pottery, which places the date of the building before 1800 B.C.

An expedition under the direction of Michael Avi Yona of the Israeli government's Department of Antiquities made a brief survey of the fortress palace of Herod the Great (king of Judea, 37-4 B.C.) at Masada, a high rocky hill near the western shore of the Dead Sea. Remains of a banquet hall, including frescoes and parts of columns, were uncovered. Deep in the rock on which the palace stood were large cisterns.

In West Pakistan, the Peabody Museum-Har-

vard University Expedition (led by the writer) discovered new evidence in Makran linking southwestern Asia with the Indus Valley civilization. At Paharpur in East Pakistan, the ruins of the largest Buddhist monastery south of the Himalayas were cleared. Many terra cotta panels with spirited figures of archers, acrobats, and animals were unearthed. Brahmanical motifs, especially from the Krishna legend, illustrate the growing influence of indigenous elements on the last phases of Buddhism on the Indian subcontinent.

At Angkor in Cambodia, Jean Laur has begun to clear part of this vast, jungle-covered Khmer city, built in stone about 900 A.D. and abandoned in 1342. Rebuilding of the most important monuments is under way.

Excavations have been resumed at Choukoutien, home of the Peking man. From western China, skull fragments of a late Pleistocene young girl were described by W. C. Pei as of modern type. These are the first fossilized human bones from that part of China.

HENRY FIELD,

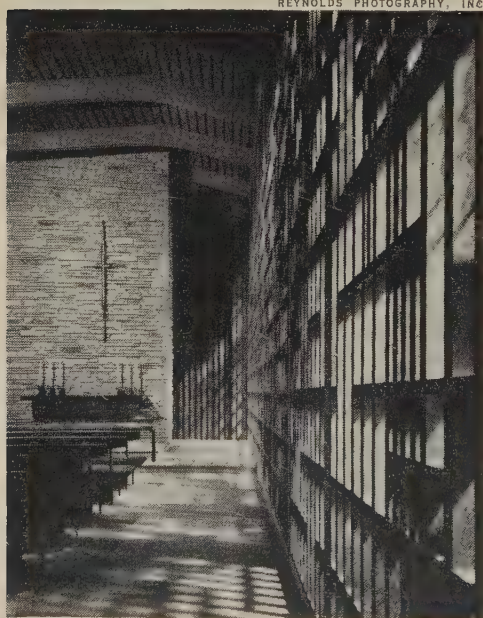
Curator of Physical Anthropology, Field Museum of Natural History, 1926-42; Research Fellow, Harvard University, 1950—; Author of "The Track of Man" (1953).

ARCHERY. See SPORTS, GAMES, AND SHOWS.

ARCHITECTURE. Building construction continued its unprecedented pace in 1955, attaining a volume of \$19.1 billion in the United States for the first six months. This surpassed the \$16.7 billion for the same period of 1954 by 14 per cent, and government estimates indicated a total volume of \$41.8 billion for the year. (See BUILDING AND CONSTRUCTION.)

In construction, interest in shell concrete and thin, warped surfaces increased, stimulated by the work of brilliant innovators such as Candela in Mexico and Baroni in Italy. Plastics continued their invasion of the building field and seem certain to play an increasingly important role, especially in shell forms; and the more general use

Interior view of Danforth Chapel, designed by James Hunter for Colorado A. & M. College, Fort Collins, Colo.



REYNOLDS PHOTOGRAPHY, INC.

of porcelain enameled walls added color to the monochromatic appearance of many city streets.

Honor Awards.—Among outstanding buildings for the year, 27 were designated for Honor Awards by the American Institute of Architects (AIA). Of these, five received First Honor Awards, namely: U.S. Embassy, Stockholm, Sweden, by Ralph Rapson and John van der Meulen; Central Restaurant Building, G. E. Technical Center, Warren, Mich., and the Women's Dormitories and Dining Hall at Drake University, Des Moines, Iowa, by Eero Saarinen and Associates; North Hillsborough (Calif.) Elementary School, by Ernest J. Kump; General Telephone Co. of the Southwest, San Angelo, Texas, by Pace Associates (Charles B. Genter, architect in charge).

Urban Redevelopment.—Expressive of the urgency for broader architectural thinking, "Designing for the Community" established the theme for the annual meeting of the American Institute of Architects in Minneapolis in June 1955. At this meeting some 1,600 architects heard the plight and blight of cities discussed and were challenged to begin the overdue urban renewal. Undeniable progress toward this goal is apparent, but the significant examples are still pitifully few in comparison with the enormous need. Philadelphia is perhaps the best example, with its bold plan for the redevelopment of 11 square miles. In Penn Center, one of the first replanned areas, the year saw completion of the Uris Building, by Emery Roth & Son, and the start of the Transportation Center, by Vincent Kling. (See also CITY PLANNING.)

Office Buildings.—These seemed more socially conscious in 1955, as more corporations were willing to spend more money to obtain significant or exceptional buildings, and showed greater concern for the civic space about their buildings.

In addition to the 41-story Chicago Prudential Building, by Naess and Murphy, the year witnessed the completion of Prudential buildings in Jacksonville, Fla., by Kemp, Bunch, and Jackson, and in Minneapolis, Minn., by Magney, Tustler, and Setter. In Chicago the proposed 17-story Inland Steel Co. Headquarters, by Skidmore, Owings, and Merrill, features open office space of maximum flexibility. By locating the supporting steel columns on the exterior, and housing elevators and services in an adjacent stainless steel tower, the office floors attain the surprising area of 177 by 58 feet unobstructed by interior supports. In the design proposed by Mies van der Rohe for Seagram's 38-story Park Avenue building, New York, the metal and glass shaft rising from a handsome plaza promises a welcome change from the stepped pyramids so frequently seen.

Residential.—In private home building, 1955 was expected to set the all-time record for dollar volume at \$14.6 billion, although housing starts were expected to be fewer than the record 1,352,000 units in 1950. (See HOUSING.) Architectural emphasis was on plan ingenuity, the straightforward use of materials, a reduction of glass area, and an increase in privacy. The O'Brien house in Shreveport, La., by R. Neutra, and the Thorne house in Austin, Texas, by Gommel Roessner, are illustrative. The E. F. Catalano house in Raleigh, N.C., by the owner-architect, was one of the most unusual with a square double-twisted wood roof only 2¼ inches thick but spanning 87 feet.

Educational.—Probably never before has there been a greater search for architectural quantity, quality, and economy in school construction. Il-



A. I. A. AND ATELJE SUNDAHL AB; M. I. T. NEWS SERVICE

(Left) American Embassy in Stockholm, Sweden, designed by Ralph Rapson and John van der Meulen. (Right) Interior view of dome-shaped Kresge Auditorium, Massachusetts Institute of Technology, designed by Eero Saarinen.

lustrative of this trend is the Riverview Gardens Senior High School in St. Louis County, Mo., by Hellmuth, Obata, and Kassabaum, in which the "little school" concept is imaginatively developed. Designed to grow with the pupil load of the community, as finances permit, it consists of a series of separate high schools for 600 pupils each. As the initial unit is doubled or tripled, specialized spaces such as gymnasiums and cafeterias will be added.

In institutions of higher learning, contemporary architecture has made significant contributions. The new Architecture Building and the Library at Georgia Institute of Technology, Atlanta, by Bush-Brown, Gailey, and Heffernan, are clear and shapely answers to the architectural problems encountered. In Cambridge, the Massachusetts Institute of Technology dedicated its dramatic auditorium by E. Saarinen and Associates. A thin concrete shell, one eighth of a sphere supported at three slender points, it placed heavy demands on 1955 technology to solve the difficult problems of structure, equipment, and acoustics imposed by its daring and imaginative design.

The most controversial design of the year was undoubtedly that proposed by Skidmore, Owings, and Merrill, for the U.S. Air Force Academy, Colorado Springs, Colo. Plans for contemporary buildings of glass, aluminum, and steel aroused such opposition that Congress refused to vote the necessary funds until modifications were introduced. Construction of the buildings is expected to take at least two years.

Ecclesiastical.—The year 1955 also marked an all-time high in the number of churches erected. Approximately one fourth of these are contemporary in style. The best have a spirit of reverent simplicity, a creative newness without striving for effect, as in the small chapel by James M. Hunter, for Colorado A. and M. College. Paul Schweikher's interesting design for the Grace Lutheran church-school complex, at Teaneck, N.J., was awarded first place in its category by the Church Architectural Guild. Another notable design for a religious building group is that by Marcel Breuer for the projected transformation of St. John's Abbey at Collegeville, Minn.

Architecture Abroad.—Recent United States government buildings on foreign soil give reassurance about the prestige of American architects abroad. The U.S. Embassy in Stockholm, previously mentioned, elicited general praise from European architects. Edward Stone's design for the U.S. Embassy in New Delhi, India, and that by Hugh Stubbins for the U.S. Legation Building in Tangier show remarkable sensitivity to lo-

cal conditions and traditions while meeting the requirements of the program in a contemporary manner.

The construction boom in the United States was paralleled by similar activity in many other economically stable countries. The following, to name only a few significant examples, are suggestive of trends: the Neighborhood Development for Municipal Employees in Rio de Janeiro, by A. F. Reidy; Le Corbusier's chapel, Notre-Dame-du-Haut, in the Vosges mountains, and his work at Chandigarh, capital of Punjab, India; the Convention Hall at Matsuyama and the Shizuoka Printing Plant at Numazu, Japan, both by Kenzo Tange.

ALAN K. LAING,

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ARCHIVES, National. See NATIONAL ARCHIVES AND RECORDS SERVICE.

ARCTIC EXPLORATION. There has been intense activity in Arctic North America during the past year. Much of this activity has been connected with construction of the Distant Early Warning (DEW) radar line along the northern fringes of the Arctic mainland. Although this work has involved little true polar exploration, the choice of sites for the stations, and the movement of men and materials into areas rarely visited before, has led to a broad accumulation of knowledge.

The biggest changes occurred in polar transportation. In the spring, major airlifts were made to northern airstrips from a number of points in southern Canada and the United States. In the summer, convoys of ships moved into Arctic waters carrying the bulkier materials. Unfortunately they met the worst ice conditions that have been observed this century. In most areas the sea ice was late in breaking up, and on some coasts it failed to go out during the summer. The sea ice also made the annual resupply of northern weather stations difficult, and some had to be supplied by aircraft. Farther south, detailed knowledge of broad areas of subarctic Canada was obtained with the construction of the Mid-Canada radar warning line.

Aircraft in Exploration.—Development of helicopters and more conventional aircraft has led to rapid progress in certain fields of Arctic scientific exploration in recent years. In 1955, the Geological Survey of Canada continued its reconnaissance activities using helicopters. Operation Thelon, west of Hudson Bay, and Operation Franklin, in the Queen Elizabeth Islands, were success-

fully completed. Two large transport helicopters were used in the northern islands, and they enabled large areas to be examined which had never been seen before. Farther west in the Brooks Range of northern Alaska, the topographic division of the U. S. Geological Survey used helicopters to establish ground control survey points. Aircraft flying at 30,000 feet photographed this area and the Arctic coastal plain, using a special form of low oblique, twin-lens camera for the preparation of a new edition of the 1:250,000 map of northern Alaska.

In Canada the trimetrogon air photography of the northlands is virtually complete, and a new program of vertical photography has been initiated. This photography will be flown by high-speed aircraft operating at 35,000 feet. The initial photographs show a remarkable improvement on earlier ones, and more accurate maps may be expected from them.

Aircraft were also used during the spring to take a census of the Canadian barren-ground caribou population. Although the detailed figures have not yet been published, it is known that there has been another serious decrease in caribou numbers since the last count in 1948.

Exploration in Greenland.—The first results from the 1952-54 British North Greenland Expedition became available during the year. They show that beneath the ice cap in northern Greenland, the land is in places below sea level, although the surface of the ice is over 9,700 feet above the sea. Exploration on the east coast of Greenland was handicapped by poor ice conditions which caused the sinking of one ship. However, an expedition led by Lauge Koch was able to continue its geological work begun in previous years. In northwestern Greenland, United States military groups continued their research into construction in snow and ice, and reported that the building of facilities and roads below the surface of the Greenland ice cap was feasible.

Scientific Research.—As in all other years since 1945, there were many small parties operating throughout the Arctic. In the archaeological field, the investigation of the Cape Dorset culture on Southampton Island was continued for the second year; and Dorset sites were discovered for the first time in the western Canadian Arctic. There were no major expeditions in the Arctic in 1955; the first can be expected during the International Geophysical Year, 1957-58. (See also *ARCHAEOLOGY—Western Hemisphere; GEOGRAPHY AND EXPLORATION.*)

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ARGENTINA. This largest of the Spanish-speaking countries of South America shares the southern part of the continent with Chile, from which it is separated on the west by the Andes. With an area of 1,084,362 square miles, Argentina extends 2,150 miles from the forested plains of its subtropical Chaco in the north to cold, wind-swept Tierra del Fuego at the continent's southern tip, but the land is best known for its great central pampas, where the rich alluvial topsoil reaches a depth of 11 feet. As of July 1, 1955, its estimated population was 19,101,788. Buenos Aires, the capital, has a population of 3,554,906 (Jan. 1, 1955); other leading cities are Rosario, Córdoba, La Plata, Tucumán, and Santa Fe.

Government.—After a constitutional change to permit his re-election, President Juan Domingo Perón began his second six-year term on June 4, 1952. Similarly, six-year terms are served by provincial governors and by senators and deputies in the bicameral Congress.

On Sept. 19, 1955, the Perón administration was overthrown, after which Argentina was governed, first, by a military junta; then by Maj. Gen. Eduardo Lonardi, who was sworn in as provisional president on September 23; and finally, on November 13, by Maj. Gen. Pedro Eugenio Aramburu. (See below, *Principal Events, 1955.*) The Peronist Congress and Supreme Court were both dissolved, and the country turned to the creation of a new government.

Religion and Education.—The prevailing religion in Argentina is Roman Catholicism and, under President Perón, the church received government support. In moves due to the suspected growth of a political Catholic Action (Christian Democratic) Party, the Peronist government withdrew that support in 1955 with results that were disturbing to the educational system and to the religious life of the nation. Funds traditionally used for aid to church schools were withheld, and there were transfers or arrests of teaching personnel. Some schools were closed, and even certain religious services were banned, on the ground that they served to cause unrest or to cover political maneuvers. By May the Peronist Party (Partido Peronista) was calling for a return to the old Argentine policy of separation of church and state. On May 20, two laws were passed, one of which made all religious institutions retroactively subject to taxation as of Jan. 1, 1955, while the other called for the election of a constituent assembly to rewrite the constitutional articles dealing with the state-church relationship. On June 2, another law abolished religious education in the public schools. Riots followed.

On June 11, some 100,000 Argentines held their Corpus Christi parade through downtown Buenos Aires despite a government ban. About 430 persons were arrested after a clash on June 12 between Peronists and a group guarding the steps of the Metropolitan Cathedral. On June 15, the government expelled from the country two of the highest Roman Catholic dignitaries on the charge that they had defied civil authorities and provoked disorder; the residences and offices of some 120 priests were then raided in a search for confirmatory evidence. On June 16, the Vatican announced the excommunication of the responsible government officials. A revolt a few hours later against the Peronist regime (see below, *Principal Events, 1955*) was followed by mob burning of several of the nation's most revered and beautiful churches. Minor clashes continued to occur after the suppression of the revolt, but the government had been left in full retreat from its extremist position.

Because of the close integration of the church with the nation's schools, the educational situation was left in a state of confusion strange in one of the world's most civilized countries. As of 1954, however, a total of 3,042,039 pupils were enrolled in the primary schools; there were 1,372 government secondary schools, with 576,231 pupils; and 137,709 students were attending the six national universities.

Economic Affairs.—In a survey of the national economy presented to Congress in May 1955, President Perón revealed that the 1954 gross national product was 125 billion pesos, with industrial production up 7% over 1953 and construction up 15%; 1954 government expenditures totaled 11,955.7 million pesos. The debt increase during the year was 7,950.6 million pesos.*

Argentina's economically active population rose in 1954 to 7.6 million, or 40.6% of the total population. Those employed in agriculture totaled 1,770,000; in industry, construction, and mining, 1,701,000; in trade and commerce, 1,230,000; in other activities, 2,899,000. Their cost-of-living index in 1954 stood at 605.7 (1943 = 100), and by the first quarter of 1955 the cost of living in Buenos Aires was about 17% higher than a year earlier.

Foreign earnings were cut by the drop in international commodity prices of grains and hides, and by the competition of foreign surpluses. Exports declined in 1954 to 6,721.4 million pesos, and imports rose to 7,111.6 million pesos, leaving an unfavorable balance of 390.2 million, as compared with a 1,522.1 million peso surplus in 1953. Great Britain was the principal market, followed by the United States, Germany, and Brazil, while the chief suppliers were the United States, Brazil, Germany, and Great Britain. The principal Argentine purchases were machinery,

* On October 27, a basic official exchange rate of 18 pesos to U.S. \$1 replaced previous multiple rates ranging from 5 to 20 pesos to \$1.

iron and products, fuel and lubricants, food-stuffs, lumber and products, chemicals and pharmaceuticals, metals and products (aside from iron), and jute and other fibers.

A remarkable trend was the reversal of the Argentine position toward foreign participation in national industry. Despite Argentine acceptance of a \$60 million loan to speed steel production, the signing of an automobile production contract with the Kaiser Motors Corporation, and a tentative agreement with the Standard Oil Company of California, foreign capital on the whole was still withholding itself in 1955 from Argentine commitment. The nonconfirmation of the oil contract and the downfall of the Perón regime brought new uncertainties.

The issuance in August 1955 of the government's first full statistics on the course of the Argentine economy since the Peronists took over in 1945 was a singularly timely summary of the Perón era. In terms of 1950 prices the gross national product was shown to have risen 37% from 1945 to 1954, as compared with a population growth of 22%. The index of industrial production rose from 76 in 1945 to 100 in 1950, but still stood at 100 in 1954. Although the construction index had risen from 62 in 1945 to 100 in 1950, it fell to 90 by 1954. Agricultural output, apart from grazing, increased by about one third, but beef exports declined with the decline in grazing.

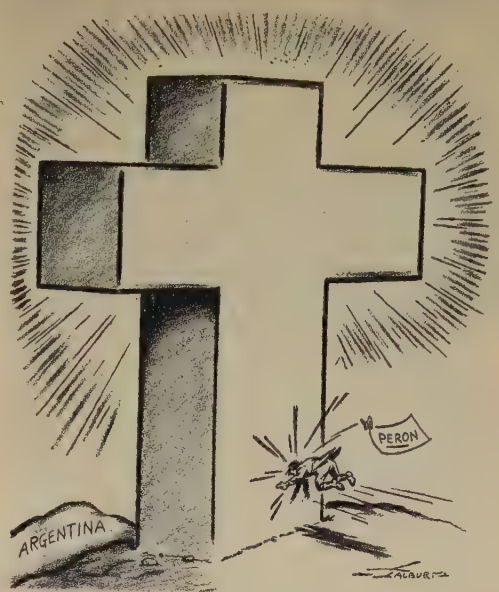
On October 11, President Lonardi abolished the Second Five-Year Plan (1953-57), which he described as a "political instrument" of the Perón regime. A special study of the state of the national economy made by Dr. Raúl Prebisch, economic adviser to the president, revealed that under Perón the internal and external debt had increased to \$5,757 million.

Agriculture.—Excellent grain crops for 1953-54 plus heavy carry-overs increased Argentina's exports to 7.5 million tons, of which wheat accounted for about 3.2 million and barley and oats for 2.2 million. The 1954-55 harvest also was good, despite the need for more farm machinery and the adverse effects of drought, which damaged corn and sunflower crops. Grain production figures (in thousands of metric tons) were: wheat, 7,690; corn, 2,580; barley, 1,112; oats, 890; rye, 844; and linseed, 482.

On July 1, 1955, there was an exportable balance of 54,525 tons of wool. Beef production in 1954 amounted to 1,795,000 tons, which, with local consumption up to 1,555,000 tons, left only 240,000 tons for export. Subsidies of roughly 300 million pesos were distributed by the Argentine Trade Promotion Institute (IAPI), the government trading corporation, to meat-packing and processing plants to cover losses incurred in 1954. Despite the importance of its role in Argentina's foreign trade economy, IAPI has been losing hundreds of millions of pesos annually through bureaucratic control of crops and the depressed state of the international grain market. Losses in 1953 alone were 1,822 million pesos.

Industry.—Early results of the July 1954 national industrial census show that Argentina has an estimated 417,423 establishments in commerce, 181,763 in industry and mining, and 22,143 in the building trades, employing some 2,930,912 persons in all. Bankruptcy returns for 1954 reached a record 687,917,881 pesos, with textile factories again in the lead.

The chief industrial news for 1955 centered on the development of electric power, steel manufacture, and cement and automobile production. Argentina's electrical energy capacity is only



H. M. TALBURT—SCRIPPS-HOWARD NEWSPAPERS

"WHERE TYRANTS ALWAYS FAIL!"

2,418,000 kw., but the government has allotted 5 billion pesos for power projects scheduled for completion by 1960, and the Central Bank is allocating \$40 million for imports of generating equipment, which will give an added capacity of some 400,000 kw., about half for use in the Buenos Aires sector.

The Sociedad Mixta Siderúrgica Argentina, a big steel combine which is to erect and operate Argentina's great new plant at San Nicolás, has raised its capital to 3 billion pesos, of which 2.4 billion will be contributed by the government. In March 1955, the Export-Import Bank approved a \$60 million loan to help finance the project, but the final agreement was not signed in the post-Perón governmental confusion.

Cement production for 1954 was estimated at 1,683,200 metric tons, while consumption rose to 1,955,000; during the first six months of 1955 output totaled 872,000 tons.

The big automobile news of 1955 was the final signing of the contract between the Kaiser Motors Corporation and the Aeronautical and Mechanical Industries Corporation (IAME), confirming their October 1954 agreement for Argentine production of jeeps, sedans, station wagons, and trucks. The annual capacity of this cooperative venture will be 40,000 vehicles, with jeeps expected to be in full production by the end of 1957 and the other units by 1959.

Mineral Products.—Because of the \$200 million annual exchange drain for the purchase of petroleum products, oil is the mineral of greatest Argentine concern. In late 1954 a large petroleum reserve, with an initial output of 300 cubic meters of crude and 600,000 meters of natural gas daily, was located in the Province of Salta, near the Bolivian border. In July 1955, new oil deposits were reported from Tierra del Fuego, where a test well produced 503 barrels per day. Argentina's known crude oil reserves are estimated at about 325 million barrels, but domestic crude output is only about 80,000 barrels per day, as compared with a need for 200,000. Refining capacity is 186,100 barrels per day. A pipeline for the daily delivery of 660,000 gallons of oil from



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Argentine mob sets fire to Roman Catholic Episcopal Palace in Buenos Aires, following anti-Peronist revolt on June 16, 1955. The cathedral is at left.

Bolivia was opened on July 1, 1955, and 2,260,000 metric tons of crude are to be imported under the Anglo-Argentine trade agreement of March 31, 1955. What was to have been the major oil news of 1955—the contract for the development of Argentine oil resources signed on April 25 with the Standard Oil Company of California—failed to gain congressional approval, and it was also rejected by the Lonardi administration.

Transportation and Communications.—Monthly allocations of millions of pesos to make up deficits in transport on railways, ships, airlines, subways, buses, and streetcars—all run by the government—have become routine announcements in Buenos Aires. Plans for the modernization needed to cut the large losses on the 27,000 miles of railways (over 40% of the total trackage in South America) include an increasing use of diesel-electric locomotives.

A new 15-year highway construction program is supported by a law authorizing a 200 million peso annual bond issue and by the allocation of 558 million pesos in the Public Works Ministry's 1955 budget. As of 1952, Argentina had 30,376 miles of paved highways and 89,096 miles of other roads. Registered motor vehicles numbered 600,000 in January 1954.

On Jan. 1, 1954, Argentina had 1,001,158 telephones. There are 55 broadcasting stations and 1 television station in the country.

Principal Events, 1955.—Long discontent with the Perón government, sparked by its controversy with the Roman Catholic Church (see above, *Religion and Education*), broke out in open rebellion and the bombing of the Casa Rosada (the Argentine White House) on June 16. Although this revolt was promptly suppressed by army forces loyal to the government, it was followed by mob violence, and it was not until June 22 that Gen. Franklin Lucero, who had been placed

Peronist forces battle anti-Peron rebels in the streets of Buenos Aires on June 16, 1955.



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in command of the government's forces of repression, was able to return the president to at least nominal power.

There followed a strange pacification interlude when, on July 5, the president called for a political truce. Attacks on the church ceased; many political prisoners, students, and priests were released from jail; a "discreet" freedom of the press was assured; and on July 27, Arturo Frondizi, head of the Radical Party, was permitted to make the first opposition radio address in nearly 10 years. On July 15, the president announced his resignation as head of the Peronist Party and his decision to act merely as a constitutional president. The country was to enter a new phase of constitutional government, he said, with complete political freedom for all factions.

The Radicals, however, called for government reforms and the return of constitutional guarantees before any acceptance of political peace; a new, feared Christian Democrat Federal Union Party openly stated a platform of "real liberty and social justice"; the report of two new plots to assassinate Perón brought extensive new arrests; antigovernment demonstrations of Roman Catholic sympathizers continued; and elements in the armed forces were known to be hostile to the Perón regime. On August 31, the president presented to the General Labor Confederation and to his Peronist Party a well-staged offer to resign. Forewarned, Peronists were gathered to demonstrate a support obviously designed to counter army power. Perón easily complied with a request to withdraw his resignation. "Pacification" not only came to an end, but the individual Peronist was urged to a personal militant defense of the regime. "He who in any place tries to disturb order in opposition to the constituted authorities or contrary to the law or the Constitution may be slain by any Argentine," said President Perón. On September 1, his Congress obediently passed a bill imposing a state of siege on Buenos Aires, ending all constitutional guarantees for its citizens, and giving to the president the requested power to "annihilate" his foes. It became law when signed by Perón on September 2.

The new period which thus began with presidential incitement of his followers to take the law into their own hands was a direct challenge to the army leaders who had saved the regime in June and had worked to avoid civil war and maintain Argentine dignity. On September 9, five high army officers were indicted for conspiracy. On September 16, a new and more formidable revolt began in a series of outbreaks: at the Puerto Belgrano naval base, in the city of Córdoba, and in the army post at Curuzú-Cuatí. There was fighting in Paraná, Rosario, and Santa Fe; Bahía Blanca was captured by the rebels. In Buenos Aires itself the usual "terrorist plot" gave an excuse for the arrest of over 100 civilians. The revolt spread to the western provinces of Mendoza, San Luis, and San Juan, and minor units of the Argentine Navy turned up in the Río de la Plata to await the larger ships before beginning the bombardment of Buenos Aires threatened unless Perón resigned the presidency. On September 19, in a signed speech given to General Lucero to read, Perón offered his second resignation, prompted, he said, by patriotism and love of the people, "although my fighting spirit impels me to fight."

He had shown little fighting spirit or even courage, as evidenced by the care taken for his personal escape in the June revolt, by the conspicuous prudence of his secluded life during

the three dangerous months that followed, and by the speedy refuge sought in the sanctuary, first, of the Paraguayan embassy and then of a small Paraguayan gunboat presumably designed to carry him to the safety of exile.

On September 19, members of his government resigned, and on the following day military leaders began negotiations with the rebels. Maj. Gen. Eduardo Lonardi, chosen as provisional president, entered Buenos Aires on September 23, and the reorganization of the Argentine government began with his promise to restore civil liberties, maintain the real benefits which the workers had gained under Perón, seek a concordat with the Vatican, and hold new elections as soon as practicable.

Uruguay recognized the new regime at once, and the almost as prompt recognition by the United States followed, on September 25. On October 2, apparently despairing of any adequate safe-conduct along the 900-mile trip up river, Perón finally proceeded to Asunción, the Paraguayan capital, by plane. Behind him he left a divided country, shamed with the mounting evidence of the personal and official corruption of his regime, and faced with tremendous problems of reconstruction.

When President Lonardi's government, with its attempted reconciliation of all the divergent aspirations of the different classes of Argentine society which had been pitted against each other, seemed to promise too slow a return to a true democracy, a revolt of dissident army generals led to his replacement on November 13 by Maj. Gen. Pedro Eugenio Aramburu.

The new president met, and overcame, the almost immediate challenge of a general strike (November 15-17) and continued Argentina's return from tyranny to freedom. Notable among the many accomplishments of Presidents Lonardi and Aramburu, in addition to the defeat of Peronist leadership in the General Confederation of Labor, were the disclosure of the corruption and graft of the Perón regime, the ending of mail censorship operations at Buenos Aires, the annulment of the law punishing disrespect to government officials, the dissolution of the Peronist Party, the reopening of local courts after reorganization and the dismissal of 103 Peronist judges, the return of autonomy to the universities, and the decree (November 30) restoring *La Prensa*, symbol of a free press, to its rightful owners. (See also ANTARCTICA.)

MADALINE W. NICHOLS,
Specialist in Latin American Affairs.

ARIZONA. Southwestern state, United States; admitted to the Union, Feb. 14, 1912. The "Grand Canyon State" ranks 5th in area and 35th in population (1955) among the 48 states.

Area and Population.—Area: 113,909 square miles (land, 113,575; inland water, 334), divided into 14 counties. Population: (1950) 749,587; (est., July 1, 1955) 955,000. Urban places with populations above 7,500 in 1950, unless otherwise indicated, are as follows:

Amphitheater ¹	12,664	Phoenix (capital)	128,841 ²
Douglas	9,442	Tempe	7,684
Flagstaff	7,663	Tucson	48,774 ²
Glendale	8,179	Wakefield ¹	8,906
Mesa	16,790	Yuma	9,145

¹ Unincorporated place. ² Special census, 1953.

Executive.—Chief state officers in 1955:
Governor: Ernest W. McFarland (Democrat)
Secretary of State: Wesley Bolin
Treasurer: E. T. Williams
Attorney General: Robert E. Morrison
Supt. of Public Instruction: C. L. Harkins
Constitution and Judiciary.—The present constitution went into effect in 1912. The Supreme Court comprises five justices; chief justice in 1955 was Arthur T. LaPrade.



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Argentina's provisional president, Maj. Gen. Eduardo Lonardi, reads his oath of office, Sept. 23, 1955. He was replaced on November 13 by Maj. Gen. Pedro Aramburu.

Legislature.—The legislature (Senate, 28 members; House of Representatives, 80) convenes annually on the second Monday in January.

The 1955 regular legislative session, the second longest in state history (January 10 to April 3) appropriated \$94 million for the fiscal year 1955-56. Among the 139 measures which became law were those liberalizing administrative procedures in welfare grants; making funds available for the continuation of the work of the Colorado River Boundary Commission; increasing both state and county funds for education; rendering unlawful any discrimination by public contractors against employees because of national origin; regulating the distribution, sale, or transportation of insecticides and commercial fertilizers; and appropriating funds for building programs at the University of Arizona and at state colleges. (See also below, *Principal Events*, 1955.)

Finances.—Treasury receipts (1954-55 fiscal year): \$159,935,437.60; expenditures, \$157,210,786.84; treasury balance, \$42,194,054.31. There was no long-term indebtedness.

Taxation.—General Fund revenue (1954-55 fiscal year): \$42,153,143.95, including \$12,904,781.69 from a 2% general sales tax; \$10,534,785.96 from individual and corporate income taxes; \$1,067,236.35 from licensing; and \$9,217,065.83 from property taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 3 national banks had \$558,134,000 in assets, \$386,323,000 in demand deposits, and \$127,275,000 in time deposits; the state's 7 other banks and 30 branches had \$216,308,093.64 in assets, \$148,046,711.57 in demand deposits, and \$53,328,704.42 in time deposits.

Education.—School attendance is compulsory for all between the ages of 8 and 16, inclusive. Operating expenditures of \$50,594,748.51 (\$290.02 per pupil) for public elementary and secondary education in the 1954-55 school year comprised \$31,331,831.18 from local school districts, \$18,124,774.86 from the state, and \$1,138,152.47 from the federal government. Construction and improvements cost \$13,333,804.34. Teachers' salaries averaged \$4,325.06.

In the 1954-55 school year there were 451 public elementary schools with 5,373 teachers and 166,041 students; 76 high schools with 1,763 teachers and 42,793 students; 11 private elementary and high schools with 112 teachers and 820 students; 2 state colleges with 275 teachers and 7,667 students; and 1 state university with 383 teachers and 6,435 students.

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$14,994,995, including \$9,351,776 for old-age as-

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sistance, \$5,090,918 for dependent children, and \$552,801 for the needy blind; a monthly average of 20,739 persons received public assistance. Expenditures totaled \$29,964.07 for health and welfare institutions and \$790,794.30 for correctional and penal institutions.

ARIZONA WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for the mentally deficient (Sept. 15, 1955).....	1	275
Hospitals for the mentally ill (Sept. 15, 1955).....	1	1,688
Sanatoriums for the tubercular (Oct. 1955).....	1	80
Hospitals for crippled children (Oct. 1955).....	1	50
Schools for the deaf and blind (May 1955).....	1	175
Homes for the aged (June 30, 1954).....	1	154
Industrial schools for boys (Sept. 15, 1955).....	1	130
Prisons (Sept. 9, 1955).....	1	1,052

Labor Force.—The labor force (July 1955) numbered 319,200, including 49,300 agricultural workers. Nonagricultural employment was 208,600, and for the full year 1954 averaged 201,700. There were 11,900 unemployed workers in July 1954, and \$4,335,586 in unemployment compensation claims was paid to insured workers for the year ending June 30, 1954.

Manufacturing.—Establishments numbering 614 averaged 25,900 employees who received salaries and wages amounting to \$110,694,000 in 1954. Investment in new plant and equipment in 1953 totaled \$7,199,000. Earnings of production workers in manufacturing averaged \$80.93 for 41.5 hours in 1954 and averaged \$82.59 for 41.5 hours by June 1955.

In 1954, primary metal industries paid \$16,678,000 to 3,700 workers; food and food processing industries paid \$12,694,000 to 3,200 employees; lumber and wood products industries paid \$11,839,000 to 3,000 employees; and all other manufactures paid \$69,483,000 to 16,000 employees. The overall value of production in 1954 was \$300 million.

Mining.—Arizona ranks first (1954) among the states in output of copper, second in asbestos, and fourth in silver, and stood 15th in the value of its 1953 output, with 1.78% of the United States total. There were 15,907 persons employed in the state's mineral industries in 1954.

ARIZONA MINERAL PRODUCTION, 1954¹

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	200,000	\$ 725,000
Copper.....	378,500	224,829,000
Fluorspar.....	2,000	116,550
Gold (troy ounces).....	113,500	3,972,500
Lead.....	8,900	2,420,800
Lime.....	90,000	1,155,600
Mica (scrap).....	3,700	114,250
Molybdenum (pounds).....	1,460,000	1,438,100
Pumice and pumicite.....	120,000	412,800
Sand and gravel.....	3,450,000	2,690,000
Silver (troy ounces).....	4,335,000	3,923,394
Silica.....	260,000	327,600
Stone.....	182,000	355,000
Tungsten concentrate (60% WOs).....	120	411,500
Zinc.....	21,750	4,828,500
Other minerals.....	...	6,623,406
Total.....	...	254,344,000

¹ Preliminary. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$150,220,000, and for the full year 1954 comprised \$92,304,000 from livestock and livestock products, \$278,181,000 from crops, and \$2,076,000 from government payments. Receipts in 1954 from livestock and livestock products included \$64,705,000 for cattle and \$15,562,000 for dairy products.

The state's 9,321 farms (41,749,946 acres; harvested cropland, 1,093,544) in 1954 averaged

4,479.1 acres and \$81,866 in value of land and buildings per farm. Livestock on farms on Jan. 1, 1955, included 945,000 cattle, 461,000 sheep, and 685,000 chickens (not including commercial broilers). During the week of Sept. 26–Oct. 2, 1954, there were 59,673 family and hired workers engaged in farming; 5,220 farms had telephones and 8,417 had electricity.

ARIZONA CROP INCOME

Crop	1953	Cash receipts 1954
Barley.....	\$ 8,009,000	\$ 13,956,000
Carrots.....	3,136,000	3,796,000
Cantaloupes.....	12,492,000	13,914,000
Cotton lint.....	218,608,000	165,250,000
Cottonseed.....	23,467,000	21,452,000
Grapefruit.....	2,604,000	1,998,000
Hay.....	9,494,000	10,030,000
Honeydew melons.....	2,415,000	1,615,000
Lettuce.....	18,946,000	22,552,000
Oranges.....	2,655,000	2,745,000
Potatoes.....	2,438,000	2,196,000
Sorghum grain.....	2,441,000	5,338,000
Watermelons.....	2,140,000	1,408,000

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954–55 fiscal year totaled \$14,974,000, and newly completed construction and reconstruction aggregated 239 miles.

Highways and roads on June 30, 1954, totaled 30,416 miles (7,146 surfaced). Registered *motor vehicles* numbered 412,793 on Dec. 31, 1954, including 290,189 passenger cars. There were 6 *railroads* (1955) operating 2,182.66 line miles and (1955) 4 regularly scheduled *airlines* and (1954) 162 *airports and airfields* (43 commercial and municipal and 119 limited).

Communications media included (1955) 1 FM and 30 AM *radio stations* and 7 operating *television outlets*; (as of Sept. 30, 1954) 13 daily *newspapers* (circulation, 225,483) and 53 other newspapers; and (Jan. 1, 1955) 84,797 business and 150,887 residential *telephones*.

Principal Events, 1955.—In the first six months of 1955 aridity was so great that Arizona was designated a drought-disaster area by President Eisenhower on April 26. In June a record was set for cloudless skies and high temperatures, but July brought heavy rains and August produced record state precipitation, so that by fall the ranges were in excellent condition. In January the ban on cattle from Mexico was lifted, and some 40,000 head crossed the border in the first two months of the year.

At the beginning of 1955 the Ray copper mine closed its underground workings and converted wholly to open-pit operations. South of Tucson the Pima Mining Company was developing an open pit to enter production in 1957. In May the U.S. Congress enacted a bill granting the Papago Tribal Organization rights to minerals underlying their extensive reservation.

Industrial expansion continued during 1955. South of Phoenix the Thunderbird Chemical Company was erecting a \$13 million plant, and in Tucson the Hughes Aircraft Company expected to have 5,500 workers by the end of the year.

In addition to the regular session of the state legislature (see above, *Legislature*), two special sessions were held late in the year to consider adoption of the first new compilation since 1928 of the Arizona Legal Code. Ernest W. McFarland, former U.S. Democratic senator, was inaugurated as the state's tenth governor on January 3.

In November 1955, Arizona was host to a World Symposium on Solar Energy which was attended by 700 scientists from all over the world, and which displayed the greatest aggregation of solar machines ever collected. A laboratory for the study of solar energy was planned for the Tucson area under the sponsorship of the University of Arizona.

The proposed Shrine of the Ages Chapel at the Grand Canyon came closer to reality in 1955, with \$360,000 raised toward its construction by late in the year. (See also NATIONAL PARKS.)

Principal Events by: GEORGE F. HERRICK,
Professor of Business Administration, University of Arizona.

ARKANSAS. South Central state, United States; admitted to the Union, June 15, 1836. The "Wonder State" ranks 26th in area and 31st in population (1955) among the 48 states.

Area and Population.—Area: 53,104 square miles (land 52,675; inland water, 429), divided into 75 counties. Population: (1950 census) 1,909,511; (est., July 1, 1955) 1,770,000. Urban places with populations above 10,000 in 1950, unless otherwise indicated, are as follows:

Blytheville.....	16,234	Jonesboro.....	16,310
Camden.....	16,622 ¹	Little Rock (capital).....	102,213
El Dorado.....	24,477 ²	North Little Rock.....	49,588 ²
Fayetteville.....	17,071	Pine Bluff.....	37,162
Fort Smith.....	56,312 ¹	Texarkana.....	15,875
Helena.....	11,236	West Memphis.....	12,146 ³
Hot Springs.....	29,307		

¹ Special census, 1955. ² Special census, 1954. ³ Special census, 1953.

Executive.—Chief state officers in 1955:

Governor: Orval E. Faubus (Democrat)

Lieutenant Governor: Nathan Gordon

Secretary of State: C. G. Hall

Treasurer: J. Vance Clayton

Attorney General: Tom J. Gentry

Commissioner of Education: A. W. Ford

Constitution and Judiciary.—The present constitution went into effect in 1874. The Supreme Court comprises seven justices; chief justice in 1955 was Lee Seamster, who succeeded Justice Griffin Smith, who died on April 29, 1955.

Legislature.—The General Assembly (Senate, 35 members; House of Representatives, 100) meets in odd-numbered years commencing the second Monday in January.

The 1955 session of the legislature (January 10–March 10) appropriated \$420,616,683.58 for the 1955–57 fiscal biennium and enacted 429 measures. Among these were enactments which created the Arkansas Children's Colony for the training and education of the mentally retarded; abolished the Department of Finance and Administration and transferred its functions to the newly established offices of State Comptroller, State Purchasing Department, and Board of Finance; redefined the status of the four industrial schools for delinquents (two each for boys and girls) as educational rather than penal institutions in order to extend their eligibility for federal benefits; repealed a 1953 enactment requiring financially able persons to contribute to the support of needy relatives; and required a complete reappraisal of property at 20% of value by 1957.

Proposed for approval by the voters in 1956 were amendments which place a limit of 30 mills on the millage which may be voted by school districts, and authorize cities to levy five additional mills to the existing five-mill property tax limit.

Finances.—Treasury receipts (1954–55 fiscal year): \$159,031,393.48; expenditures, \$162,178,110.54; treasury balance, \$76,359,478.08; long-term indebtedness, \$105,066,000.

Taxation.—State tax revenue (1954–55 fiscal year): \$102,774,312.14, including \$30,287,286.56 from a 2% general sales tax and selective sales and gross receipts taxes; \$4,641,079.48 from individual income taxes; and \$7,468,741.42 from corporate income taxes. The state has a \$1 poll tax but no property tax.

Banking.—As of June 30, 1955, the state's 54 national banks had \$539,399,000 in assets, \$404,167,000 in demand deposits, and \$89,425,000 in time deposits; the state's 179 other banks had \$473,034,437.27 in assets, \$356,625,469.03 in demand deposits, and \$73,433,656.39 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 15, inclusive. In the 1952–54 biennium, operating expenditures

of \$45,839,222 (\$129 per pupil) for public elementary and secondary education comprised \$21,104,378 from local school districts, \$23,350,500 from the state, and \$1,384,344 from the federal government. Building fund expenditures totaled \$16,453,344. Salaries of all teachers averaged \$2,234 (high school teachers, \$2,495; elementary school teachers, \$2,048).

ARKANSAS SCHOOL STATISTICS, 1953–54

Department or school	No.	Teachers	Students
Public elementary departments (1–6 or 1–8).....	1,424	7,781	267,644
Public secondary departments (7–12 or 10–12).....	622	5,530	147,311
Private and parochial elementary and secondary departments.....	66	303	7,759
Public and private vocational and special schools.....	3	...	432
Junior colleges.....	4	...	1,704
State teachers and state agricultural colleges.....	6	489	10,751
Private colleges.....	9	...	4,667
State universities.....	1	426	5,612

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) for the fiscal year 1954–55 totaled \$29,831,409.46, including \$21,369,362 for old-age assistance, \$5,119,310 for dependent children, and \$939,587 for the needy blind; a monthly average of 69,537 persons received public assistance. Operating expenditures amounted to \$7,574,033.19 for health and welfare institutions and to \$1,000,952.93 for correctional and penal institutions.

ARKANSAS WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for the mentally ill (Aug. 31, 1955).....	2	5,010
Sanatoriums for the tubercular (Sept. 10, 1955).....	3	1,462
Schools for the blind (May, 1955).....	1	132
Schools for the deaf (May, 1955).....	1	250
Schools for the blind and deaf (Sept. 15, 1955).....	1	85
Homes for veterans' widows (Sept. 9, 1955).....	1	28
Training schools for delinquent boys (Sept. 9, 1955).....	2	208
Training schools for delinquent girls (Sept. 9, 1955).....	2	87
Prisons (Sept. 9, 1955).....	1	1,797*

* Includes inmates of 2 prison farms.

Labor Force.—On July 15, 1955, the labor force numbered 655,300, including 229,500 agricultural workers. Nonagricultural employment was 312,800, and for the full year ending December 1954 averaged 307,900. There were 32,600 unemployed workers in July 1955, including 29,700 nonagricultural workers and 2,900 agricultural workers. Unemployment insurance claims of \$9,201,017 were paid to insured workers during 1954.

Manufacturing.—Establishments in the first quarter of 1955 numbering 2,742 had a quarterly

MAJOR ARKANSAS MANUFACTURES, 1954

	Persons engaged	Payroll and profit income (millions of dollars)	Value of output (millions of dollars)
All manufactures.....	81,000	\$291	\$899
Food products.....	12,000	40	218
Lumber.....	26,000	62	169
Petroleum and coal products.....	2,000	25	117
Chemicals.....	6,000	38	110
Paper and pulp.....	4,000	22	61
Furniture.....	5,000	16	37
Leather.....	4,000	9	29
Primary metals.....	3,000	16	27
Apparel.....	5,000	10	25
Stone-clay-glass products.....	2,000	12	23
Machinery.....	3,000	10	21

(Source: The Blue Book of Southern Progress, 1955.)

mean average of 81,514 employees. Investment in new plant and equipment in 1954 totaled \$21,107,000. Earnings of production workers in manufacturing averaged \$51 for an average work week of 40.8 hours in 1954 and \$53.12 for 41.5 hours in the first six months of 1955.

Mining.—The value of mineral production in Arkansas reached an all-time high in 1954. Arkansas ranked first among the states in 1953 in production of barite, bauxite, and sharpening stones, and stood 24th in the value of its mineral products, with 0.88% of the United States total.

ARKANSAS MINERAL PRODUCTION, 1954¹

(In short tons, except as noted)

Mineral	Quantity	Value
Barite.....	400,000	\$ 4,200,000
Bauxite (long tons).....	2,150,000	16,000,000
Clays ²	550,000	1,800,000
Coal.....	700,000	5,250,000
Natural gas (1,000 cu. ft.).....	32,000,000	1,300,000
Natural gasoline (bbl.).....	1,200,000	3,360,000
Petroleum (bbl.).....	29,300,000	80,500,000
Petroleum gases (bbl.).....	1,600,000	2,720,000
Sand and gravel.....	5,010,000	5,000,000
Stones ³	3,800,000	5,300,000
Other minerals.....		6,135,000
Total.....		\$131,565,000

¹ Preliminary. ² Excluding clays sold or used for cement.

³ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$174,549,000, and for the full year 1954 comprised \$181,104,000 from livestock and livestock products, \$378,348,000 from crops, and \$5,421,000 from government payments.

Receipts from livestock and livestock products in 1954 included: cattle (\$5,947,000), broilers (\$48,371,000), dairy products (\$34,575,000), eggs (\$16,839,000), and hogs (\$15,354,000).

The state's 145,075 farms (17,944,359 acres; harvested cropland, 5,535,607) in 1954 had an average of 123.7 acres and \$8,491 in value of land and buildings per farm. Livestock on farms (Jan. 1, 1955) included 1,485,000 cattle, 426,000 hogs, and 7,271,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 363,202 family and hired workers engaged in farming. There were 24,360 farms with telephones; 131,668 with electricity.

ARKANSAS CROP INCOME

	Cash receipts	
	1953	1954
Corn.....	\$ 2,094,000	\$ 1,245,000
Cotton lint.....	261,466,000	255,468,000
Cottonseed.....	28,153,000	29,117,000
Hay.....	1,832,000	1,687,000
Oats.....	1,713,000	4,976,000
Peaches.....	2,682,000	2,352,000
Pecans.....	1,535,000	517,000
Rice.....	45,900,000	41,191,000
Soybeans.....	18,074,000	20,090,000
Strawberries.....	2,473,000	2,183,000
Tomatoes.....	1,420,000	1,539,000
Watermelons.....	924,000	918,000
Wheat.....	2,679,000	2,793,000

(Source: U.S. Department of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads in the 1954-55 fiscal year totaled \$36,556,734.05, and newly completed construction aggregated 591.81 miles.

Highways and roads on Jan. 1, 1955, totaled 72,589.59 miles (7,330.88 surfaced). Registered motor vehicles numbered 537,443 in December 1954, including 364,596 passenger cars. There were 33 railroads (1955) operating 3,650.14 track miles and 1,589.79 line miles, and 4 regularly scheduled airlines and 143 airports and airfields (64 commercial and municipal, 3 military, 37 private, and 39 other fields).

Communications media included (1955) 54 AM and 2 FM radio stations and 3 operating television outlets (2 VHF and 1 UHF); 34 daily newspapers (circulation, 365,882) and 138 other newspapers (circulation, 211,683); and (Jan. 1, 1955) 92,324 business and 205,696 residential telephones.

Principal Events, 1955.—Following three years of devastating drought conditions in this predominantly agricultural state, the General Assembly took major steps to promote diversification in the economy. An Industrial Development Commission, with Winthrop Rockefeller as chairman, was created to make an all-out effort to attract industry into Arkansas. A Committee of One Hundred leading citizens was also appointed, with each member pledging at least one week per year of his time to promote the industrialization of the state. In addition, an Industrial Research and Extension Center of the University of Arkansas was created to conduct research and offer professional services to the commission. Before the end of 1955, this all-out effort was showing definite results in obtaining industry.

Most Arkansans welcomed the attitude of the U.S. Supreme Court in recognizing that each local school district should be permitted to work out its own plan for ending segregation in the public schools (see EDUCATION). Accepting the futility of attempting to evade the court opinion, the General Assembly permitted a bill designed to continue segregation to die on the Senate calendar after it had passed the House. Following the 1954 example of the Fayetteville School District, the Hoxie School District, the first to do so in heavily Negro-populated eastern Arkansas, ended segregation with the start of the 1955 fall school term, in spite of a storm of protests among certain anti-integration forces. The Little Rock School District announced that 1957 would be the earliest date in which its gradual integration would commence.

Efforts of a dog-racing track to obtain a license to operate at West Memphis resulted in months of political turmoil which ultimately involved Gov. Orval E. Faubus, the Crittenden County Chancery Court, and the State Racing Commission. Late in 1955, proponents of the track threatened court action to obtain a license to operate the \$1,500,000 dog-racing plant which they had constructed. The bitter fight brought about threats of outlawing all legal racing in Arkansas by constitutional amendment.

Little Rock's Mayor Pratt Rummel, first Republican to hold this office in modern times, was defeated in his third-term bid on November 8 by Democrat Woodrow Wilson Mann.

Legislature and Principal Events by:

MARCUS HALBROOK,

Director, Arkansas Legislative Council.

ARMED FORCES. See AIR FORCE, U.S.; ARMY OF THE U.S.; MARINE CORPS, U.S.; NATIONAL GUARD; NAVAL AFFAIRS; and the Index entry, *Armed Forces*.

ARMY OF THE UNITED STATES. U.S. Army activities in 1955 were determined primarily by the National Security Council's considered belief that a future major war would in all likelihood be air-atomic in character and of short duration. Nevertheless, the army continued to prepare for peripheral conflicts, for nonatomic war, and for a possibly prolonged aftermath to an atomic phase. In accord with the "new look" policy enunciated in 1954, and the short-war concept, army strength and funds for 1955 were materially reduced. Chief developments of the year were: testing new organizations and methods for

the tactical use of atomic weapons and the placement in service of newly developed weapons; and major changes in the military Reserve program.

Organization and Administration.—The most important civilian personnel change made in 1955 was the appointment of Wilber M. Brucker (q.v.) on June 22 to succeed Robert T. Stevens as secretary of the army. Other civilians named to top positions included Charles C. Finucane, confirmed as undersecretary of the army on February 8, and Chester R. Davis, appointed assistant secretary for financial management on February 18. Major changes in military personnel included the appointment of Gen. Maxwell D. Taylor (q.v.) on May 13 to succeed Gen. Matthew B. Ridgway as chief of staff; Gen. Lyman L. Lemnitzer on May 13 as commander of United Nations and United States forces in the Far East; Lieut. Gen. Williston B. Palmer on April 27 as vice chief of staff; Lieut. Gen. Carter B. Magruder on April 27 as deputy chief of staff for logistics; and in a split of the functions of the deputy chief of staff for plans and research (which may presage further changes in the staff structure), Lieut. Gen. James P. Gavin was appointed chief of army research and development on September 26, and Lieut. Gen. Clyde D. Eddleman became deputy chief of staff for plans on October 12.

A long-range plan providing for the deployment of army units to permanent installations was approved in June. In pursuance thereof a program for closing some installations, building permanent facilities at others, and rehabilitating some 1,400 World War II-type barracks, mess halls, and bachelor-officers' quarters was inaugurated.

On the administrative side, decentralization and the use of more modern accounting and business practices continued. Furthermore the army also eliminated some 110,000 items of supply and reduced the total to about 1 million by the end of the year.

Personnel.—U.S. Army strength was reduced from 1,405,000 (128,200 officers) on June 30, 1954, to 1,109,000 (121,900 officers) on June 30, 1955, and is expected to be reduced further to 1,027,000 (estimated) by June 30, 1956. General M. B. Ridgway spoke out most vigorously against this trend. Late in 1955 the army was asking for an increase of 16,000 men to conduct the training necessary under the new Reserve program (see below).

In 1955, important steps were taken to make an army career more attractive. Provisions were made for better housing, distinctive insignia for noncommissioned officers as differentiated from technical specialists, assistance in off-duty schooling, and improved allowances for change of station and re-enlistment. Pay increases ranging from 6 to 25% became effective on April 1. Standards for enlistment were raised, and some 17,000 men in the lowest mental categories were separated as a step in strength reduction. After these changes, career enlisted men comprised almost 60% of the total, and immediate re-enlistments increased from an average of 4,700 in fiscal year 1954 to 6,000 in the first half of 1955.

During the year, civilian employees were reduced by 33,000 to a total of 462,000 (including 80,000 employed overseas). There were also 215,000 foreign nationals working for the army. Operation Team Mate, under which 12,500 military personnel in noncombat positions are to be replaced by civilians, was about three fourths completed by 1955.

Operations and Training.—In mid-1955, 9 divisions were stationed in the United States, five in Europe, three in the Far East, and one each in Hawaii, Alaska, and the Caribbean area.

Operation Gyroscope, a system providing for the rotation of complete units rather than individuals, was begun on a large scale in July 1955 when the 1st Infantry Division in Europe changed posts with the 10th Division in Fort Riley, Kansas.

More than 90,000 troops participated in field training in the fiscal year 1955. New concepts of divisional combat in atomic warfare were tested in several operations held during the year. Logistic techniques, including parachute drops in extremely cold weather, and defense against atomic attack and army aircraft operations in cold and mountainous areas were also extensively tested.

Army service schools produced 190,000 graduates in 1955. In addition, 5,800 army personnel completed courses at air force schools, 1,100 at navy schools, 3,700 at joint schools, and 1,600 at civilian institutions.

The deployment of Nike (surface-to-air missile) and Skysweeper (antiaircraft gun) air defense, begun in 1954, was greatly expanded in 1955. It was believed that by mid-1956 all Nike sites would be prepared, and that 85% of the total units planned would be operational.

Besides normal military operations, the army continued to support the armed forces of other countries. In the fiscal year 1955 it delivered \$1.15 billion in equipment to Mutual Defense Assistance Program (MDAP) countries, over 50% of it to Europe. Of the total, \$490 million was in offshore (non-United States) procurements, a sum which continued to provide the strategically important benefit of expanding the free world military production base. In addition, 4,200 training courses were completed by students from MDAP countries in U.S. Army schools, and mobile training teams abroad were increased from 36 to 78.

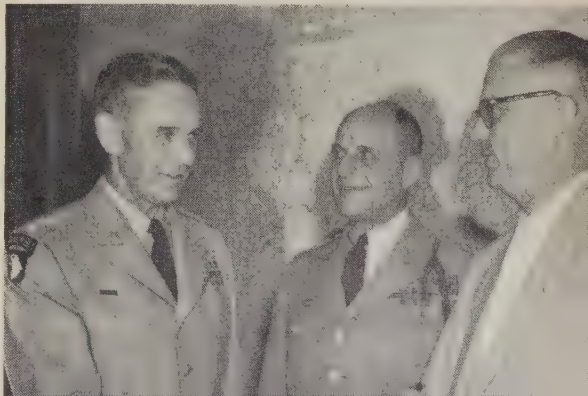
New authorizations for civil works programs in the fiscal year 1955 covered 165 projects in 40 states and overseas possessions, to cost \$600 million. Flood control and attendant disaster relief activities were augmented by the unusual number of floods and destructive hurricanes.

Research and Development.—To render the army research and development program more efficient and productive, responsibility for it was concentrated in one staff by 1956.

Advances were achieved in a variety of fields. In the field of fire power, the 280-mm. gun, the

Secretary of the Army Robert T. Stevens (at right), who resigned June 22, 1955, congratulates Gen. Maxwell D. Taylor on the latter's appointment as chief of staff (May 13), succeeding Gen. Matthew B. Ridgway (center).

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U.S. ARMY

Army missiles shown above are (left to right): Honest John rocket, capable of carrying conventional or nuclear warheads; and the high-speed Nike and Corporal, both long-range guided missiles.

Honest John rocket, and the Corporal guided missile were improved, and progress was being made on a whole new family of artillery guns and howitzers. The serious problem of air-transportability was being met by the development of aircraft capable of handling larger and heavier loads and by the development of lighter and smaller equipment. Increased land mobility was being sought through such means as diesel-electric trackless trains and better flotation for tracked and wheeled vehicles. Development in other fields included better protective clothing, gas masks, and radio communications; a multilingual typewriter; and a vehicle called the mechanical mule.

The U.S. Army is also participating in Operation Vanguard, the space satellite project, for the International Geophysical Year, 1957-58.

Matériel.—In 1955 army use of guided missile and rocket equipment was materially increased; the project of replacing the 105-mm. and 75-mm. rifles by the 106-mm. recoilless rifle was begun; and a gigantic amphibious, low-ground pressure vehicle (the BARC) and aerial tramways were introduced.

In the area of aircraft, fixed-winged transports carrying over one ton were sanctioned for army use, and three helicopter companies were added during the year. In October the army arranged for the use of air force jet trainers.

Reserve Components.—The Reserve Forces Act, passed by Congress on July 26 and signed by President Eisenhower on Aug. 9, 1955, raised the Ready Reserve ceiling from 1,500,000 to 2,900,000 and authorized the president to call 1,000,000 men into training in a national emergency. It established various ways, all voluntary, by which men may enter the Reserves as an alternative to being called up for 2-years' active service under the Selective Service Act, and fixes the obligation for service under each plan. The one

under which 17-to-18½-year-old volunteers can enlist for six months of active duty and seven and one-half years of Reserve duty attracted most attention.

Although the extension by Congress of the Selective Service Act (June 16) for four years provided somewhat of an incentive to undertake Reserve duty, the initial response was disappointing. By the end of 1955, some 7,000 men, including 5,000 in the six-month plan, had volunteered. Training plans had been based on a maximum of 5,000 per month. The army instituted a vigorous recruiting campaign when the situation became apparent. Although President Eisenhower signed the act, he pointed out its defects, one of which, he said, was the denial of draft authority to implement the program. He directed the defense establishment to prepare remedial legislation. The need for legislation was emphasized by the fact that when the Reserve Forces Act was passed, only about 162,000 Army Reserve personnel were undergoing sufficient training to keep them on pay status. (See also NATIONAL GUARD; SELECTIVE SERVICE.)

In consonance with the concept that primary effort should be spent on forces that can be mobilized within 6 rather than 18 months, the U.S. Army initiated a program to convert 12 of the 25 USAR divisions into training units and to eliminate some 358 smaller units in favor of types needed in the early stages of war. In October opponents of the program alleged that it was discriminatory and militated against the operation of the new Reserve Forces Act.

Budget and Expenditures.—For the fiscal year 1956, Congress provided (June 30, 1955) new obligatory authority of \$7,329,953,000. Balances brought forward of \$4.3 billion and an anticipated \$1.2 billion return from Mutual Defense Assistance and other services gave the army nearly \$13 billion. However, it is estimated that only about \$9.5 billion will be obligated before July 1957.

Improved purchase planning has resulted in a decrease in unliquidated obligations from \$8.1 billion in 1954 to \$5.8 billion in 1955. Unobligated funds were reduced in the same period from \$7.7 billion to \$4.4 billion. Actual expenditures were \$8.9 billion for the fiscal year 1955, compared with \$12.9 billion for 1954. Each was \$1.3 billion below the original estimate. (See also NATIONAL SECURITY.)

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ARSENIC. See MINERAL PRODUCTION.

ART. See ARCHITECTURE; GRAPHIC ARTS; PAINTING, SCULPTURE, AND PRINTS.

ARTHRITIS. Reports continue to appear indicating that arthritis and related diseases are among the most prevalent of the chronic diseases throughout the world, causing serious economic loss, and making a major contribution to prolonged disability and to human suffering. From a sampling survey carried out in 42 states, it was estimated that there were about 10,100,000 persons of the age of 14 years or over in the United States with arthritis and rheumatism. This amounts to 9.3 per cent of this portion of the population. About one quarter of these 10,100,000 are estimated to have made some significant change in the type or amount of work they performed, or in their usual activities, because of their rheumatic difficulties.

The economic impact of rheumatic diseases is

further emphasized by statements that they cause nearly one sixth of the total industrial invalidism in England and Wales with an annual work loss of 3 million man-weeks. In the United States, arthritis and rheumatism cause more years of disability than do all types of accidents. It has been estimated that the total annual loss from this cause in the United States is nearly 100 million man-days, with an approximate cost of \$100 million per year for medical care alone.

In the face of a problem of this magnitude, the mobilization of resources for a nationwide attack in many countries has continued. In the United States the lead has been taken by the Arthritis and Rheumatism Foundation, the American Rheumatism Association, and the National Institutes of Arthritis and Metabolic Diseases (a division of the U.S. Public Health Service).

Rheumatoid Arthritis.—Research on this disease, the type of arthritis most likely to produce permanent joint damage and crippling, continues to emphasize its constitutional or systemic nature. Evidence continued to accumulate that the inflammatory changes in the connective tissue in this disease are by no means restricted to the connective tissue of the joints. Concurrently, treatment continues to emphasize the importance of a well-rounded program adapted to the needs of each individual patient, rather than reliance on any single medicine or drug. The importance of rest, the use of various medicines to relieve pain, the use of heat and exercise to prevent deformity, the value of orthopedic measures in the prevention or correction of deformity, and the importance of attention to all factors bearing on the patient's general health are all being stressed.

Further work served to more sharply define the usefulness and limitations of cortisone and hydrocortisone in rheumatoid arthritis. An important development was the introduction of prednisone (Meticorten), a synthetic steroid closely related in chemical structure and pharmacologic effects to cortisone and hydrocortisone. This material was found to temporarily suppress the manifestations of rheumatoid arthritis in smaller doses than were required of the other steroids, and to be free of some, but by no means all, of the undesirable effects of cortisone and hydrocortisone. Like the other steroids, prednisone was found to be essentially a suppressive agent rather than a curative agent, and its use requires careful medical supervision and individualization of dosage to the needs of each patient.

Injections of hydrocortisone acetate directly into involved joints have been found to be worthwhile in about half of carefully selected patients with rheumatoid arthritis. As was true of the systemic use of the adrenal steroids, the best results were obtained when this method of treatment was combined with other methods of therapy.

Further experience with phenylbutazone (BUTAZOLIDIN) emphasized the toxic potentialities of this drug, and served to underline the recommendation that it should never be taken without careful medical supervision.

Rheumatic Fever.—Further studies have supported the close association of streptococcus infections with acute rheumatic fever, but fail to solve the mystery of the exact manner in which the streptococcus produces this disease. It was clearly shown that the great majority of attacks of acute rheumatic fever can be prevented by prompt and effective treatment of streptococcus infections with penicillin, and that recurrent attacks could be largely prevented by the regular

use of sulfanilamides or penicillin. The use of cortisone and related steroids in the treatment of acute rheumatic fever was more firmly established, although as yet there are no results indicating a uniform and clear-cut superiority of the results of treatment with these steroids over those obtained with salicylates. Some studies suggested that the use of cortisone or ACTH early in the attacks of acute rheumatic fever, in sufficient dosage and for a sufficient period of time, did reduce the incidence of chronic residual heart damage. The necessity of bed rest until all evidence of rheumatic activity had subsided remains of paramount importance regardless of the medication used in treatment. (See also HEART DISEASE; PEDIATRICS.)

Osteoarthritis.—Treatment of this condition continues to emphasize methods for relief of pain and for maintenance of function. Limitation of weight bearing, the use of heat and exercises, and of medications to relieve pain, combined with restriction of use of the joints, constitute the most effective measures. Direct injection of hydrocortisone acetate into the afflicted joints has been found to be of benefit in carefully selected patients. In severe osteoarthritis of the hip, surgical procedures are often required to obtain relief.

Gout and Gouty Arthritis.—This is the only type of arthritis which has been shown clearly to be related to an abnormality in body chemistry. Improved methods of treatment now make it possible to control nearly all the manifestations of this disease in a great majority of patients. The use of colchicine continues to be the most practical remedy for acute attacks, although the way in which it acts remains completely unknown. The use of phenylbutazone to terminate acute attacks has been placed on a sounder basis as the result of studies of the blood level of this medication after it is administered.

The frequency of acute attacks can usually be reduced by careful attention to known precipitating factors, by the regular daily use of colchicine in prophylactic dosage, and by appropriate dietary measures. The effectiveness of probenecid (Benemid) in promoting the excretion of excessive uric acid through the kidneys will often reduce the serum uric to normal. The use of this drug has opened up the possibility of preventing some of the late complications of gout. In some studies it also has appeared to be effective in decreasing the incidence of acute attacks.

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ASBESTOS. See MINERAL PRODUCTION.

ASCENSION. See SAINT HELENA.

ASIA. The largest of the continents. Estimated area (including European Turkey), 10,426,000 square miles; pop. (est. 1954), 1,323 million (both estimates exclusive of USSR). (See also articles on the countries of Asia, and the Index entry, Asia.)

ASIA MINOR. Geographical name of the peninsula which forms the bulk of Turkey (q.v.).

ASIAN-AFRICAN CONFERENCE (BANDUNG CONFERENCE, 1955). From April 18 through April 24, 1955, twenty-nine nations of Asia and Africa, representing over half the population of the world, met in Bandung, Indonesia, to discuss a variety of common problems arising out of the tensions of the modern world. The historic conference—the first of its kind ever held—seemed



WIDE WORLD

Asian-African Conference delegates are addressed by Chinese Premier Chou En-lai (at podium), April 20, 1955.

a symbol of the resurgence of the Asian and African people, and reflected their growing spirit of independence and desire to participate actively in the affairs of the world.

Participating in the meetings were the so-called Colombo Plan nations (Burma, Ceylon, India, Indonesia, and Pakistan, sponsors of the conference), Afghanistan, Anglo-Egyptian Sudan, Cambodia, the Chinese Peoples' Republic, Egypt, Ethiopia, Gold Coast, Iran, Iraq, Japan, Jordan, Laos, Lebanon, Liberia, Libya, Nepal, the Philippines, Saudi Arabia, Syria, Thailand, Turkey, North Viet-Nam, South Viet-Nam, and Yemen.

In accordance with the plans adopted by the Colombo nations at Bagor, Indonesia, in December 1954, when the conference was conceived, it was agreed at the preliminary session (April 17) that the talks would be limited to broad international questions. An agenda covering five general topics was finally agreed upon: (1) economic cooperation; (2) cultural cooperation; (3) human rights and self-determination; (4) world peace and cooperation; and (5) problems of dependent peoples. The chief delegates elected Dr. Ali Sastroamidjojo, premier of Indonesia, as conference president.

In his speech of welcome, President Sukarno of Indonesia struck the keynote of the conference, declaring that the "voiceless ones of the world" were determined to speak out in behalf of Asian-African independence and world peace.

Premiers Nasser of Egypt (left) and Nehru of India, during meetings of the Asian-African Conference.

REPUBLIC OF INDONESIA INFORMATION OFFICE



As early as the first day, however, the unity desired by the sponsoring nations was disrupted over the question of colonialism. In a blistering attack on communism, Dr. Fadhil al-Jamali, minister of state for Iraq, declared that it was "a new form of colonialism much deadlier than the old." This anti-Communist point of view was echoed by Carlos P. Romulo, chief delegate of the Philippines, who warned the Asian-African nations against rejecting the old colonialism only to accept a new type, the principal tenet of which is "the pervasive control of human life in all spheres by a tightly run self-selected organization of elite individuals." A similar theme was expressed by Prince Wan Waithayakon, foreign minister of Thailand, Dr. Djalal Abdoh, acting delegate for Iran, and Mohammad Ali, prime minister of Pakistan.

On the second day (April 19), Chou En-lai, premier of Communist China, setting the mild-mannered tone of his future statements, said that his delegation had come to the conference "to seek unity and not to quarrel," and reiterated as a means of securing peace in the world the "five principles of coexistence" that form the basis of Indian-Chinese relations.*

The split between the anti-Communist nations and the neutralists, headed by Jawaharlal Nehru, prime minister of India, was crystallized when, on April 21, in answer to Chou, Sir John Kotelawala, prime minister of Ceylon, laid bare the reality of Communist subversion in Asia and Africa and urged the conference to denounce Communist colonialism, along with the old type associated with the West. He also proposed a plan for the settlement of the Formosa question which called for a five-year trusteeship of the island by the United Nations or the Colombo nations, to be followed by a plebiscite which would determine Formosa's final form of government. Subsequently the anti-Communist block—Turkey, Pakistan, Iraq, Iran, Liberia, Libya, Lebanon, Anglo-Egyptian Sudan, and the Philippines—pressed for a resolution condemning all forms of colonialism, including "international doctrines resorting to methods of force, infiltration, and subversion."

Fearful lest the Asian-African nations lose their growing prestige by creating the impression for the outside world that the conference had degenerated into one for choosing sides in the cold war, Nehru made a fervent plea for unity and a defense of his neutralist principles. Admitting the injustices of Chinese foreign policy and methods, and condemning the North Atlantic Treaty Organization (NATO) as "a powerful protector of colonialism," he insisted that joining either bloc meant not only the loss of honor but also the loss of national identity. When Burmese Premier U Nu's compromise proposal, providing for the inclusion of the human rights guarantee of the United Nations Charter, along with the "five principles of coexistence," in a declaration, was rejected by the anti-Communist countries, the conference came to a deadlock.

In the meantime, Chou En-lai had been working in private to promote goodwill between Communist China and as many of the Asian-African countries as could be influenced. The climax of the conference—and of Chou's deft diplomacy—came on April 23, when, along with a 7-point peace program in which he offered ma-

* Respect for each other's territorial integrity and sovereignty, nonaggression, noninterference in each other's internal affairs, equality and mutual benefit, and peaceful coexistence.

terial assurances to Burma, Thailand, the Philippines, Cambodia, Laos, and Japan, he declared that "China and the United States should sit down and enter into negotiations to settle the question of relaxing the tension in the Taiwan (Formosa) area."

On April 24 the conference issued its final communiqué incorporating unanimously adopted recommendations on the 5-point agenda, together with declarations on dependent peoples and world peace. A summary of the principal items in the communiqué follows.

Economic Cooperation.—The conferees "recognized the urgency of promoting economic development in the Asian-African region," including the investment of foreign capital; agreed "to provide technical assistance to one another"; recommended the "early establishment of a special United Nations fund" and "an international finance corporation" for economic development; recommended means of "stabilizing commodity trade in the region"; and recommended "the development of nuclear energy for peaceful purposes" and "the establishment of an international agency which would provide for adequate representation of the Asian-African countries."

Cultural Cooperation.—The conference "condemned racialism as a means of cultural suppression," and the denial of fundamental rights in the sphere of education and culture in Tunisia, Algeria, Morocco, and other parts of Africa; and recommended the development of cultural contacts with nations outside the Asia-Africa area, and "bilateral arrangements" and individual action to implement cultural cooperation.

Human Rights and Self-Determination.—The conference "declared its full support of the fundamental principles of human rights as set forth in the Charter of the United Nations"; declared support of "the principle of self-determination of peoples and nations"; "deplored the policies and practices of racial segregation and discrimination . . . in large regions of Africa and in other parts of the world"; and declared its support of "the rights of the Arab people of Palestine" and called for "the implementation of the United Nations resolution on Palestine."

Problems of Dependent Peoples.—The conference supported the claim of Indonesia in the

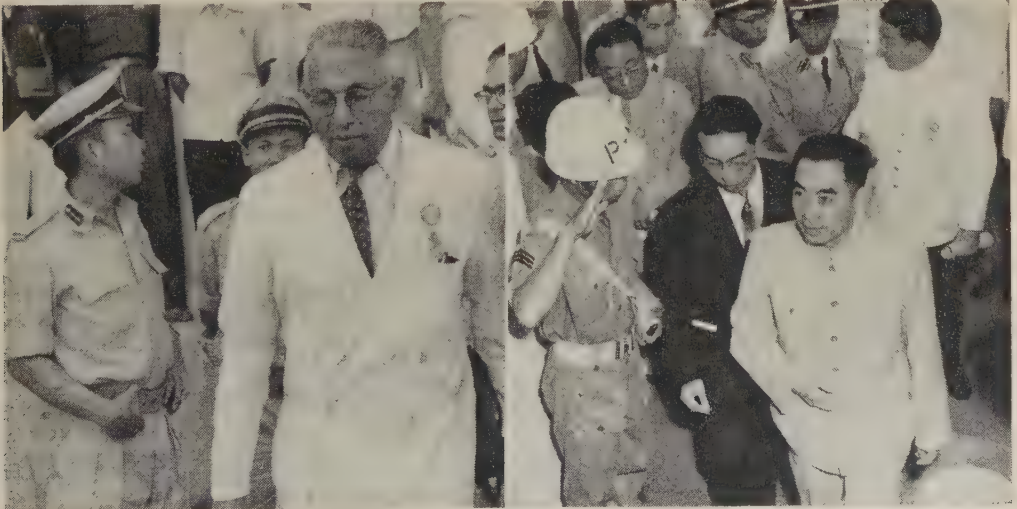
case of West Irian and urged the Netherlands government to reopen negotiations to fulfill its obligations; and supported the "rights of the people of Algeria, Morocco, and Tunisia to self-determination and independence, and urged the French government to bring about a peaceful settlement without delay."

Promotion of World Peace and Cooperation.—The conferees agreed that "membership in the United Nations should be universal" and called on the Security Council to support the admission of nations that qualified for membership (Cambodia, Ceylon, Japan, Jordan, Laos, Libya, Nepal, and unified Viet-Nam); advocated a more equitable representation on the Security Council for Asian-African countries; and called for disarmament and "prohibition of production, experimentation, and use of nuclear and thermonuclear weapons of war," and effective international control to implement such prohibition.

Declaration of Problems of Dependent Peoples.—The conference declared that "colonialism in all its manifestations is an evil which should be speedily brought to an end," and declared its support of the causes of freedom and independence for those peoples who are subjected to alien subjugation.

Declaration of Promotion of World Peace and Cooperation.—The conference advocated a peace program based on the following principles: (1) "respect for the fundamental human rights and for the purposes and principles of the Charter of the United Nations"; (2) "respect for the sovereignty and the territorial integrity of all nations"; (3) recognition of the equality of all races and nations; (4) "abstention from intervention or interference in the internal affairs of another country"; (5) "respect for the rights of each nation to defend itself singly or collectively in conformity with the United Nations Charter"; (6) "abstention from the use of arrangements of collective defense to serve the particular interests of any of the big powers," and "abstention by any country from exerting pressures on other countries"; (7) "refraining from acts or threats of aggression . . . against the territorial integrity or political independence of any country"; (8) "settlement of all international disputes by peaceful means. . ."; (9) "promotion of mutual interest

Ceylon's Prime Minister Kotelawala (left photo) leaves Asian-African Conference building, April 21, 1955, after blasting Communist China's Premier Chou En-lai (right photo).



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JUSTUS IN THE MINNEAPOLIS STAR
"LOOK ALIKES"

and cooperation"; and (10) "respect for justice and international obligations."

W. V. S.

ASPHALT. Most of the world's supply of natural asphalt is produced on the island of Trinidad, but the United States produces large quantities of other asphaltic materials, as indicated by the following sales figures for 1954 (in short tons, with corresponding figures for 1953 shown in parentheses): petroleum asphalt, 14,680,982 tons (14,041,648); bituminous rock, 1,332,000 tons (1,440,000); gilsonite, 76,000 tons (61,000); road oil, 1,346,300 tons (1,330,344). Bituminous rock and gilsonite are natural products; the others are byproducts of petroleum refining. All of the road oil and 68% of the petroleum asphalt sold was used in road paving, and 22% of the petroleum asphalt was employed in roofing products. United States imports of petroleum asphalts reached 607,000 short tons in 1954 (451,000 in 1953). Exports totaled 291,000 tons (277,000 in 1953).

ASSOCIATIONS. See SOCIETIES AND ORGANIZATIONS.

ASTRONOMY. Astronomical progress in 1955 was characterized by much international cooperation and application of new techniques, rather than by spectacular discoveries. The employment of radio telescopes and electronic equipment in observation, and of the new types of computing machines in theoretical astronomy, are especially noteworthy.

Eclipses.—There were three eclipses in 1955, two solar and one lunar, none of which was visible in the United States. That of June 20 was a total eclipse of the Sun, notable for the long duration of totality, namely 7 minutes 7.8 seconds.* The path crossed Ceylon, Indochina, and the Philippines. Ceylon was chosen by nearly all of the many excellently equipped expeditions as having the best chances for clear skies; but clouds ruined the plans of these expeditions, and

* One scientist, Frank Bach, observed the eclipse from a T-33 jet trainer of the U.S. Air Force. By flying along the path at a speed of about 600 mph., he was able to observe totality for 11 minutes, an all-time record.

at no place could the astronomical program be carried out successfully. In the Philippines, however, several observers secured excellent photographs of the corona.

The corona was of the typical sunspot minimum type, with two great equatorial wings, both projecting fully a solar diameter from the Sun's limb. Two bright prominences were visible, and at both poles the usual short, narrow streamers were observed.

On November 29 there was a partial lunar eclipse, and on December 14, an annular solar eclipse, both of little scientific value. The latter's path began in Africa, but a large part of it was over the Indian Ocean.

Mars.—Because the years 1954 and 1956 were due to have favorable oppositions of Mars, extensive plans for observing them were made in advance. Some of the results of the 1954 observations have now become available. Seven observatories, favorably situated as to longitude, were chosen as primary stations, while at least ten others cooperated extensively in the observations. Since the most powerful telescopes were used, much information was gained; and because the 1956 opposition will be far better for scientific observation, due to a closer approach of the planet, experience gained in 1954 will be helpful at that time.

Photographic plates and techniques have become so improved that negatives taken of the planet in 1954 show surprising detail. By using red and yellow color screens, surface features are made to show up in plates; and by using a blue screen, atmospheric phenomena can be studied. The most important discovery seems to be that great changes have occurred on the surface of the planet. Typical are the results obtained by E. C. Slipher, who took photographs at Lowell Observatory in 1907 and at the Lamont-Hussey Observatory in South Africa in 1939 and 1954. Syrtis Major is one of the most readily detected features on the planet. The area to its left was practically without detail in 1907; by 1939 a dusky curved band had become conspicuous; and by 1954 a very large dark region had developed, said to be the greatest change noted on the planet since fairly good maps were first made over a century ago. (See also NATIONAL GEOGRAPHIC SOCIETY.)

As for atmospheric changes, the troublesome blue haze, so often present, almost disappeared during May and June 1954, but had returned by July 2. Cloud belts, roughly parallel to the Martian equator, showed up in a blue-light exposure on July 18. Very remarkable also was a W-shaped cloud photographed at Mount Wilson Observatory on June 2 and 3, 1954, on the sunset limb of the planet. On July 3, when the same region was again on the sunset limb, the cloud was still there. It probably reformed every afternoon, since it could hardly have lasted a month. Work at the Mount Palomar Observatory by W. M. Sinton and John Strong showed that, on the equator, the maximum temperature (+77°F.) came 15 to 30 minutes after local noon. The sunrise temperature at the same place was -58°F.

"Radio Noise" from Jupiter.—At Seneca, Md., the Carnegie Institution has erected a radio antenna of the "Mills cross" type. In a survey made at declination +22° early in 1955, for 9 out of 30 transits, very intense outbursts of "radio noise" occurred 6 minutes after Jupiter crossed the beam. If this noise is radio static caused by electrical discharges in Jupiter's atmosphere, such discharges would have to be on a vastly greater scale than we find on the Earth.

Comets.—The more noteworthy comets discovered in 1955 were as follows:

Periodic Comet Harrington-Abell—Discovered on March 22 in the constellation Leo, by Robert G. Harrington and George O. Abell of Mount Wilson and Palomar Observatories; of magnitude 17; period, 7.01 years; orbital inclination, $16^{\circ}6'$.

Comet Abell—Discovered on April 17 in the constellation Canes Venatici, by George O. Abell; of magnitude 15; orbital inclination, 124° ; perihelion distance, 4.5 A.U. (astronomical units).

Periodic Comet Whipple (1955d)—Rediscovered on May 25 in the constellation Pisces, by Elizabeth Roemer at Lick Observatory; of magnitude 18.

Comet Mrkos—Discovered on June 12 in the constellation Perseus, by A. Mrkos at Skalnaté Pleso Observatory, Czechoslovakia; of magnitude 5 or 6; orbital inclination, 86° ; perihelion distance, 0.54 A.U.

Comet 1955f—Discovered on July 13 in the constellation Pegasus, by A. M. Bakharev at the Stalinabad Astronomical Observatory, USSR; of magnitude 8; orbital inclination, 50° ; perihelion distance, 1.4 A.U.

Comet 1955g—Discovered on July 29 in the constellation Orion, by the Japanese astronomer Honda at Kwasan Observatory, Kyoto, Japan; of magnitude 8.

Meteors.—The Harvard Meteor Expedition in New Mexico, which has two stations, each equipped with a powerful Baker Super-Schmidt camera, has accumulated data on over 4,000 meteors simultaneously photographed at both stations. These cameras permit photographing of meteors as faint as +3 or +4 magnitude, which explains the great number secured. A graphical method of reduction gives results with mean errors of 5% in velocity and 3% in height. A special study made by Fred L. Whipple, who directs the expedition, indicates that slower meteors of zero magnitude have a mass of 0.7 gram, while very swift ones may have a mass of only 0.02 gram; average densities would be 0.31 times that of water. A study of the Alpha Capricornid meteors indicates that those seen in August 1955 have orbits similar to that of Comet 1948n. Those from this radiant, seen in July, have definitely smaller orbits, though approximating the same perihelion distances.

The first parts of *Meteor Observations in the Antarctic*, Byrd Antarctic Expedition II, 1933–1935 appeared late in 1955. It is by Thomas C. Poulter, second in command of the expedition. The number of meteors seen per hour, both with the naked eye and with binoculars, was far greater than expected. A remarkable fact was that the numbers increased as the temperature fell. Poulter explains this as probably due to the lower content of water vapor in the air, and hence its increased transparency.

Stars.—A new determination of distance from the Earth of the Magellanic Clouds has been made by Gerard de Vaucouleurs at the Commonwealth Observatory, Australia, based on absolute magnitudes of novae 14 days after maximum light. The distance has been determined as 170,000 light-years—a considerably greater figure than had been determined a decade ago. It was also shown that, contrary to former belief, the larger cloud has a spiral structure with a maximum diameter of 49,000 light-years.

At the Mount Palomar Observatory a new investigation has been made by Walter Baade, using the 200-inch telescope on the Great Nebula in Andromeda, which is a spiral. Because the area of the nebula is so large, three regions were selected for special study. A total of 275 Cepheid variables were detected, 38 in the region only $15'$ from the nucleus, and 238 in the region $50'$ distant and covering a part of the spiral arms. None was found in the third region, $96'$ distant, probably because of dust absorption. By using these Cepheids to find the distance of the nebula, it was possible to arrive at a figure of 2 million

light-years—nearly three times the figure determined a decade ago. Five faint planetary nebulae were also detected. Their apparent magnitudes provide a good check on the newly determined distance. Baade also concludes that the dust is concentrated in the spiral arms, whose evolutionary development seems to be traced outward. Recent work has, in all instances, resulted in increased figures for the distances from the Earth of other galaxies, generally two or more times what had formerly been determined.



U.S. NAVY

Naval Research Laboratory's 50-foot radio telescope.

A very interesting solution for the orbit and mass of a faint binary star, Ross 614-B, has been made by Sarah Lee Lippincott at Sproul Observatory, Swarthmore, Pa. It is based on plates taken there and at McCormick Observatory, University of Virginia. The star's period has been determined as 16.5 years, and the relative orbit has been found to have a semimajor axis of 3.9 astronomical units—smaller than Jupiter's orbit. The masses of the two components are only 0.14 and 0.08 that of the Sun, the smaller being the least massive star known and actually seen.

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ATOMIC ENERGY. The striving for international cooperation dominated thought and effort in the field of atomic energy during 1955. It was strongly reflected at the first International Conference on the Peaceful Uses of Atomic Energy, held at Geneva, Switzerland, from August 8 to 20; in progress made by the United States in its Atoms for Peace program; and in endorsement by the United Nations of plans for an international Atoms for Peace agency.

Geneva Conference on Atomic Energy.—The International Conference on the Peaceful Uses of Atomic Energy was attended by representatives of 72 nations and 7 specialized agencies. Chairman Lewis L. Strauss of the Atomic Energy Commission headed the American delegation.

For hundreds of young American nuclear physicists this was their first opportunity to discuss their work outside their own immediate circles. Many Russian nuclear scientists and engineers also attended and, although reticent in comparison with others, they, too, discussed their work. Thousands of heretofore secret reports,



UNITED PRESS

Atomic fireball of Operation Cue explosion, May 5, 1955, spreads across floor of Nevada desert, while soldiers huddle in trench 3,500 yards from Ground Zero.

mostly from American sources, but including many from the United Kingdom and the Soviet Union, were declassified and distributed for the first time. Comparison of these reports revealed an astonishing agreement between the major laboratories of all countries on all important matters. The international agreement on the nuclear collision cross-sections as functions of energy of all the important materials was particularly striking.

The conference also permitted comparison of the stature of nuclear scientists of all countries against a common norm. Observers were unanimous in concluding that the best scientists of all nations actively working in the nuclear energy field were of equal ability. Some observers concluded that junior American nuclear scientists excelled the Russians in both number and quality, but this probably was the result of different methods of selection of participants from the two countries.

Every nation active in the field of atomic energy had material exhibits at Geneva. Those from the USSR were distinctly of less perfect mechanical execution than those from the United States, indicating a much higher reliance on hand-fitting and a more limited selection of materials of construction.

The United States exhibited the only nuclear reactor seen at the Geneva conference. This was of the "swimming pool" type, in which ordinary (as distinct from heavy) water acts simultaneously as moderator, radiation shield, and coolant. The fuel elements were sheets of alloys of aluminum and enriched nuclear fuels, and were in direct contact with the water of the pool. When the unit was in operation, the interaction of nuclear radiation with the water produced a bluish light which could be plainly seen. Tens of thousands of visitors from all nations thus saw nuclear fission in action for the first time.¹

Atoms for Peace.—In 1955 the United States made swift headway in the Atoms for Peace pro-

¹The portable components of this reactor cost \$300,000. At the conclusion of the conference it was sold to the Swiss government, along with the associated building, for \$180,000.

gram envisaged by President Dwight D. Eisenhower in his speech before the United Nations on Dec. 8, 1953, and implemented by the revision of the Atomic Energy Act in 1954. On Nov. 15, 1954, the United States had offered to contribute 220 pounds (100 kilograms) of uranium-235 to an international pool of atomic fuels if the other producing nations would make comparable contributions. Both the USSR and Great Britain agreed in principle to this proposal, and the latter offered on Nov. 16, 1954, to contribute 44 pounds of fissionable materials, but neither country made any firm commitment as to the nature of the fuels they would contribute. Meanwhile, under authority of the revised act, the United States went ahead on its own to make nuclear fuels available to other countries. This program, begun late in 1954, was accelerated markedly in 1955. By fall, at least two dozen agreements to supply uranium-235 to other nations had been signed.² These agreements provide to the respective governments unclassified information as to design, construction, and operation of research reactors. It is contemplated that private American citizens and organizations will be authorized to supply appropriate equipment and services.

The Atomic Energy Commission will lease to these governments up to 13.2 pounds (6 kilograms) of uranium-235 mixed with ordinary uranium in concentration not exceeding 20%. The receiving government is obligated to return spent fuel charges from the reactors to the United States without altering them in any way after removal from the reactor. Thus, other nuclear fuels produced as byproducts within the fuel of the reactor will revert to the United States. The contracts do not specifically provide what happens to nuclear fuels produced by capture of neutrons which escape from the fuel elements

²Agreements were signed with Argentina, Brazil, Chile, Nationalist China, Colombia, Denmark, Greece, Israel, Italy, Japan, the Republic of Korea, Lebanon, the Netherlands, Pakistan, Peru, the Philippines, Portugal, Spain, Sweden, Switzerland, Thailand, Turkey, which on May 3, 1955, signed the first agreement, Uruguay, and Venezuela.

of the reactor. All types of nuclear reactors produce these extra-core neutrons which could, theoretically at least, be absorbed in a thorium blanket external to the fuel elements, and recovered as fissionable uranium-233. Title to this material appears uncertain.

Belgium, as a principal supplier of uranium to the United States, is a principal in a special contract. In addition to the benefits of the more general contracts noted above, classified information, not including restricted data or primarily military information, is to be exchanged; and Belgium may have, if she desires, more than 13.2 pounds of uranium-235. In return, Belgium gives the United States an option to purchase up to 75% of the uranium ores and concentrates produced in the Belgian Congo through 1960.

A contract with Canada is similar to that with Belgium, except that it grants the United States an option on the nuclear materials produced by extra-core neutron irradiation from piles in which uranium-235 from the United States is used.

The contract with Great Britain, which is an active producer of nuclear fuels and which needs none from the United States, binds both parties not to transfer to other countries materials of primarily military significance.

United Nations Atoms for Peace Resolution.—By a 58 to 0 vote, with no abstentions, the U.N. General Assembly endorsed, by resolution of Dec. 3, 1955, the progress being made toward creation of an international Atoms for Peace agency. (See also UNITED NATIONS.)

U.S. Atomic Energy Commission.—Three new members were named to the AEC in late 1954 and in 1955, joining Chairman Lewis L. Strauss and Thomas E. Murray. These were Willard F. Libby, a radiation expert (confirmed by the Senate on Dec. 2, 1954); John von Neumann, a mathematician (confirmed March 14, 1955); and Harold S. Vance, a corporation executive (appointed Oct. 10, 1955).

Weapons Tests.—The AEC conducted a series of weapons tests from Feb. 18 to May 15, 1955, at the Nevada Proving Grounds, with the cooperation of military and civil authorities. Fourteen nuclear blasts were involved, bringing the total to 46 in the continental United States since the first one in 1945. With one exception, very little information was given out regarding the nature and purpose of these tests. One burst was very high, and several appear to have been quite small. Some were tower shots and some were air bursts. In one test, military personnel were exposed in tanks at relatively short distances from ground zero. The results of these tests were not made public.

The exceptional tests, held May 5, had to do with civil defense. The press and representatives of the civil defense units of all the states were invited. A modern village, complete with all facilities, was constructed on the site. Dummies simulating people were placed in the buildings.

Unfavorable weather caused repeated postponement of this test, and by the time of the actual shot most of the visitors had gone home. Apparently the device exploded had approximately the yield of the bombs exploded over Japan. House walls facing the blast were set aflame by the thermal radiation. In most cases these fires were extinguished by the following blast wave. Some houses were blown to bits by the blast wave. The dummies, as well as some live animals, protected by improvised basement shelters of the type previously recommended by

civil defense authorities were recovered in good condition, even in houses otherwise totally destroyed. In general, this test confirmed the correctness of previously advocated defensive measures. (See also FEDERAL CIVIL DEFENSE ADMINISTRATION.)

A second series of nuclear tests involving the setting off of small test devices was held in the latter half of October and in November. These were to be followed in the spring of 1956 by tests of both nuclear and thermonuclear weapons on the Eniwetok and Bikini atolls in the Pacific.

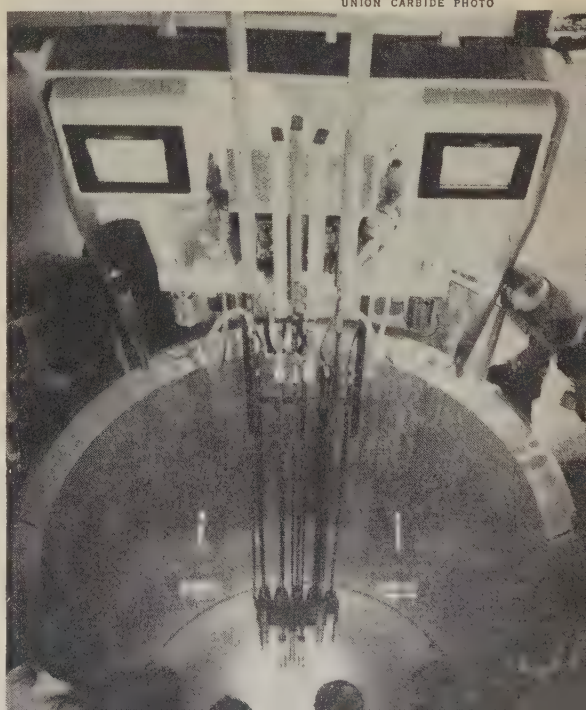
The U.S. Navy exploded a test device deep below the surface of the Pacific at a point a few hundred miles off the coast of California. No details of this test, public announcement of which was made May 17, were released.

The AEC announced on August 4 that the Russians had started a new series of nuclear tests in 1955. The implication of the announcement was that this was part of a series of tests not dissimilar from those in Nevada. On November 26 the USSR announced that it had recently exploded a thermonuclear weapon "at a great height." Communist Party Secretary Khrushchev said that the blast was equal to one megaton (1-million tons of TNT), which would make it much less powerful than the thermonuclear device exploded by the United States in 1952. American officials believed that the blast was equal to at least two to four megatons.

Although the British were reported to be nearly ready to test a thermonuclear device, no nations other than the United States and Russia had conducted tests during 1955.

Effect of Atomic Tests on the Weather.—The severe and unusual storms in New England during 1954-55 focused attention on the possibility that the continued explosion of test devices both in the United States and abroad was having a profound effect on the weather. The Joint

"Swimming pool" atomic reactor, part of U.S. exhibit at Geneva Conference on Peaceful Uses of Atomic Energy.



Congressional Committee on Atomic Energy conducted a public hearing on this question, at which the leading weather experts of the United States testified. It was brought out that the changes in the weather were real—not mere statistical fluctuations—but that no quantitative theory based on well-established physical principles was adequate to account for them or to relate them to the weapons tests. This leaves open the possibility that more advanced and imaginative thinking may yet disclose a quantitative relationship between the change of weather and the tests.



JUSTUS IN THE MINNEAPOLIS STAR

"THE DIGGERS"

Nuclear Power.—Two principal facts about the industrial development of nuclear power became clear in 1955. The first was that nuclear power will possibly cost close to eight tenths of a cent per kilowatt-hour if the producer pays all costs, charges capital in the usual way, pays taxes, and keeps the nuclear materials he produces. This may be compared with a demonstrated cost of five tenths of a cent per kilowatt-hour in a coal-fired plant operated under the same conditions.

The second significant fact is the imminence of thermonuclear power plants. It has become increasingly evident that the AEC is working on a thermonuclear power plant on an ever-increasing scale, under the name of Project Sherwood. While official announcements are very cautious, and set 10 to 20 years as the probable time necessary to yield commercially significant results, veiled hints from others, and the history of atomic energy, suggest that the pace of events may be faster. A thermonuclear plant, if one can be built, would have many advantages over one based on fission. The shielding requirements would be much less, as would the problem of disposal of radioactive wastes. The problem of reworking fuel elements, one of the largest cost factors in the fission plant, would be absent or negligible in the thermonuclear plant. Most important, no uranium would be required, the power coming from heavy hydrogen, which is available in unlimited amounts. Thus, the prospect of an

early thermonuclear plant tends to retard investment in fission plants.

In spite of these two unfavorable factors, the AEC had before it, in April 1955, five firm proposals to construct fission power plants of 75,000 kw. or over. These, the first under the revised Atomic Energy Act, have been stimulated by the following concessions on the part of the commission: waiver of charges on special nuclear materials; research and development work to be performed without charge by the commission; reimbursement of the contractor, at a rate set in advance by the commission, for research and development done by him; and purchase by the commission, at rates set in advance, of the nuclear byproducts produced in the reactor. The scale of these prices has not been made known to the public.

For the first time in the United States—on July 18, 1955, at West Milton, N.Y., atomic-generated electricity was sold commercially through the lines of a private utility (see also ELECTRICAL DEVELOPMENTS).

Major construction continued at Shippingport, Pa., on the nation's first civilian nuclear power plant. This will be a pressurized water reactor of 60,000 kw. capacity. A second nuclear-powered submarine, the *Seawolf*, was launched on July 21, 1955 (see also NAVAL AFFAIRS).

Preservation of Foods.—It appears likely that the first large-scale industrial application of the radiation of fission products will be to the preservation of foods. Most foods can now be sterilized in the cold by this means. There are changes in taste, but these are not necessarily objectionable.

Liquid foods, which can be sterilized in layers one half inch or less thick, are best treated with beta rays. These, in turn, are more economically produced by conventional electric equipment than from nuclear sources. Solid foods, including meat and potatoes, are usually too thick to be penetrated by beta rays, and for these gamma rays must be used. The cheapest source of gamma rays is fission products.

The Quartermaster Corps is conducting large-scale experiments with meat. It is believed that preservation by radiation from fission products will prove cheaper than preservation by refrigeration, and that refrigerator ships may soon disappear from the seas. (See also FOOD RESEARCH.)

Atomic Science.—The anti-proton has at last been observed. Discovery of this new particle, whose existence has been postulated on theoretical grounds for more than 20 years, was easily the most important scientific event of 1955 (see PHYSICS).

Element 101 has been synthesized. Dr. Glenn T. Seaborg, working at the University of California, produced and identified 17 atoms of this new type of bombardment of element 99 with 41 Mev. helium ions from a cyclotron (see CHEMISTRY).

Biology and Medicine.—Results of experimental work in 1955 offered a certain measure of optimism, not possible a year earlier, regarding the possibility of protection against and recovery from radiation. Vital problems of the effect of radiation on living things are still unsolved, however, and extensive research toward this end continues at the commission's major laboratories.

It has been found that reducing the supply of oxygen reduces the vulnerability of human cells to gamma radiation. Reduction of oxygen supply in itself would not be a practical method

of protection, but knowledge of this effect has led to chemicals which tend to do the same thing and which may be practically useful. The first of these is cysteamine, which has been studied by Professor Z. Bacq at the University of Liège. More recently a derivative of cysteamine has been studied at the Oak Ridge National Laboratory and found to have a wider range of protective ability, and also to be less toxic than cysteamine. This and similar compounds suffer from the defect that they afford protection only if administered before or during the irradiation.

It has been found at the Oak Ridge National Laboratory that the mortality of certain strains of bacteria can be reduced by medication after the exposure. Yeast and spleen extracts, and also glutamic acid, were found to produce this effect. The recovered bacterial cells had a lower mutation rate than was expected from the amount of radiation exposure. This suggests that there may be a relation between the reduction of mutation rate and increase in survival produced by these medicines, and that both effects are produced through the same protective mechanism. Further studies are under way to determine whether these findings with bacteria can be applied to mammals.

(For further references, see the Index entry, *Atomic Energy*.)

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AUSTRALIA, Commonwealth of. Federated on Jan. 1, 1901, when six former colonies became states under a constitutional government, this island continent, southeast of Asia in the Southern Hemisphere, is a self-governing state within the Commonwealth of Nations, and is a member of the United Nations. The five mainland states, the island state of Tasmania, and two federal territories (in one of which is Canberra, the Commonwealth capital), have an aggregate area of 2,974,581 square miles (smaller than continental United States by only 47,806 square miles), and a coastline of 12,210 miles.* The population on the mainland and Tasmania (8,983,239 at the June 30, 1954, census), was estimated at 9,149,000 on March 31, 1955. The constituent

COMMONWEALTH OF AUSTRALIA

State or territory	Square miles	Population	Capital (and population) ¹
New South Wales	309,433	3,423,718	Sydney (1,863,217)
Victoria	87,884	2,452,337	Melbourne (1,524,062)
Queensland	670,500	1,318,393	Brisbane (502,353)
South Australia	380,070	797,159	Adelaide (483,535)
Western Australia	975,920	639,716	Perth (348,596)
Tasmania	26,215	308,783	Hobart (95,223)
Northern Territory	523,620	16,452	Darwin (8,071)
Australian Capital Territory	939	30,315	Canberra (28,277) ²
	2,974,581	8,986,873 ³	

¹ As of June 30, 1954. ² Federal capital. ³ As of Dec. 31, 1954, excluding aborigines (full blood, 47,000; half blood, 27,000); also excluding the populations of employment camps and other groups subject to migratory influence.

* The Commonwealth also administers the Territory of Papua and the trusteeship Territory of New Guinea (see PAPUA AND NEW GUINEA, TERRITORY OF); the trusteeship of Nauru (q.v.); Norfolk Island (q.v.); the Territory of Ashmore and Cartier Islands; the Cocos (Keeling) Islands; the Antarctic islands of Heard and MacDonalld; and a region of Antarctica (q.v.) south of 60°S. latitude and between 160° and 45°E. longitude (other than Adélie Land).

states and territories, their areas, and capital cities (with 1954 populations) are shown in the accompanying table.

The People.—Augmented by controlled immigration, the population passed the 9 million mark in 1954. More than 7 million persons live in cities and towns in the coastal areas, a large part of central Australia being too dry to support human life. The 1954 census showed an urban metropolitan population of 53.91%; urban provincial, 24.79%; and rural, 21.04%. One half of the population lived in the six state capitals. The estimated increase of 1,421,000 persons since the 1947 census comprised gains of 784,000 by natural increase and 637,000 from net migration, arrivals having reached the peak inflow in 1949 and 1950 with totals of 167,727 and 174,540, respectively (reduced to 149,270 and 153,685, respectively, by emigration). The target of 100,000 immigrants set for 1953–54 was advanced to 115,000 for 1954–55, and to 125,000 for 1955–56; the immigration appropriation for the latter year was increased to £A9 million.

Government.—A governor general (Field Marshal Sir William Slim, sworn in May 8, 1953) represents the British crown and acts on the advice of a cabinet chosen from the elected members of the parliamentary majority party.

The federal Parliament comprises a 60-member Senate (10 elected members from each state) and an elected 124-member House of Representatives (including 2—one each for the Northern Territory and the Australian Capital Territory—who may take part in debates but vote only on questions affecting their territories). The governor general presides over an Executive Council composed of ministers of state as ex officio members. One half of the Senate membership is renewed each three years. Each of the six states has its own legislature (bicameral except in Queensland). Voting, based on universal adult suffrage of both sexes, is compulsory in federal elections.

A coalition (Liberal and Country parties), headed by Prime Minister Robert G. Menzies, has been in power since 1951, and retained office as a consequence of the elections held Dec. 10, 1955. Strength of the parties in the House of Representatives as a result of that election is as follows: Liberal, 57 seats; Country, 18; and Australian Labour, 49 (including 2 nonvoting representatives of territories). The party strength in the Senate is: Liberal-Country, 30; Australian Labour, 28; and anti-Communist Labour, 2.

Finance.—The Australian pound (£A) equals U.S.\$2.23, and 16 shillings sterling. For the financial year beginning July 1, 1955, total revenue was estimated at £A1,115 million and expenditure at £A1,066 million, compared with estimated revenue of £A1,050,100,000 and proposed expenditure of £A1,014,800,000 in 1954–55. In the latter year the Consolidated Fund surplus proved to be £A60 million instead of an estimated £A251,000. The income tax was expected to yield £A577 million, or £A44 million more than in 1954–55. Other revenues included customs, £A88 million; excise, £A159 million; and sales tax, £A106 million. Estimated expenditure included £A220 million to the states; £A190 million for defense (compared with actual cash expenditure of £A177,500,000 in 1954–55); and £A218 million representing total outlay from the national welfare fund (compared with £A189 million actually expended in 1954–55).

Gross domestic expenditure in 1954–55 (£A5,005 million) exceeded the value of the gross national product (£A4,832 million). Total personal incomes increased in the same period by £A157 million, or 4%, to £A3,833 million, while personal savings fell by £A80 million to an estimated £A261 million. Since 1951–52 net expenditures on goods and services by public authorities have increased by less than 7%, compared with a 27% increase in private expenditures, including a rise by 9% in personal consumption in 1954–55. Gathering signs of strain in the economy, pointing to incipient inflation, caused the government in 1955 to urge restraint upon

both public and private spending. Although the excessive demand for imports was causing a balance of payments deficit, and the banking system had been asked to curtail finance for hire-purchase business, the government, nevertheless, did not propose to institute general economic controls.

A 15-year government loan equivalent to £A6 million was raised in Switzerland in February 1955; in March the International Bank for Reconstruction and Development also made a loan of \$54,500,000 to the Australian government to finance imports of equipment for the development of agriculture and transport.

Education.—Free compulsory education is provided in state primary and secondary schools. Government schools aggregated 7,620 in 1952, with 38,407 teachers and an average weekly enrollment of 1,087,990, compared with 7,648 schools, 36,407 teachers, and an average enrollment of 1,012,874 in 1951. There were also 1,926 nongovernment schools, with 13,714 teachers and 347,831 pupils, compared with 1,890 schools, 13,251 teachers, and 326,258 pupils in 1951. Technical education is provided for in more than 100 state schools and colleges, and there is a university in each capital city. Universities, including the New South Wales University of Technology, at Sydney, and the New England University College, Armidale, New South Wales, had an aggregate student enrollment of 23,792 and teaching staff of 3,091 in 1953. In addition, the National University at Canberra provides facilities in four research schools for postgraduate research.

Social Services.—The government spent £A176,600,000 on social services in the financial year 1953-54, the largest expenditure for this purpose in Australia's history. Old-age and invalid pensions accounted for £A81,300,000, and child endowment for £A50,800,000. Expenditure on social services and health benefits was estimated at £A193,372,000 for 1954-55, including £A91,550,000 for old-age and invalid pensions, £A52,500,000 for child endowment, and £A13,065,000 for medical and pharmaceutical benefits. A rehabilitation service helps persons who are too disabled to work; in addition, unemployment and sickness benefits are payable to men between the ages of 16 and 65, and to women between the ages of 16 and 60. Hospitals numbered 696 in 1952-53; the number of inpatients treated was 939,856.

Defense.—Defense expenditure estimated in budget provisions for 1955-56 amounted to one fifth of all governmental costs. The strength of the Regular Army on June 30, 1954, was 24,414, of whom 4,177 were serving abroad; that of the Citizen Military Forces was 13,637 volunteers and 82,433 national service men. All youths of 18 years are liable for national service.

Principal ships of the Royal Australian Navy are a cruiser, 2 light aircraft carriers, 6 destroyers, 17 frigates, and 28 ocean minesweepers and ancillary vessels. A new aircraft carrier was to be commissioned at Belfast, Northern Ireland, in November 1955. Navy personnel comprised 1,200 officers and 12,657 ratings in 1954. (See also NAVAL AFFAIRS.) Royal Australian Air Force personnel numbered 14,882, with 1,569 in active reserve, 19,724 in general reserve, and 745 in the Citizen Air Force.

To meet requirements imposed by the possible use of atomic weapons, new methods of training were begun in 1955 at 23 army schools of instruction, providing 400 courses for more than 10,000 students. Additional facilities were also provided at Canungra, Queensland, for training in jungle and tropical operations, and two commando units of selected volunteers of the Citizen Military Forces were being raised for training in

guerrilla warfare. All branches of the armed forces are represented in the government's contribution to Southeast Asian defense (see below, *Principal Events, 1955*).

Agriculture.—By the beginning of the 1954-55 agricultural year, the volume of production was about 22% above prewar levels. Butter, meats, wheat and flour, other foodstuffs, and wool and sheepskins accounted for 84% of Australia's exports (excluding gold), and had a value of £A686,500,000, compared with £A130,400,000 for other exports. Beef cattle numbers, at about 10,800,000 (Queensland, 5,703,000) in 1954, reached the highest level on record. Dairy cattle totaled 4,843,000 (an increase of 97,000 over 1953); the number of sheep was estimated at 126,944,000, compared with 123,072,000 in 1953. Pigs numbered 1,197,000, an increase of 204,000 over the previous year.

The area devoted to the production of wheat for grain totaled 10,499,000 acres in 1954-55, the estimated yield amounting to 166,610,000 bushels, compared with 10,751,000 acres and 197,960,000 bushels produced in 1953-54. Other principal acreages (in thousands) and their yield in 1953-54 included oats, 2,137 (32,961,000 bushels); barley, 1,803 (41,272,000 bushels); corn, 179 (5,079,000 bushels); potatoes, 128 (548,000 tons); hay, 1,935 (3,049,000 tons); and sugarcane, 340 (9,014,000 tons). Production of whole milk amounted to 1,190,434,000 gallons; butter, 160,127 tons; and cheese, 49,230 tons. The aggregate production of fresh meat was 1,153,471 tons, including beef, 704,269 tons (New South Wales, 220,915; Queensland, 257,783); mutton, 237,566 tons; lamb, 127,246 tons; and pork, 34,448 tons.

Primary Production.—The total net value of Australian primary production was £A2,189,056,000 in 1952-53, including rural production, £A942,167,000; mining and quarrying, £A109,671,000; and forestry, £A41,864,000.

With less than one sixth of the world's sheep, Australia produces 30% of the world's wool, and 70% of all merino wool entering into world trade; about 90% of annual production is exported, the United Kingdom being by far the most important customer (315,033,000 pounds valued at £A117,526,000 in 1953-54). Total wool production was officially put at 1,244 million pounds in 1953-54, the export total of 1,088,627,000 pounds having a value of £A412,470,000. Auction sales by the National Council of Wool Selling Brokers of greasy and scoured wool amounted to 1,144,214,000 pounds valued at £A390,710,000. Production of hides included 2,707,000 cattle hides and 1,333,000 calfskins, of which 484,000 and 31,000, respectively, were exported.

Mineral Production.—All states, except Victoria, recorded an increase in the production of black coal in 1954; aggregate output was 19,757,000 tons, compared with 18,420,000 tons in 1953. Production of brown coal is confined to Victoria, where 9,331,000 tons were mined in 1954, compared with 8,257,000 tons in 1953. Gold production, at 1,075,080 fine ounces (valued at £A16,654,817) in 1953, exceeded 1 million ounces for the first time since 1942. Other mineral production (1953 output) included copper, 36,585 tons; iron, 2,132,000 tons; lead, 269,000 tons; tin, 1,553 tons; tungsten, 1,406 tons; and zinc, 239 tons.

Industrial Production.—The net value of Australia's factory production exceeds that of her rural production. By 1953-54 the work force in

factories had risen to over 1 million, and the output value of secondary industry had increased from £A868 million in 1945-46 to £A2,720 million in 1952-53 (the latest year for which full statistics are available), giving a net production value of £A1,082,801,000. Factory production employed 933,261 persons in 1952-53. In 1953-54 industrial output included canned meat, 71,400 tons (102,200 tons in 1952-53); domestic refrigerators, 276,800; soap, 60,950 tons; sugar, 459,000 tons; tobacco, cigars, and cigarettes, 20,100 tons; preserved vegetables, 19,800 tons; wheat flour, 1,601,000 short tons; confectionery, 68,950 tons; scoured wool, 68,000 tons; woolen and worsted yarn, 22,450 tons; cotton yarn, 18,950 tons; zinc, 99,200 tons; sawn native timber, 45,400,000 feet; internal combustion engines, 23,877 (including 775 marine engines); and natural and synthetic enamels, 2,674,000 gallons. The number of new houses completed in Australia by Jan. 1, 1955, was 74,906, of which those completed between July 1, 1954, and Jan. 1, 1955, were valued at £A106,544,000.

A 5-year plant construction program for the iron and steel industry, at a cost of £A67 million, was announced on March 25, 1955. The growth of Australia's iron and steel industry, in which more than 40,000 persons were employed in 1954, is shown in the following table.

Year	Pig-iron (tons)	Steel Ingots (tons)
1939.....	1,104,650	1,170,103
1952.....	1,542,063	1,638,417
1953.....	1,736,854	2,049,237
1954 (est.).....	1,830,000	2,130,000

Hydroelectric Power.—On Feb. 21, 1955, power began to flow into the electricity supply system of New South Wales from the 20,000-kw. Mungyang plant located in the Guthega section of the Snowy Mountains hydroelectric and irrigation project in the southeastern Australian Alps. A second generating plant, nearing completion, will increase output to 60,000 kw., and by 1961-62 to 660,000 kw. Total annual diversion of water from the Snowy to the Murray and Murrumbidgee rivers will be 970,000 acre feet. At an estimated cost of £A420 million, the project when completed will provide 30% more than Australia's present total generating capacity and effect a saving of £A20 million worth of coal annually. Major development projects also include the construction of power stations on the Kiewa River, the first of which was planned to begin operation in 1955, and the Eildon Dam reservoir (the largest irrigation system in Victoria) to be completed in 1956 at a cost of £A22,500,000.

External Trade.—Due mainly to a fall of about 11 pence per pound for greasy wool, export income was reduced to £A763 million in 1954-55 from £A830,627,000 in 1953-54. Imports, including freight, totaled £A936 million, compared with £A681,144,000 in 1953-54. Allowing for invisible transactions, the balance of payments position in 1954-55 showed a net deficit of £A256 million. With the expectation of reducing the total value of goods for which import licenses are issued by between £A75 and £A80 million in six months, restrictions were announced to take effect on April 1, 1955, on nondollar imports (affecting principally British exporters). Imports of near-essential and luxury goods were reduced from 60 to 40% of base year imports, while administrative import categories (including newsprint, paper, petroleum products, tea, iron and steel ingots, tires and tubes, fertilizers, and

raw cotton) were reduced by 20%. On essential goods, including machinery and raw materials for industry, the import rate was reduced by 15%. In addition, imports from the dollar area were made subject, from Oct. 1, 1955, to an overall reduction of 12.5%.

Transportation and Communications.—Of Australia's national expenditure, 30% is in the field of transport, the total of £A1,043 million in 1953 including road transport of goods, £A385 million; railway transport of passengers and freight, £A152 million; roads, £A60 million; and ports and harbors, £A48 million. Expenditure on new motor vehicles totaled £A168 million.

In 1955 there were approximately 521,000 miles of roads (152,000 improved) including nearly 90,000 miles of state highways. Some 1,947,000 registered motor vehicles as of June 30, 1954, included 1,200,000 motor cars, 607,000 commercial vehicles, and 140,000 motorcycles. All but 647 miles of the 27,455 miles of railways were operated by the federal or state governments in 1953-54, in 9 months of which passenger journeys numbered 382,269,000, and 35,801,000 tons of freight were carried; gross railway revenue was £A125,085,000; working expenses, £A120,832,000.

In 1953-54, 4,094 entrances and clearances of vessels engaged in overseas trade accounted for 8,530,000 tons of incoming and 5,752,000 tons of outgoing freight. The interstate trading fleet included 103 privately-owned vessels (429,459 dead weight tons) and 37 vessels (191,992 dead weight tons) owned by the Commonwealth government.

In 1953-54 domestic airlines operated over 95,957 miles of internal routes, flew 734,776,000 paying passenger-miles, and carried 1,814,778 paying passengers and 70,571 tons of freight. Mail-ton miles totaled 1,397,000. International services are provided by the government-owned Qantas Empire Airways, including a service between Australia, San Francisco, and Vancouver, Canada; Tasman Empire Airways (jointly owned by New Zealand and Australia); Air France; British Overseas Airways; Canadian Pacific Airlines; Royal Dutch Airlines (KLM); and Pan American World Airways.

Principal Events, 1955.—Returning to Australia on March 25 after attending the conference of Commonwealth prime ministers in London (January 31-February 8) and visits to Washington, D.C. (where he addressed both houses of Congress on March 16), Ceylon, Pakistan, the Netherlands, Greece, France, and Canada, Prime Minister Robert G. Menzies described in a speech in the Australian House of Representatives on April 1 the orientation of Commonwealth defense policy toward Southeast Asia, and especially Malaya. He stated that he had received assurances from the United States that it would hold consultations with Australian officials respecting deficiencies in Australian military equipment in this context. Meanwhile Australian navy, army, and air units would be sent to Malaya. (By the end of March 1955 an air squadron was already stationed there.) It was proposed also that Australia should participate with Britain and New Zealand in establishing a strategic reserve, with the probable overall strength of an army brigade group, as a contribution to Southeast Asian defense.

The report of the Royal Commission on Espionage in Australia (set up in April 1954 after Vladimir Petrov, third secretary in the Soviet embassy in Canberra, had been granted political



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Australian Prime Minister Robert G. Menzies addresses U.S. House of Representatives, March 16, 1955.

asylum) was made public on Sept. 14, 1955. It stated that many of the Petrov papers had been proved genuine. Evidence taken during nearly ten months of hearings showed that Soviet military and political espionage organizations, controlled directly from a special center in Moscow, had been operating in Australia, using the Soviet embassy as a cloak for their activity. The only Australians who had knowingly assisted Soviet espionage were Communists. The report, however, declared that Soviet operations "met with substantial success" in the Australian Department of External Affairs between 1943 and 1949.

On October 19, leader of the opposition Dr. Herbert V. Evatt, who was minister for external affairs from 1941 to 1949, disclosed in the House of Representatives that he had corresponded with Soviet Foreign Minister Vyacheslav M. Molotov to verify the authenticity of the Petrov documents and had been informed by him that they were "falsifications." Increasingly a political issue, the Evatt correspondence was believed to have contributed to the government's decision to hold elections in December.

In the general elections held on December 10, Prime Minister Menzies' coalition conservative government (Liberal and Country parties) won a total of 75 seats in the 124-member House of Representatives. The defeat of the Labour Party was attributed in large part to a split in its ranks over Dr. Evatt's pro-leftist leadership. In the Senate, where half the membership was up for election, a deadlock developed, with the government coalition in control of 30 of the 60 seats and the anti-Communist wing of the Labour Party holding the balance of power.

Agreement was announced on September 12 between the Australian and United Kingdom governments for further atomic tests in Australia during April 1956, some months ahead of schedule. The Monte Bello Islands, site of the first test, were again to be used. A new proving ground, at a site in the South Australian desert known as Maralinga, was to be established for the fourth series of tests.

Expanding her activities in the Antarctic, Australia announced in August 1955 that a second

research and weather station was to be established on the Polar mainland. It is to be located in the Westfold Hills, Princess Elizabeth Land, 350 miles east of the Mawson Base (established on the MacRobertson Coast in 1954) and is expected to be fully in operation before the beginning of the International Geophysical Year in 1957. The Heard Island base, operated since 1948, was dismantled early in 1955 and its installations transferred to Mawson Base. (See also ANTARCTICA.)

Lieut. Gen. Bruce C. Clarke, commander of United States Army forces in the Pacific in World War II, took part on May 8 in Australia's annual commemoration of the Battle of the Coral Sea, this year's observances being marked also by the issue of a 3½d. commemorative postage stamp by the Commonwealth government.

Preparations for the Olympic Games, scheduled to be opened by the Duke of Edinburgh at Melbourne, Nov. 22, 1956, included the beginning of construction in 1955 of a main stadium with a capacity of 110,000 spectators, and a model suburb of 837 permanent houses and apartments to accommodate athletes representing 65 nations.

Western New South Wales suffered the worst floods in the state's history in late February. More than 40 men, women, and children were dead or missing; 40,000 were homeless in 30 towns; and about 300,000 sheep, valued at £A4 million, were destroyed.

Operations started in February at the Kwinana oil refinery (the largest thus far built in Australia) near Fremantle, Western Australia; and on April 4 the prime minister officially opened an oil refinery at Altona, Victoria, extended and remodeled by a United States company at a cost of £A22 million.

(For further references, see the Index entry, *Australia*.)

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AUSTRIA. When the Austrian State Treaty* went into effect on July 27, 1955, Austria was "re-established as a sovereign, independent and democratic state" with the frontiers of Jan. 1, 1938. Comprising an area of 32,375 square miles, it ranks 19th in size among the nations of Europe, and its 1,648 miles of frontier border on six countries. It was elected to membership in the United Nations on Dec. 14, 1955.

Population.—The last general census was taken on June 1, 1951, but a census of the status of persons and businesses was taken on Oct. 13, 1953. Between the two dates the total population rose from 6,933,905 to 6,958,517; on June 30, 1954, it was officially estimated at 6,969,000. On Sept. 1, 1954, a law shifting some districts from Vienna to Lower Austria went into effect, leaving Vienna with a population of 1,616,125. Other large cities, with their 1951 populations, are Graz (226,453), Linz (184,685), Salzburg (102,927), Innsbruck (95,055), and Klagenfurt (62,782).

Government.—Dr. Theodor Körner (Socialist) was elected president of Austria by popular vote in 1951; his term will expire in 1957. The cabinet, headed by Chancellor Julius Raab (People's Party), took office on April 2, 1953, and consists of 7 representatives of the People's Party, 6 Socialists, and 2 nonparty men. On Dec. 28, 1954, Dr. Joseph Gerö, who had served as minister of justice in all post-World War II governments, died; Section Chief Hans Kapfer of the Justice Department was appointed to succeed him. Leopold Figl heads the Foreign Office.

The Federal Council, which constitutes the upper chamber of Parliament, is composed of 50 members chosen by the 9 provincial legislatures. Elections to the lower chamber (National Council), where the term is 4 years, were held on Feb. 22, 1953. The 165 seats are

* The term "state treaty" is used instead of "peace treaty" because Austria is considered a country liberated from Nazi aggression.

divided as follows: People's Party, 77; Socialists, 67; Union of Independents, 16; People's Opposition (Communist in affiliation), 5.

Education.—Education is compulsory for all children between the ages of 6 and 14. For the first 4 years they attend the *Volksschule*, of which there were 4,324 public and 102 private schools in 1954-55. In rural areas the *Volksschulen* often continue for 4 additional years. After the first 4 years the usual course is for pupils to attend either the *Hauptschule*, which offers a 4-year practical terminal course and also prepares for trade schools, or the *Mittelschule*, which prepares for the universities and higher technical schools. There were 727 public and 69 private *Hauptschulen* in 1954-55. In addition, there were 102 public (an increase of 11) and 9 private *Sonderschulen*, schools designed to fill certain special needs. The number of *Mittelschulen* was 176, of which 140 were public and 36 were supported by private organizations.

In 1954-55 (attendance at private schools in parentheses), 529,810 (14,349) pupils attended the public *Volksschulen*, 225,090 (11,586) the *Hauptschulen*, and 15,598 (579) the *Sonderschulen*. This represented a decline of 4% in total attendance from 1953-54. Attendance at *Mittelschulen* increased by 5,057 to 70,077, a gain of 7%. In 1954-55, 19,954 students attended the 14 Austrian institutions of higher education.

Religion.—According to the 1951 census, the religious affiliation of the population was as follows: Roman Catholic, 6,170,084; Protestant, 429,493; Old Catholic, 32,919; Greek Orthodox, 5,643; Jewish, 11,224; other, 17,450; none, 264,014; and unknown, 3,078.

On June 1, 1955, the Roman Catholic bishops of Austria published a white book on church and state. They demanded the re-establishment of the Austrian Concordat of 1933, which the Nazis had annulled in 1938; modification of the marriage law, including abolition of the obligatory civil marriage ceremony; full restoration of religion as a required subject of instruction in schools; and recognition of the obligation to support private schools with public funds. Theodor Cardinal Innitzer (q.v.) died on October 9 at the age of 79.

Finance.—The 1955 budget as approved by Parliament provided for an expected revenue of 22,170 million schillings and expenditures of 23,400 million schillings (26 schillings = U.S.\$1). In addition, a special budget provided 1,730 million schillings for additional investments. On Jan. 1, 1955, a 10% reduction in taxes went into effect that was estimated to increase purchasing power by approximately 2 billion schillings a year.

On May 20, 1955, the discount rate of the Austrian National Bank was raised from 3½% to 4½%. From April 12 to May 7, a group of five Austrian power companies floated a 1 billion schilling, 5½% loan. On June 14, the International Bank for Reconstruction and Development approved a 25-year, 4¾% loan to Austria equivalent to \$10 million. This second World Bank loan to Austria (the first, for \$12 million, was made in July 1954) is to be used for the Lünensee hydroelectric project in Vorarlberg.

Production.—In 1954 the Austrian gross national product was estimated at 87.8 billion schillings, as compared with 77.5 billion in 1953. The 1954 index number of general industrial production (1948 = 100), excluding manufactured gas, was 210, as compared with 184 in 1953; that of mining, 191 (174 in 1953); manufacturing industries, 212 (185); and electricity, 191 (169). Monthly figures for 1955 indicated a continuing upward trend, in line with the general prosperity of the country.

The monthly average number of unemployed was 163,800 in 1954, as compared with 183,700 in 1953. In January 1955, the figure reached 229,400, and then it began to drop until in July it had diminished to 70,700. The number of employed persons registered for sickness insurance reached a postwar high of 2,112,000 on that date.

AUSTRIA'S PRODUCTION OF SELECTED MINERALS (In thousands of metric tons)

Mineral	1937	1953	1954
Iron ore.....	1,782	2,857	2,720
Pig iron.....	389	1,321	1,350
Crude steel.....	650	1,283	1,653
Bituminous coal.....	230	162	173
Lignite.....	3,242	5,735	6,284
Crude magnesite.....	398	805	829
Aluminum.....	4	50	57

On Aug. 13, 1955, as a result of the conclusion of the state treaty, the USSR handed over to Austria the eastern Austrian oilfields, 398 confiscated industrial enterprises, and 234,650 acres of land. The restored factories account for 30% of eastern Austrian industrial production. When the Russians took over in 1945, oil production was concentrated in the Zisterdorf field. They developed three new fields—Matzen, Aderklaa, and Neusiedl—and increased the number of productive wells from approximately 200 in 1945 to 500 in 1955. Test wells are now being sunk in potentially oil-bearing regions in Upper Austria. In 1935, Austria produced 6,600 tons of oil; in 1938, 56,000. Estimates of production in tons for later years are: 1944, 1,213,000; 1945, 450,000; 1947, 950,000; 1949, 1,200,000; 1951, 2,100,000; 1953, 3,200,000; 1954, 3,200,000. Austria now ranks next to Rumania as Europe's second largest oil producer. Refining capacity is estimated at 1,800,000 tons of crude oil. Plans call for equipping the refineries with modern cracking installations, which it is expected will increase gasoline extraction from the present 14 or 15% to 35 or 40%.

Employment in Austrian nationalized industries increased from 100,000 to 108,000 in 1954. Since 1949, production of nationalized industries has increased 78%, while the overall Austrian industry increase was 58%. To what extent the enterprises returned by the Soviet Union will be nationalized has not been determined.

Electricity production and export of power continue to rise. In 1954, Austria produced 9,845 million kw.-hr. (7,260 million hydroelectric), as compared with 8,764 million (6,430 million hydroelectric) in 1953, and exported 1,447 million (1,296 in 1953).

Approximately 22% of the Austrian people are engaged in agriculture. Of the 400,000 farms, 85% have an arable area of less than 50 acres, and only 1% have more than 250 acres. Austria produces about 82% of its overall food requirements. Dairy and meat production exceeds domestic needs, and 68% of wheat, 91% of rye, 92% of barley, and 98% of oats requirements are met by Austrian farms. Withdrawal of the occupation forces places approximately 375,000 additional acres of farm and forest lands at Austrian disposal. Austria exported about 106 million cubic feet of lumber in 1954, ranking next to Canada and Sweden as the third largest lumber-exporting country in the world.

Foreign Trade.—Imports in 1954 (figures for 1953 in parentheses) amounted to 16,987 million schillings (13,269), of which 514 million schillings (917) were direct Mutual Security Program

DISTRIBUTION OF AUSTRIA'S TRADE, BY MAJOR COUNTRIES (In millions of schillings)

Country	Imports		Exports	
	1953	1954	1953	1954
West Germany.....	3,762	6,107	2,591	3,728
Italy ¹	961	1,410	2,151	2,714
United States.....	1,655	1,017	765	734
United Kingdom.....	766	817	908	616
France.....	544	647	458	442
Switzerland ²	564	765	549	694
Poland.....	527	533	407	465
Netherlands.....	274	464	543	671
Yugoslavia.....	248	439	544	634
Belgium-Luxembourg.....	374	392	244	329
Hungary.....	125	363	167	305
Czechoslovakia.....	247	224	227	195
Argentina.....	225	198	175	286

¹ Includes Trieste from November 1954. ² Includes Liechtenstein.



WIDE WORLD

Austrian prisoner, one of first group to be released by USSR, is welcomed home by his mother, April 29, 1955.

(MSP) aid. Exports amounted to 15,851 million schillings (13,187), leaving an unfavorable commercial trade balance of 622 million schillings, as compared with a favorable balance of 835 million schillings in 1953. By volume, imports totaled 8,230,000 metric tons (7,435,000), of which 141,000 were MSP aid (318,000); exports amounted to 5,415,000 metric tons (5,212,000). Figures for the first seven months of 1955 show imports of 12,644 million schillings and exports of 9,984 million.

On Aug. 1, 1955, Austria had a cumulative credit (since July 1950) of \$22.8 million with the European Payments Union. During the first part of 1955 it ran a monthly deficit, but in July it recorded a surplus of \$9.6 million.

Transportation and Communications.—Austria has 3,727 miles of railway lines, of which 848 miles were electrified by the end of 1954. On June 10, 1955, the Allied Council authorized Austrian civil aviation, and the minister of communications and nationalized industries subsequently announced that a publicly owned Austrian airline would be established. The state treaty prohibits Austria from acquiring or manufacturing civil aircraft of German or Japanese design. In 1955, 12 foreign airlines serviced Austria's 8 major airfields—Vienna (3), Linz, Salzburg, Graz, Klagenfurt, and Innsbruck. In the first six months of the year, 1,800 planes arrived and departed, carrying 48,673 passengers, plus 7,989 who were merely in transit.

Austrian State Treaty is signed in Vienna, May 15, 1955. Seated (l. to r.) are: U.S. Secretary of State Dulles, Soviet Ambassador Ilyichev, Soviet Foreign Minister Molotov, Austrian Foreign Minister Figl, British Foreign Secretary Macmillan, British Ambassador Wallinger, and French Foreign Minister Pinay.

Approximately 45 miles of the Salzburg-Vienna Expressway are well under construction, and contracts for 23 more miles were placed for 1955. Of Austria's 55,000 miles of roads, about 5,500 are under the supervision of the Federal Highway Administration. As of April 1955, there were 539,340 motor vehicles, of which 110,244 were passenger cars; 3,987, buses; 56,918, trucks; 41,364, trailers; 48,146, tractors; 5,059, special motor vehicles; 1,823, three-wheel motor vehicles; 158,292, large motorcycles; and 113,507, small motorcycles and scooters.

On May 14, 1955, Austria and Rumania signed an agreement regulating traffic along the Danube. Freight traffic on the river in Austria totaled 2,558,421 tons in 1954 (2,599,437 tons in 1953), and 1,398,989 tons in the first six months of 1955.

On April 1, 1955, there were 1,701,805 radio taxpayers. Austria began combined television-radio transmission with the 1955 Salzburg Festival, held on July 24-August 30.

Principal Events, 1955.—The year began with a criticism by the Soviet high commissioner, Ivan I. Ilyichev, in the Allied Council on January 14 of the presence of 300 United States supply troops in the French sector. These had been there for years, and raising this issue, along with the Soviet complaint about the appropriation in the budget of 187.6 million schillings for training police forces, made it appear that the USSR would make difficulties in Austrian affairs. On January 15, Dr. Alfred Sokolowski, municipal counsellor and official interpreter, was arrested by the Russians. This led to sharp protests both by the Vienna City Council and by Chancellor Raab. The Russians on February 5 in turn sent a note to the United States embassy protesting American attempts to get B. Y. Nalivaiko, the Russian consul in Vienna, "to commit high treason." Russian officials at various times confiscated certain issues of the Socialist *Arbeiter Zeitung*.

Although Russian bickering and interference did not cease forthwith, a new approach to Austrian affairs was forecast in Vyacheslav M. Molotov's foreign policy report to the Supreme Soviet on February 8. After remarks on the relation of the issue of German rearmament to the Austrian problem, he intimated that if satisfactory guarantees against future Anschluss were agreed upon, withdrawal of the occupation troops from Austria could be arranged without waiting for the conclusion of a peace treaty with Germany. He also indicated that Austria must agree not to join a

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military alliance and not to permit military bases on its territory. Austria should be invited to a four-power conference at which the situation might be examined. It is possible that the change in Soviet policy was in part influenced by the preparation for the 8-nation Eastern defense treaty, which made the USSR no longer dependent on Austrian occupation for an excuse to maintain troops in the satellite countries.

Molotov held major discussions with Norbert Bischoff, the Austrian ambassador at Moscow, on February 25 and March 2, and on March 14 the Austrian government officially replied to the Russian proposals. Austrian assurances with regard to future policy were considered satisfactory. On March 24, the Soviet authorities, accepting the Austrian suggestion for further discussions before a meeting of the four powers, invited the Austrian government to send representatives to Moscow for a conference. The invitation was accepted on March 29, and on April 11 Chancellor Raab, Foreign Minister Figl, and a small delegation of officials went to the Russian capital. Meanwhile, on April 5, the three Western powers issued a declaration expressing their willingness to conclude an Austrian treaty and their hopes that the Moscow meeting would lead to a useful clarification of issues.

The Moscow Conference.—On April 15, at the close of the Austro-Russian talks, a joint communiqué was issued. Austria again gave assurances on its future, independent, nonmilitaristic policy. The USSR agreed that occupation troops should be withdrawn on conclusion of a treaty, but not later than Dec. 31, 1955. The Soviet Union further agreed to accept the equivalent of \$150 million in deliveries of Austrian goods in payment for Russian-held German assets in Austria; to return for compensation (announced on April 22 to be \$2 million) the property of the Danube Shipping Company); and to cede Russian rights to Austrian oilfields and refineries in exchange for deliveries of crude oil (later announced to be 10 million metric tons over a period of 10 years). The negotiation of a trade treaty between the two countries was to begin immediately.

The agreement was hailed by the Austrian people and viewed favorably on the whole by the Western powers. On April 19, the Soviet government called for a Big Four conference, which was to include Austria, to conclude the Austrian State Treaty. The Western powers countered on April 22 with a suggestion that the Big Four ambassadors at Vienna work out the remaining details of the agreement with Austrian representatives. This proposal was accepted on April 26.

Signature of the State Treaty.—The ambassadors started their discussions on May 2. There were many changes necessary in the treaty draft that had been evolved since the first meeting of foreign ministers' deputies on Austria on Jan. 3, 1947. The draft as it stood consisted of 59 articles, but it was reduced to 38 articles and a series of annexes. Difficulties arose over the fate of refugees and the size of the Austrian Army, but the Soviet Union surrendered its position, and articles touching on these problems were dropped. The Soviet authorities insisted, however, on retaining within the treaty a clear statement of Russian rights to German assets in Austria, while the Western powers insisted that the settlement of this issue should also be dealt with in the treaty. A compromise was worked out by adding to Article 22 (confirming Russian rights) Section 14, which states: "The provisions of this

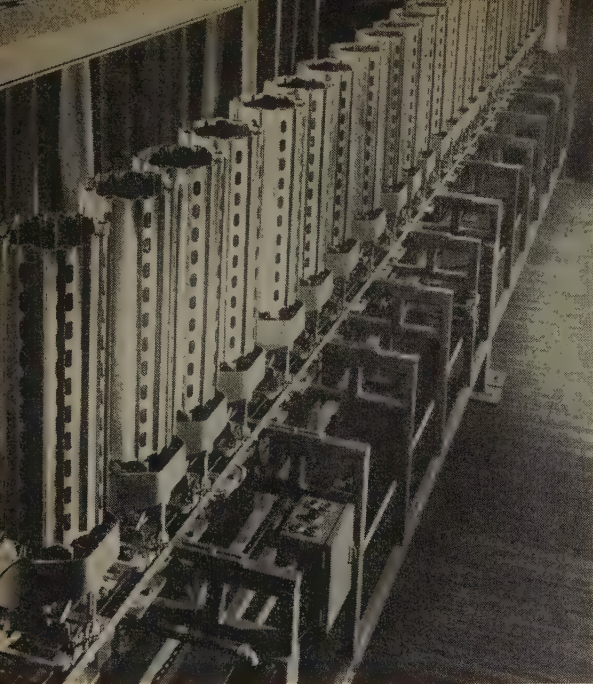
article shall be subject to the terms of Annex II of this treaty." In this annex, the Austrian-Soviet memorandum of April 15, 1955, which deals with the surrender of Austrian assets, becomes part of the treaty. One significant reservation provides that the Soviet government shall retain the assets of the Danube Shipping Company in Hungary, Rumania, and Bulgaria.

On May 13, the ambassadors finished the final drafting of the treaty, and the foreign ministers of the United States, Great Britain, and France arrived in Vienna, to be followed on the next day by Molotov. The four foreign ministers agreed on May 14 to delete paragraph 3 of the preamble to the treaty, thus recognizing that Austria bore no responsibility for World War II. They also came to an understanding on a declaration to be made by Austria regarding her future neutrality. (On June 7, the Austrian Parliament adopted a neutrality declaration in conformity with this agreement.) The treaty was formally signed at Belvedere Palace on May 15, 1955, by the foreign ministers and ambassadors of the four powers and Foreign Minister Figl of Austria.

Terms of the Treaty and Its Implementation.—Austria is recognized as an independent state with the frontiers of Jan. 1, 1938, and Anschluss with Germany is forbidden. Austria undertakes to protect human rights, and there are special safeguards of the rights of Slovene and Croat minorities. Austria further obligates herself to complete measures for the destruction of the National Socialist Party and to prevent its future activity. There are fairly detailed military and air clauses, but the size of the future Austrian Army is not limited. Austrian war prisoners are to be repatriated as soon as possible. Allied forces are to be withdrawn within 90 days of the coming into force of the treaty, but no later than Dec. 31, 1955.

As indicated above in the section on *The Moscow Conference*, the treaty contains a statement of the Soviet Union's right to former German assets in Austria, and also of Soviet willingness to return them for compensation. With regard to these assets, Austria obligates herself "except in the case of educational, cultural, charitable and religious property" not to return them to German juridical persons, or to return any property worth more than 260,000 schillings to German natural persons. Austria further agrees not to transfer to foreign ownership the oil properties or the Danube Shipping Company returned by the USSR. On the other hand, long articles deal with the restitution of assets to members of the United Nations and their nationals (Art. 25), and to minority groups and victims of racial and religious persecution (Art. 26). Austrian assets in Allied territory are to be returned except in the case of Yugoslavia. Arrangement is made for establishment of a conciliation commission to solve any dispute arising about "United Nations Property in Austria." Free navigation of the Danube is assured. Any other member of the United Nations which on May 8, 1945, was at war with Germany may accede to the agreement and become an "Associated Power for the purposes of the treaty." (The National Assembly of Czechoslovakia voted to do so on August 30.)

No reparations are to be exacted, but under the Moscow agreement of April 15, as indicated above, Austria must pay the USSR compensation for the return of certain property. On July 12, the Soviet and Austrian governments reached an agreement on the shipment of goods to the USSR. These are to be delivered at world market



INTERNATIONAL BUSINESS MACHINES CORP.

"Autofab," used here to speed production of air defense computers, will test and insert from 1 to 24 electronic components in printed circuit boards.

prices and are to enter the Soviet Union duty free. If Austria cannot deliver goods to fill its annual quota, the USSR will accept the balance in dollars. The agreement provides for annual shipments of 200,000 tons of oil, as well as steel plate, galvanized sheet metal, mill equipment, and other items, for six years. (The 200,000 tons of oil is in addition to the 1 million tons to be shipped annually for 10 years in payment for the oilfields.) On July 2, a number of 5-year trade agreements were signed in Moscow providing for an annual exchange of approximately 650 million schillings worth of goods in both directions.

During the July negotiations, Austria also agreed to a payment of 508 million schillings to the Soviet Military Bank to clear its loans to enterprises now returned to Austria. The Soviet bank discontinued operations on July 16. In addition, Austria agreed to pay 67 million schillings for supplies which had been delivered to the enterprises from the Soviet warehouse. On the other hand, the USSR relinquished free of charge 2,750 railroad tank cars and several hundred steam locomotives which it had always claimed as war booty.

The state treaty was rapidly ratified by all the powers concerned* and officially went into effect on July 27, 1955. On the same day the Allied Council in Vienna held the 249th meeting since its establishment in 1945 and decided to discontinue activities. The occupation troops were withdrawn within the specified 90 days (Oct. 25, 1955).

On July 18, Chancellor Raab and Dr. Nahum Goldmann, president of the World Committee for Jewish Claims, agreed that Austria would provide \$22 million for indemnification of Austrian victims of Nazi persecution now living abroad. On September 7, Austria adopted its new defense law, which provides for general military

* Ratification of the treaty was approved by the U.S. Senate on June 17, and was signed by President Eisenhower at Lancaster, N.H., on June 25.

service for a 9-month period. On September 14, the international patrol of inner Vienna was disbanded.

Several transports of Austrian prisoners have arrived from the Soviet Union. The Austrian authorities are apparently screening refugees from Iron Curtain countries far more closely than heretofore, and this has caused concern at the International Refugee Organization headquarters in Geneva. The Austrian government has denied any secret agreement with the USSR on the repatriation of refugees.

Other Events.—Local municipal elections held in Soviet-occupied Lower Austria on April 24, 1955, showed a further decline in the Communist vote. Prime Minister Jawaharlal Nehru of India paid an official visit to Vienna on June 26–27. On September 9, Parliament adopted an important social insurance law covering the entire field of sickness, accident, and pension insurance. The new Burgtheater on the Ringstrasse in Vienna was officially opened on October 14. Then, on November 5, came the opening of the rebuilt Vienna Opera House, with a gala performance of Beethoven's *Fidelio*. It was a fitting celebration for the year of liberation.

E. C. HELMREICH,
*Professor of History and Government,
Bowdoin College.*

AUTO RACING. See SPORTS, GAMES, AND SHOWS.

AUTOMATION. Automation is a phase of our technological advance—the continuing improvement in the tools we use. It had its start when the desire to lessen physical work, to do things more quickly and effectively, became recognized. Ultimately man learned to make combinations of wheels, shafts, and other parts into machines. Power was added, and the powered machine was then programmed or given a work directive. Finally control was introduced to check, and correct if necessary, the machine's output.

Except for the feature of control, automation first made its appearance in United States industry in 1784, before the industrial revolution had really begun. In that year Oliver Evans built an automatic factory to produce flour in a continuous process mill. No manual labor was required from the time the grain was delivered to the mill until it had been converted into flour.

There are sound, economic reasons for continued mechanization, or automation. A rapidly increasing population, a greatly stepped-up demand for consumer goods and services, and the prospect of a proportionately smaller labor force to produce them, make further technological development mandatory. Moreover, business organizations, to survive in the face of intense competition, must be alert to find new and better ways to turn out higher quality products at ever-lower prices. Those industries that have adopted mechanized means of increasing their output have succeeded in reducing the cost of their products, have improved their products, and have enlarged their markets.

The fluid processing industries, such as chemical and refinery operations, provide the best examples of automation. Having been able to convert from batch to continuous-processing techniques, these plants have achieved almost complete automation except for certain sampling and control operations still requiring mental decisions and manual adjustments or control.

The fabrication industries, in general, have been less adaptable to continuous processing,

and have lagged behind somewhat in automatizing their operations. It is only recently that limited advances in the direction of automation in these industries have been successful. For example, only the simplest operations in the modern automobile engine-block machining plant have been automated. Most of the operations to complete the engine still require a large number of operators and supervisors.

The electronics industry, except for a few isolated instances, has recently made the initial step in automation by developing automatic machines to assemble or fabricate electronic components to form a finished unit. The use of printed circuits (conductive metal lines printed or etched on a plastic board) and the development of continuous materials-handling techniques have led to the mechanization of electronics equipment fabrication. Machines have been developed which will test the electronic components, install them on a printed circuit board, and join the components to the printed circuit by dipping the board in molten solder; one such machine is the "Autofab" developed by General Mills, Inc. This process is followed by equipment which tests the components and circuits after assembly on the board. Other machines will even form some of the electronic components as part of the assembly process to complete a finished unit.

The new field of electronic data processing has begun to automate many office functions. A single electronic computer can handle all functions necessary to complete a payroll for tens of thousands of employees, even to the printing of the paychecks, in about six hours. Electronic computers now can handle all of the check sorting, accounting, and statement printing for large banks. They handle all of the computations and accounting for large loan and insurance companies. Other computers can perform very complex engineering and scientific computations in a fraction of the time taken for the manual operation.

Automation is making its way into grocery stores, gasoline service stations, and department stores. Invoices carrying name and account number can be "read" by a photoelectric cell, or equivalent reader, and an electronic system capable of recognizing printed characters. This new system soon will be performing automatic data processing for major oil company charge-account filing operations. Tabulating card invoices imprinted at the point of sale are checked against the customer's credit card identification. The system verifies the accuracy of the account number, then automatically key-punches the scanned data into the original invoice card. It can also be operated with an adding machine to key-punch the dollar amount of sale for billing later.

These few examples of automation in use today give some indication of what may be in store for the future. Lest the word automation immediately conjure up visions of factories wherein production moves throughout the plant in one uninterrupted flow, it should be stated that complete push-button factories are a long way from reality. Improvements will come gradually, step by step, to whatever ultimate degree of mechanization may prove warranted economically.

Automation is expected to produce an increase in manpower requirements. Elimination of many processes of a monotonous, repetitive nature will mean the freeing of men for positions requiring higher skills. The assembly-line operator of today can and will be looking forward to

the more interesting and high-paying jobs of machine assembler, draftsman, designer, tool and parts maker, test engineer and trouble-shooter, etc. Job changes have always come about as a direct result of technical innovations and new production systems, and these job changes, as the history of the last 50 years indicates, have always meant better opportunities, better-paid jobs for labor.

As automation increases in industry, it should result in a still higher standard of living, more and better jobs, and in the long run more leisure time for health, recreation, and cultural activities.

(See also ELECTRICAL DEVELOPMENTS; ELECTRONICS.)

CLEDO BRUNETTI,

Director of Engineering Research and Development, and

L. K. LEE,

Technical Adviser to the Director of Engineering Research and Development, General Mills, Inc.

AUTOMOBILES. The year 1955 was in many ways the most eventful in the history of the American automobile industry. New marks were established in the production and sales of passenger cars, and sweeping changes in design and engineering made the average car much more powerful and luxurious than it had ever been in the past.

Production and Sales.—Record-breaking production of automobiles in December 1954 gave strong indication of what was to come in 1955. With this flying start, car makers continued to establish new production marks in six of the first seven months of the year. Not until late August, when shutdowns for changing to 1956 models began, was there any considerable slackening of the production rate.

U.S. POSTWAR MOTOR VEHICLE PRODUCTION

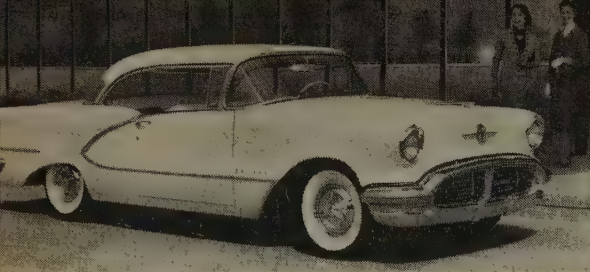
Year	Passenger cars	Commercial vehicles
1945.....	69,532	655,683
1946.....	2,148,699	940,866
1947.....	3,558,178	1,239,443
1948.....	3,909,270	1,376,274
1949.....	5,119,466	1,134,185
1950.....	6,665,863	1,337,193
1951.....	5,338,436	1,426,828
1952.....	4,320,794	1,218,165
1953.....	6,116,948	1,206,266
1954.....	5,558,897	1,042,174
1955.....	8,000,000*	1,250,000*

* Preliminary estimate. (Source: Automobile Manufacturers Association.)

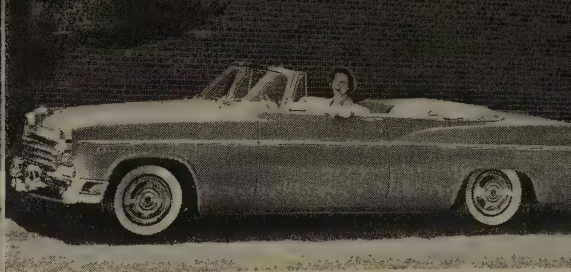
By Labor Day, the entire 1954 output had been surpassed, and on Oct. 1, 1955, the 6 million mark in passenger cars was passed. This was more than seven weeks ahead of the 1950 pace, when the previous record for production had been established. In that year, the 6 millionth passenger car came off the assembly line on November 22, and the year's total was 6,666,000. Even with output slowed for changeovers in September and October 1955, schedules called for about 2 million passenger cars in the last quarter, bringing the 1955 total to about 8 million.

Trucks and buses were not produced at record speed, but a better-than-average output of about 1,200,000 commercial vehicles carried the total production of motor vehicles over the 9 million mark for the first time.

Passenger car sales in 1955 followed closely after production in their record-breaking pace. After only moderately heavy sales in January and February, registrations leaped over the 600,-



Oldsmobile "98" Deluxe Holiday coupe



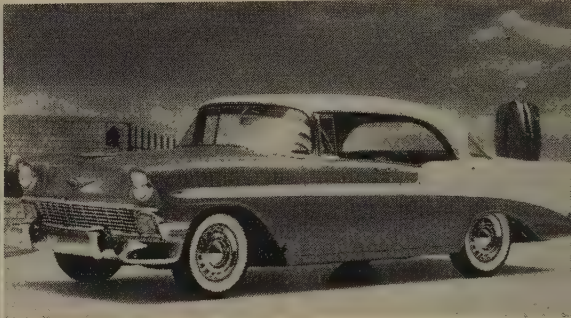
Chrysler Windsor convertible

Plymouth Savoy club sedan



AMERICAN AUTOMOBILES—1956

Chevrolet Bel Air sport sedan



000 mark in March and maintained that level for the rest of the year.

MONTHLY FACTORY SALES FROM U.S. PLANTS (CARS, TRUCKS, AND BUSES)

Month	1954	1955
January.....	551,134	725,379
February.....	534,145	744,942
March.....	633,054	894,597
April.....	631,769	881,840
May.....	588,611	849,393
June.....	598,876	767,182
July.....	530,415	768,621
August.....	521,450	716,163
September.....	369,942	559,962
October.....	287,705	601,256
November.....	587,785	...
December.....	766,185	...
Total.....	6,601,071	9,250,000*

* Forecast. (Source: Automobile Manufacturers Association.)

Not only did American motorists buy more cars than ever before, but they insisted on more and more in the way of power assistance and luxury equipment. Automatic transmissions continued their rapid rise in popularity, 69% of the new cars being so equipped. In 1954, 58% of new cars were "automatics," and the increase in sales from about 3,200,000 to over 5 million automatic transmissions in one year indicated that the predicted 100% automatics might not be too distant. Even the Ford-Chevrolet-Plymouth class installed automatic transmissions on more than half of its output. Average for the rest of the industry was close to 90%.

Newer power assists, such as power brakes and power steering, made less spectacular but still significant rises. Approximately one new car in four was equipped with power steering in 1955, and power brakes were not far behind in popularity. Most luxurious item of all—air conditioning—was installed on about 175,000 new passenger cars in 1955, more than tripling the 1954 figure. Appreciable gains also were made in sales of power window lifts and power-adjusted seats.

Most lines in earlier automobile history had registered most of their sales with a "price leader"—usually the four-door or two-door sedan. In 1955, however, the more expensive sport

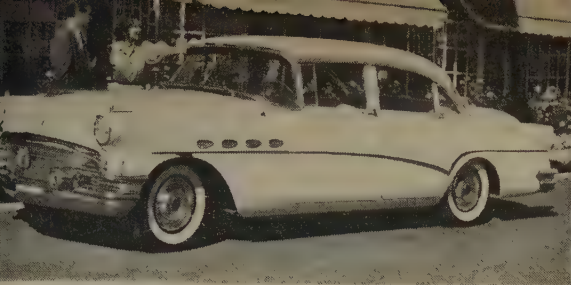
coupe, or "hard top," continued to rise in demand, becoming second only to the four-door sedan in sales. Principal construction feature of the hard top is elimination of the center posts. Added to this is a lowering of the roof, to give a "sporty" appearance and openness approximating that of the "soft top" convertible. Buick and Oldsmobile introduced the four-door counterpart of the sport coupe in 1955, and its immediate acceptance indicated that the hard top sport sedan might eventually supersede the conventional four-door sedan.

WORLD MOTOR VEHICLE PRODUCTION, 1954

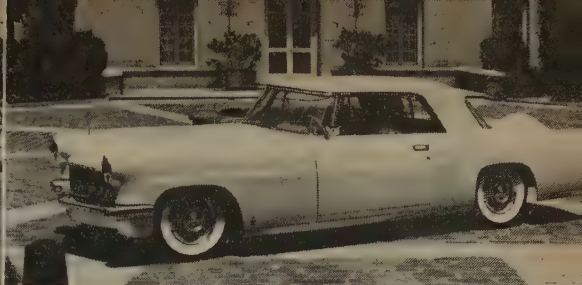
	Passenger cars	Trucks	Buses	Total
United States.....	5,558,897	1,038,056 ¹	4,118	6,601,071
Canada.....	287,191	69,500	392	357,083
Subtotals.....	5,846,088	1,107,556	4,510	6,958,154
Australia.....	40,124	14,670	...	54,794
Austria.....	4,872 ²	4,902	466	10,240
Belgium.....	1,678	1,760	182	3,620
Denmark.....	0	50	20	70
Finland.....	0	650	250	900
France.....	437,098	159,815	3,180	600,093
Germany, East... ³	30,400	...	...	30,400
Germany, West... ³	561,172	113,321	6,016	680,509
Great Britain.... ³	769,165	261,944 ³	8,081	1,039,190
India.....	3,904	...	...	3,904
Italy.....	180,769	33,840	2,091	216,700
Japan.....	8,506	148,262	5,749	162,517 ³
Netherlands.....	...	1,255	245	1,500
Norway.....	...	...	20	20
Poland.....	12,000	26,000	...	38,000 ⁴
Spain.....	20	600	...	620
Sweden.....	28,564	14,569	1,602	44,735
Switzerland.....	0	1,500	...	1,500
USSR.....	40,000	450,000	10,000	500,000 ⁴
Yugoslavia.....	...	1,530	...	1,530
Subtotals.....	2,118,272	1,234,668	37,902	3,390,842
World Total....	7,964,360	2,342,224	42,412	10,348,996

¹ Includes school buses. ² Including units assembled. ³ Included with passenger cars. ⁴ Source: *The American Automobile*. ⁵ Includes 1,311 electric battery vehicles. ⁶ Including eight 3-wheel passenger cars and 101,894 3-wheel trucks. ⁷ Included with trucks. (Source: Automotive Division, U.S. Department of Commerce.)

Another trend in public taste was toward a greater preference for larger makes of cars. The low-priced three—Chevrolet, Ford, and Plymouth—all registered large increases in sales in 1955, but their combined output held a smaller share of the market than in 1954. During 1954, Chev-



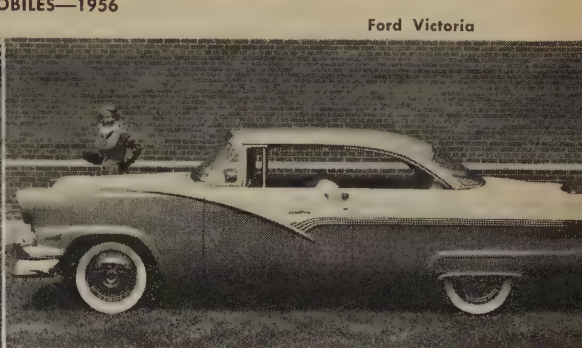
Buick Roadmaster



Continental Mark II



Studebaker Pinehurst station wagon



Ford Victoria

AMERICAN AUTOMOBILES—1956

rolet, Ford, and Plymouth sold 57.5% of all cars marketed by American makers. This figure declined to about 52% in 1955.

Foreign cars made a greater impression in the 1955 United States market, increasing sales by about 70% over 1954. Almost half the foreign car sales were German Volkswagens.

Engineering.—The most radical engineering change introduced in 1955 was the torsion bar suspension system inaugurated on the Packard. Eliminating the front coil and rear leaf springs, the suspension consists of a long bar running on each side of the frame, connecting each front wheel with the corresponding rear wheel by means of arms and links. Springing action is obtained by twisting of the bars. A load compensator made up of two additional bars and an electric motor drive is designed to insure a level ride regardless of variations in loading. The torsion bar suspension is said to improve riding qualities and to give increased stability at higher speeds.

The "horsepower race" continued at an accelerated rate, with the average horsepower in American cars jumping from 150.8 to 173.1. Average compression ratio rose from 7.64 to 7.96, with Buick and Cadillac boasting the high ratio of 9.0 to 1. The top ratio in 1954 had been 8.7 to 1. No 1955 American car had a compression ratio below 7.2, whereas the 1954 minimum was 6.8.

Contributing heavily to the rise in horsepower was a continuation of the movement toward V-8 engines. Chevrolet, longtime sales leader with its six, came out with an 8-cylinder V-type valve-in-head engine boasting 162 hp. Plymouth joined the V-8 class with two engines, of 157 and 167 hp. Ford, in turn, raised its V-8 horsepower to 162. Line eights disappeared from the scene in favor of V-type engines, and only eight manufacturers retained their sixes. Up to 300 hp, was made available in the larger car class.

Most manufacturers offered optional "power packs" to boost the horsepower of standard engines. Usually consisting of a 4-barrel carburetor, together with a modified intake manifold and exhaust system, the power pack proved to be so popular that demand far exceeded production.

New emphasis on safety features showed up in the form of modified steering wheels, padded instrument panels, and optional seat belts to minimize the likelihood of injury in collisions. All manufacturers worked to develop door latches which would not open on impact, and some cars offered safety latches as standard equipment during the last half of the year.

Styling.—Entirely new bodies were offered by 10 manufacturers, with the "long, low, wide" appearance again emphasized. Horizontal lines were particularly stressed by sweeping rear fenders. Narrower grilles changed the front appearance of some makes, and several introduced perforated mesh grillework. Further differences took the form of unusual treatment of the chromium-plated molding on the sides.

Upholstery and interior trim were made more luxurious by new color combinations and materials. The "wraparound" curved windshield, designed to give a cleaner appearance and afford better visibility to the driver, became general throughout the industry.

Perhaps the most notable feature of the 1955 automobile crop was the variety of color. The two-tone car had been gaining headway for several years, but in 1955 the multicolored car became overwhelmingly predominant. Many colors were available that had never been seen on automobiles in the past, and the choice of combinations was almost limitless.

Three-color combinations were offered by some makes, and in others with only two colors there were three color areas. Whites and off-whites, which had made their bare beginnings only about two years earlier, were much in evidence. One survey taken in late summer, however, indicated a slight trend away from the brightest colors so prominent in late 1954 and early 1955.

Employment.—With production at a record high level through most of 1955, employment in the auto industry also was good. Payrolls totaled about 910,000 on the average, including well over 700,000 production workers. Both figures were among the highest in history.

Labor negotiations were prominent in the news in the spring and summer, when the old

contracts of all major companies with the UAW-CIO expired. Seeking a guaranteed annual wage, the union reached agreements with the "Big Three" manufacturers providing for payments to supplement state unemployment insurance during layoffs. American Motors (Nash and Hudson) signed a similar agreement, but with the unemployment pay provision postponed about a year. Studebaker-Packard and Willys still were in negotiation at the middle of October. The only strike of major consequence was a 10-day stoppage at Studebaker. (See also LABOR.)

Preparations for 1956.—Anticipating another big year in 1956, American car manufacturers spent large sums of money to enlarge and improve their production facilities.

New models began to come out in September, with only relatively minor "face lifting," in many cases, to distinguish the 1956 cars from their 1955 counterparts. The earliest makes to market 1956 models restricted exterior changes to restyling of grilles, lights, and body side molding. There was some lowering of roof lines, and one large manufacturer (Chrysler Corporation) featured "tail fin" styled rear fenders. Most makes added 4-door hard tops to their lineup of body styles.

Engineeringwise, the accent continued to be on increased horsepower. One of the best-known luxury cars had a 305-hp. engine, and the popular low-priced cars went above 200 hp. Push-button controls for automatic transmissions were installed on several lines; one of the most popular automatic transmissions, used on a number of makes, incorporated an added fluid coupling for smoother operation.

The number of cars offering safety door latches increased, and several makes began extensive advertising campaigns which stressed safety features.

Cadillac scheduled its Brougham, a radically different 4-door, 4-passenger coupe, based on its 1955 Motorama "dream car," for release in early 1956. Another limited-production luxury car, the Continental Mark II, was brought out by the Ford Motor Company.

CHARLES F. KETTERING,
Director and Research Consultant, General Motors Corporation.

AVIATION. See AERONAUTICS.

AVILA CAMACHO, Manuel, former president of Mexico: b. Teziutlán, Puebla, April 24, 1897; d. near Mexico City, Oct. 13, 1955. President of Mexico during World War II, he gave his country an administration marked by moderation in internal affairs and by cooperation with the United States, after a long period of domestic social unrest and of friction with Mexico's northern neighbor.

After finishing a course in accounting in 1914, he joined the rebel army of Venustiano Carranza in an ultimately successful revolt against the regime of Victoriano Huerta. In joining the winning

side, Ávila Camacho showed for the first time his remarkable ability to "guess right" in the stormy seas of Mexican politics during the next two decades. Rising in the army from 2d lieutenant to division general, he early acquired the reputation of being a highly skilled administrator. His successful reform of the army, when he was chief of staff of the Ministry of War and Navy under President Abelardo Rodríguez, led to his appointment in 1937 as minister of national defense by his long-time friend, President Lázaro Cárdenas. In 1939 Ávila Camacho resigned from the cabinet to seek the nomination for president from the government party, the PRM (Party of the Mexican Revolution). After a far from orderly campaign, in which the radical program of outgoing President Cárdenas was at issue, Ávila Camacho was elected on July 7, 1940, by an overwhelming majority over the opposition of Gen. Juan Almazán.

Immediately after his inauguration on Dec. 1, 1940, his presidential acts exhibited the more moderate tone his administration was to take. His campaign pledges to foster better relations with the United States were fulfilled in a number of ways. In 1941 a settlement of the oil expropriation controversy was negotiated, and in the early years of World War II Mexico supplied much-needed raw materials to the United States. Mexico itself declared war on the Axis powers in 1942. As a further reflection of his international outlook, Mexico joined the Bretton Woods agreements and signed the United Nations Charter during his term of office. With respect to internal affairs, one of his early presidential acts was to inaugurate a strenuous program to reduce illiteracy. He also brought to completion the land reforms inaugurated by his predecessor and contributed to the expansion of Mexican industry.

On Dec. 1, 1946, he was succeeded in the presidency by Miguel Alemán. He remained politically active as head of a strong political machine in his native province of Puebla.

AWARDS AND PRIZES. See PRIZES AND AWARDS.

AZORES or WESTERN ISLANDS (Port. Açores). A group of 9 main islands and several islets in the Atlantic about 800 miles off the coast of Portugal. Area, 888 square miles; pop. (1950), 318,686. São Miguel Island is the largest of the group and contains the Azores' chief city, Ponta Delgada (22,706). Politically the Azores comprise three districts of Portugal. Agriculture is the chief occupation. Manufactures include wines, linens, woolen garments, and embroideries. Fish yields are mainly tuna, bonito, and mullet. The Azores serve as a transatlantic cable station and a stopping point for aviation. United States rights to airbases on the islands were renewed and extended by agreement with Portugal in 1951. The agreement integrated the Azores facilities within the North Atlantic Treaty Organization.



BACTERIOLOGY. Microorganisms in Cancer

Research.—Microorganisms are assuming three roles in studies concerned with cancer. The first is that of etiology. Viruses have long been known to cause malignant growths in lower animals such as rabbits and chickens. Virus-like particles have been described in numerous human malignant growths, and the inference is made that they might be the etiological agents of the tumor. It has also been reported that highly pleomorphic bacteria have consistently been isolated from human malignant growths, and that these bacteria go through a virus stage at one step in their life cycle. These bacteria, when cultivated in the laboratory and then inoculated into experimental animals, yield tumor growths in some of these animals that are compatible with a malignant process.

A second role is their use as a tool in understanding how malignant tissue originates as a mutation of the somatic cell. It might be expected that chemical and physical agents which are carcinogenic should also be mutagenic. The ease of generating huge numbers of bacteria in the laboratory makes it possible to isolate mutants induced by various carcinogenic agents. In general, induced mutants in a bacterial population will occur at the rate of approximately one per million bacteria. The bacterial mutant may be selected for any number of specific traits, for example, alterations in color or texture of the colony, in the ability to grow in the absence of an essential metabolite, in resistance to antibiotics, or in susceptibility to destruction by the bacterial viruses called phage. Bacteria, yeasts, and various molds, when subjected to carcinogenic chemicals, mutate in a manner which indicate that the alteration is essentially a gene mutation which in some instances may be reversible. In general, greater numbers of microbial mutants are induced with the stronger carcinogens, as compared with weaker carcinogens of related chemical structure. Further study of the response of bacterial cells to carcinogenic agents may yield an insight into the response of animal cells to these agents.

Microorganisms may play a role in the possible therapy of cancer. The theory of "antimetabolites" proposes that a biochemical reaction essential to a cell may be blocked by the introduction of an agent which closely resembles in molecular structure the metabolite used in the biochemical reaction. The antimetabolite molecules take up positions in the enzymes responsible for this biochemical reaction by competing with the essential metabolite, but are sufficiently different in structure to be unavailable for the reaction. They thus interfere with a necessary function of the cell, leading ultimately to the death of the cell. A number of effective anticancer agents have been discovered on the basis of their reported activity against bacteria as antimetabolites. The folic acid antimetabolites, aminopterin and A-methopterin, are among such agents which are currently being used in the treatment of leukemias in man.

Petroleum Bacteriology.—Certain bacteria in soil have the capacity for growing in a medium containing the group of organic chemical substances called hydrocarbons. Certain of these hydrocarbons when found in the soil are believed to emanate from subsurface deposits of petroleum. The thesis has been proposed that the detection in the soil of bacteria which can oxidize hydrocarbons would be indicative of the presence

of a petroleum reservoir. In accord with this thesis, it has been reported that there are as many as 50 billion hydrocarbon-oxidizing bacteria per pound of oil-bearing rock, whereas none are present in rock samples free of oil. A number of United States patents have been granted which describe methods of exploiting this principle.

Explorations for petroleum, utilizing bacterial studies of the surface soil as guides, have been successful. It is believed that bacterial action on certain chemical constituents of the soil could in part be responsible for the formation of petroleum. Because of the physical environment present below the surface of the soil, it would be necessary that these bacteria perform their activity in the absence of oxygen, at elevated temperatures, and at increased pressures. Bacteria have been found which can metabolize anaerobically, will grow at temperatures of 75°C., and can withstand pressures as high as 75,000 pounds per square inch. Utilizing a microorganism called *Desulfococcus*, growing on a substrate of carbonate, sulfate, and other mineral salts in a hydrogen gas atmosphere, an oily deposit was produced in the laboratory having many of the attributes of natural petroleum oil.

A disturbing role of bacteria in the petroleum industry has to do with the capacity of certain bacteria to convert sulfur-containing mineral salts present in soil to substances which will corrode iron. The iron in the case of iron pipe will corrode, leaving a pipe which still appears normal because of the intact graphite, but which is so soft it can be cut with a knife. Attempts to stem this bacterial corrosion have necessitated the widespread use of germicides in drilling pipes. The bacteriologist has thus joined the geologists and geophysicists in the petroleum oilfields.

Poliomyelitis Vaccine.—On April 12, 1955, Dr. Thomas Francis, Jr., and his colleagues reported from the University of Michigan their evaluation of the successful field trial of the Salk vaccine for poliomyelitis. (See POLIOMYELITIS.) Mass immunization was undertaken, with the subsequent discovery of live polio virus in lots of vaccine.

The ensuing cases of poliomyelitis which resulted might in part have been due to the increased size of the batches of vaccine manufactured. The possibility was also proposed that the inoculation of a vaccine, albeit with dead virus particles, could trigger the multiplication of polio virus already present in small numbers in normal and apparently healthy individuals. Another potential risk of the Salk vaccine is the possibility that vaccine made from monkey kidney tissue might sensitize some individuals to kidney protein, with the subsequent risk of an allergic nephritis. To avoid this danger, propagation of poliomyelitis virus on human placental tissue (a method discovered in 1955 at the University of California) has taken on an added significance. All three types of polio virus will multiply in tissue cultures thus prepared. Human placental tissue can be readily procured from hospitals, one placenta adequately replacing the kidneys from one monkey in the propagation of the virus.

MILAN V. NOVAK,

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BAGHDAD PACT (MIDDLE EAST TREATY ORGANIZATION). Originally signed at Baghdad by Turkey and Iraq on Feb. 24, 1955, and later adhered to by Great Britain (April 5), Pakistan (September 23), and Iran (November 3), the Baghdad

Pact is one of several mutual security alliances designed to halt possible Communist aggression. The pact—bitterly opposed by Egypt, for nationalist reasons, and by the USSR, for its obviously anti-Communist character—is part of a chain of mutual defense alliances which include the North Atlantic Treaty Organization (NATO) and the Southeast Asia Treaty Organization (SEATO), and which extended in 1955, with the exception of India, from the Philippines in the Pacific to Iceland in the North Atlantic. The new alliance is often referred to as the Middle East Treaty Organization (METO).

Although the United States is not a member of the Baghdad Pact, it supports the member nations through military and economic aid and acts as an observer at the organization's meetings, the initial one of which was held in Baghdad on Nov. 21 and 22, 1955. The organization's activities are directed by a permanent ministerial council, comprising the Iraqi foreign minister and the other member nations' ambassadors to Iraq; and its military activities are coordinated by the chiefs of staff of the five nations.

BAHAMAS. This British colony (area, 4,404 square miles), comprises about 700 islands or cays (of which 20 are inhabited), extending for some 760 miles southeastward from the Straits of Florida. It is considered geographically, though not politically, a part of the West Indies. The population was estimated on Dec. 31, 1954, at 92,598 (84,841, including 73,000 colored, according to the 1953 census). On New Providence Island (1953 pop., 46,125) is Nassau, the capital and chief port. Other principal islands, and their populations in 1953, are Andros (7,136), Eleuthera (6,070), Grand Bahama (4,095), Great Abaco (3,407), Cat Island (3,201), Exuma (2,919), and Acklins (1,273).

A leased naval and air base is maintained by the United States on Mayaguana, which is also one of the island substations of the Down Range guided missiles development project conducted jointly by Great Britain and the United States.

The administration is headed by a governor and commander in chief (Earl of Ranfurly, sworn in Dec. 21, 1953), who is assisted by an 8-member Executive Council, a 9-member nominated Legislative Council, and a 29-member elected House of Assembly. Revenue in 1954 was £3,095,541; expenditure, £3,008,064; estimated revenue in 1955, £3,314,500; expenditure, £3,177,345.

Primary education is free and compulsory. Government schools in 1954 numbered 130 (enrollment, 14,564), and denominational and private schools, 50 (enrollment, 6,402). Secondary education was provided by a government high school and 4 schools maintained by religious bodies. There is a teacher-training college at Oakes Field.

Paramount in the economy is the thriving tourist trade, which contributed earnings estimated at \$20 million from American visitors in 1954, when tourists numbered 109,605.

Total imports were valued in 1954 at £9,404,183; exports at £1,328,859 (in 1953 imports were valued at £8,812,564; exports at £1,390,284). Principal imports and their value in 1954 were pit props, £148,335; salt, £144,073; and tomatoes, £86,950. Exports included principally lumber, £327,687, and crawfish, £163,743, which the colony sends to the United States together with shells (novelty items), straw work, and okra. Corn products, vegetables, medicines,

electrical apparatus, cotton piece goods, and wearing apparel are imported from the United States.

There is radiotelegraph and radiotelephone communication between principal islands. The colony has no railways. Pan American Airways and British Overseas Airways operate daily services between Miami, Fla., and Nassau. The latter airway also provides service from New York, Jamaica, and Bermuda. Services are maintained by Trans-Canada Air Lines from Montreal and Toronto to Nassau. New Providence has 165 miles of public roads open to motor traffic. British currency is legal tender in the Bahamas, but United States and Canadian currencies are accepted. (See also BRITISH WEST INDIES.)

BAHRAIN. See ARABIA.

BALANCE OF PAYMENTS, U.S. See INTERNATIONAL TRADE.

BALEARIC ISLANDS (Span. *BALEARES*). An archipelago in the Mediterranean Sea east of Spain, of which the islands form a province. The four largest islands are Mallorca, Menorca, Ibiza, and Formentera. Total area, 1,936 square miles; pop. (1952), 424,707. Palma (138,100), the capital, is on Mallorca. Almonds, olives, figs, and other fruits are grown. Handicrafts include embroideries, laces, imitation jewelry, and pottery. Tourism is important.

BALKAN STATES. The states of the Balkan Peninsula, which comprises the region of Europe south of the Danube and Sava rivers between the Black Sea and the Adriatic Sea. Politically, the Balkan States include Yugoslavia, Albania, Greece, European Turkey, Bulgaria, and Rumania. (See separate articles on the Balkan countries, and the Index entry, *Balkan States*.)

BALLET. See DANCE.

BALTIC STATES. A term applied to Estonia, Latvia, and Lithuania, on the east coast of the Baltic Sea of northeastern Europe. The Baltic States were incorporated into the Soviet Union in 1940 as member republics. (See UNION OF SOVIET SOCIALIST REPUBLICS, and articles on each of the Baltic States.)

BALTIMORE. Maryland's dominant metropolis, Baltimore is the sixth most populous city in the United States. It has a land area of 78.7 square miles and in 1950 had a population of 949,708. It is the center of a rapidly growing metropolitan area which includes Baltimore and Anne Arundel counties, totaling 1,106 square miles and having a 1950 census of 1,337,373. Population estimates at mid-1955 were 968,500 for the city and 1,485,000 for the metropolitan area.

An excellent port and diversified manufacturing plants are the principal sources of Baltimore's economic strength. The port ranks second in the nation in foreign shipping tonnage. Leading industries in terms of value added by manufacture are transportation equipment, primary metals, foods and kindred products, and chemicals.

Nonagricultural workers in the metropolitan area totaled 562,800 in August 1955, of whom 196,500 were engaged in manufacturing. Department store sales index in 1954 (based on 1947-49 = 100) was 107.8. Investment in new plants and expansion in 1954 totaled \$99,765,000. Other data for Baltimore City proper: retail sales (1954): \$1,302,966,000 (50.2% of the state's total). Vessel arrivals (1954): 4,829. Tonnages shipped through port (1954): 4,124,811 export tons (\$495,200,000) and 14,951,276 import tons (\$462,000,000). Output of electricity in kilowatt-hours (1954): 3,932,291,000. Total sales of gas in cubic feet (1954): 20,945,361,500. Bank clearings (1954): \$15,521,949,512. Freight car loadings (1954): 274,675. Number of manufacturing plants (1954): 1,896. Public school enrollment

(September 1955): 148,180. Cost-of-living index in 1954 (based on 1947-49 = 100): 115.1.

The government of Baltimore City combines city and county functions. It is governed by a mayor and 21-member City Council elected for four-year terms. Additional elective officers include the comptroller and the council president. In the May 1955 elections, the mayoral incumbent, Thomas D'Alesandro, was elected to his third consecutive term. All other present elected city officeholders are Democrats.

In citywide referenda conducted at the May elections, voters approved four public works bond issues totaling \$19,500,000, of which the largest (\$15,000,000) was designated for school construction.

The city's 1955 budget called for expenditures totaling \$183,436,904, of which \$150,008,084 was for current expenditures. The 1955 real property tax was \$3.05 per \$100 on an assessed valuation of \$2,936,005,029. Net long term debt (1955) was \$230,038,060.

Problems of slum elimination, downtown blighted areas, and traffic congestion continued to plague government and business leaders in 1955. Early in the year a Greater Baltimore Committee was formed to bring organized civic interest to bear on these and other problems.

City law-enforcement officers launched an all-out antiracket campaign which included grand jury investigations, a reorganization of vice and racket units, and police crackdowns on organized crime in the city.

A Civic Center Authority was established to provide a modern metropolitan center suitable for indoor sports, expositions, contests, and conventions. (See also MARYLAND; TUNNELS.)

DON L. BOWEN,

*Director, Bureau of Governmental Research,
University of Maryland.*

BANDUNG CONFERENCE. See **ASIAN-AFRICAN CONFERENCE.**

BANK FOR INTERNATIONAL SETTLEMENTS. A review of the activities of the Bank for International Settlements during its financial year ended March 31, 1955, is contained in the 25th annual report, which was presented to the annual general meeting held at its offices in Basle, Switzerland, in June 1955, at which 21 European central banks were represented.

The total of the balance sheet of the BIS increased from 1,512 million gold francs (U.S.\$495 million) to 1,718 million gold francs (U.S.\$563 million) during the last financial year. The item "gold in bars and coins" in the balance sheet on March 31, 1955, stood at 626 million gold francs (U.S.\$205 million), an increase of 17 million gold francs (U.S.\$5.6 million) over the previous year's figure.

Total deposits at sight and at short-term rose from 1,230 million gold francs (equivalent to U.S.\$403 million) to 1,432 million gold francs (U.S.\$469 million) between April 1, 1954, and March 31, 1955, time funds accounting for practically the whole of this increase. The bank has consequently been in a better position to meet the demands of its central bank customers for short-term credits. These were for the most part in dollars or Swiss francs and were concluded for periods of three months, often with the possibility of renewal for a further period.

The bank has continued to be very active in operations for the purchase, sale, and exchange of gold, and in the latter case has been able to assist central banks to avoid physical transfers of

gold from one center to another.

Despite closely competitive conditions in most of the fields within which the BIS operates, a greatly increased turnover has enabled the bank to earn a surplus of 9.4 million gold francs (equivalent to U.S.\$3 million) during the period under review.

The bank cooperates with the International Bank for Reconstruction and Development and the International Monetary Fund (q.q.v.) and maintains close relations with the Federal Reserve System (q.v.) in the United States. Its principal funds in the United States are held at the Federal Reserve Bank of New York, where the BIS enjoys the same facilities as foreign central banks. The BIS has continued to act as agent for the Organization for European Economic Cooperation (the OEEC) for the technical operation of the Agreement for the Establishment of a European Payments Union (the EPU), which, in principle, was prolonged to June 1956. The BIS is also to assume similar agency functions under the European Monetary Agreement of August 5, 1955, when this agreement becomes applicable upon termination of the EPU.

On November 28, 1954, the bank assumed the functions of depository, under the terms of an indenture concluded with the High Authority of the European Coal and Steel Community, in connection with loans raised by the High Authority to finance development within the community. These loans include one for \$100 million advanced by the Export-Import Bank of Washington on behalf of the United States government. Other loans have also been made to the High Authority by institutions in countries which are members of the community. The bank has continued to exercise its functions as trustee for the German Young Loan (1930) and the Austrian Government International Loan (1930), and as fiscal agent for the German Dawes Loan (1924).

ROGER AUBOIN,

General Manager, Alternate of the President.

BANKS AND BANKING. United States Banking System.—Banking in the United States and its territories in 1955 was carried on in 20,981 banking offices, of which 14,367 are head offices and 6,614 are branches. The banks are members of a dual system, of which 4,789 are federally chartered and the rest state-chartered and supervised commercial banks, mutual savings banks, trust companies, and private banks.

Total banking resources on June 30, 1955, were \$228,970,000,000, an advance of almost \$10 billion above 1954, and aggregate resources were divided almost equally between the federally and state-chartered institutions.

There was a decline in the number of unit banks, reflecting a trend toward concentration of business in larger, diversified, and more self-sufficient corporations. Banks, being the principal suppliers of production and short-term credit to industry, but being limited in the amount they can loan to any one borrower, have been merging, consolidating, and acquiring other banks in order to improve their credit capacity and competitive position. Proponents of unit banking and some members of Congress contend that concentration of financial power in larger banks may stifle competition. Proposals have been made to require banks to obtain permission from some central authority in cases where they propose to merge, consolidate, or acquire another bank through stock purchase. Other banking leaders

oppose placing the authority to approve bank mergers in a central agency, such as the Federal Reserve System or the Federal Deposit Insurance Corporation (q.v.) as a serious invasion of states' rights. There is general agreement as to the need for banks to have a larger loan capacity to serve business. There has been no final disposition of the problem.

**ASSETS AND LIABILITIES OF ALL BANKS
IN THE UNITED STATES**
(In millions of dollars)

Item	June 30, 1954	June 30, 1955
ASSETS		
Loans and investments.....	\$173,280	\$184,520
Loans and discounts.....	81,130	91,890
U.S. government obligations.....	72,600	71,730
Other securities.....	19,550	20,900
Reserves, cash, and bank balances.....	42,690	41,100
Reserve with Federal Reserve banks	18,920	18,530
Cash in vault.....	2,770	2,980
Balance with banks.....	12,050	10,990
Cash items.....	8,950	8,600
Other assets.....	2,990	3,350
Total assets.....	\$218,960	\$228,970
LIABILITIES AND CAPITAL		
Gross demand deposits.....	\$126,580	\$129,700
Gross time deposits.....	73,000	77,120
Total deposits.....	199,580	206,820
Deposits of banks.....	15,460	14,630
U.S. government deposits.....	5,800	5,210
Other demand deposits.....	107,260	111,960
Other time deposits.....	71,060	75,020
Borrowings.....	50	1,460
Other liabilities.....	2,740	3,060
Total capital accounts.....	16,590	17,630
Total liabilities and capital.....	\$218,960	\$228,970

(Source: Federal Reserve System.)

General Economic Conditions.—The year 1955 was marked as one of record-breaking prosperity, with employment and personal income advancing and the gross national product estimated at a new high annual rate of \$384 billion through the first nine months.

Disturbing elements in the situation were the slowing down of the rate of savings and accumulation of cash reserves by individuals and business. Public and private debt increased \$7.2 billion during the first half of the year, with bank loans to business accounting for about \$2 billion of the total. Mortgage debt advanced at an annual rate of \$15 billion during the second quarter, and consumer loans expanded at an increasing rate, approximating \$765 million during the month of June. The 1955 credit-supported inflation provides a striking example of the conflict in credit policy based on political considerations devoted to maintaining a "full employment economy," made possible by flexible, easy credit and low interest, and a policy based on the working of traditional economic forces.

Credit Operations.—At the beginning of 1955, mortgage loans were guaranteed by the Veterans Administration with no down payments required and terms up to 30 years. The Federal Housing Administration was insuring loans for nonveterans with provision for down payments as low as 5% and terms of up to 30 years. A record volume of home building was generated in response to these terms; and in the first half of 1955, two out of every five loans guaranteed by the Veterans Administration were made with no down payment. Easy credit was also encouraged by the Small Business Administration, government-sponsored agricultural agencies, and other government agencies, and was reflected in the operations of many private financial institutions.

In June 1955, installment buying of automo-

biles climbed \$567 million, compared with \$166 million in June 1954. Automobile paper outstanding at the end of June totaled \$12.6 billion, compared with the previous high of \$10.4 billion in November 1953. Total consumer credit, including installment and single-payment loans, aggregated \$32.5 billion on June 30. The June increase was \$903 million.

The high prices established in the stock markets, which are a measure of business and economic activity, were among other business indicators which had been causing concern for government officials and bankers.

In August, the government, through the Federal Reserve System, took steps to slow down the inflationary pressures by tightening credit. Conferences were held with representatives of all private credit-granting businesses to discuss a voluntary program of credit restraint. The Federal Reserve System put into effect moderate increases in rediscount rates and raised the reserve requirements for member banks. Margins on stocks were increased in June to 70%, and interest rates to brokers were up to 3½% in early August. The prime rate on business loans was advanced from 3% to 3¼%, the first increase since April 1953.

Restrictive measures were also applied in the home mortgage field by the Federal Housing Administration. After August 1, all home mortgage loans for nonveterans, eligible for FHA insurance, required a down payment of 7% on the first \$9,000 and 27% on the assessed evaluation over \$9,000. Mortgage loans to veterans required a down payment of 2%. Terms on all home mortgages were cut from 30 to 25 years.

Other means of credit restraint were also adopted by the Federal Reserve System with the cooperation of the financial community. These included open-market operations which, coupled with raised rediscount rates and reserve requirements, reduced the capacity of banks to make loans.

The sum total of the restrictive effect on credit by these measures will be more psychological than actual with respect to borrowing by individuals and business firms which have a legitimate and constructive use for credit. It may be several months before shrinking in loan volume takes place, due to the forward commitments for plant expansion and construction programs just getting under way. (See also CONSUMER CREDIT; FEDERAL RESERVE SYSTEM; HOUSING; SAVINGS; STOCKS AND BONDS.)

Miscellaneous Banking Developments.—Among the notable developments during the year were advances made by banks in the application of electronic and electrical devices to bank operations. Committees of bankers, representing the American Bankers Association, have written and distributed to equipment manufacturers a performance specification for check-handling and record-keeping devices.

Banks have also increased their educational activities, particularly with a view to providing for successor management. There are more than 100 schools of banking in the country. Some are schools of advanced study, such as The Graduate School of Banking conducted by the American Bankers Association at Rutgers University. The American Institute of Banking has also expanded its graduate courses aimed at training for bank management.

BANKING IN CANADA

Canada is served by a commercial branch banking system, as distinguished from the unit

banking system of the United States. There are 10 chartered commercial banks* with approximately 3,900 branch offices serving every part of the country. The Bank of Canada is the central bank, now owned by the government.

Total assets of Canadian banks on June 30, 1955, amounted to \$12,125,000,000, compared with \$10,731,000,000 on June 30, 1954; personal savings advanced to \$5,573,000,000 against \$5,109,000,000 the previous year; and demand deposits were \$3,665,000,000 against \$3,235,000,000 in 1954. (All figures in this paragraph represent Canadian dollars.) Bank loans totaled \$5,281,000,000, compared with \$4,837,000,000 the previous year; holdings of government securities advanced to \$3,620,000,000—over \$2,793,000,000 in 1954; other securities stood at \$942,000,000, compared with \$745,000,000; and mortgage investments of banks, a new field, amounted to \$145,000,000. (See also CANADA—*The Canadian Economy*.)

WORLD FINANCIAL AND ECONOMIC CONDITIONS

Most countries of the world applied credit restraints and other anti-inflationary measures in their economies much earlier than did the United States. In Japan, Switzerland, Turkey, New Zealand, and West Germany, bank interest rates were increased in July and August 1955; Pakistan devaluated the rupee to 21 cents in United States currency; and other countries took action to strengthen internal and foreign trade positions.

As the threat of World War III moved further away during 1955, the general world financial outlook improved. The year was marked with intense competition for international markets among West Germany, Great Britain, the Benelux countries, and Japan.

In 1955, Mexico was enjoying economic prosperity as a result of good crops, improvements in markets for minerals, and increased export trade. Japan, with exports 30% higher, was again a factor in world markets, and repealed preferential tax treatment for foreign businesses, with the result that many American firms may be forced to cease operations.

During 1955 the countries of the world moved closer to free convertibility of monetary units. The two world currencies are the United States dollar and the British trade account pound sterling; and many authorities believe that there is little difference between full interconvertibility of these currencies and the situation that currently exists.

Great Britain.—Great Britain was adversely affected by prolonged strikes and lack of price stability, due to the threat of rising prices. Despite these dislocations, however, the value of imports was at a high level, totaling £3.6 million more in June than in March. However, exports were down £165.1 million. Although the visible trade deficit was only £129 million, exports continued to increase in the first half of 1955 and were about 3½% higher for these six months than for the same period of 1954.

Interest costs, higher wages, and more expen-

sive transportation are the major problems of basic industries in competition for world markets. Britain has experienced a credit-supported consumer buying spree similar to that in the United States. In mid-August, the Bank of England initiated controls similar to Regulation W which governed consumer lending in the United States during World War II.

Scandinavia.—Scandinavia revived policies of general monetary control, to combat inflation, and freed the business and the financial communities from certain specific regulations. These developments were of interest because Norway, Sweden, and Denmark have relied more on central planning and selective measures than have other nations, in an effort to maintain social-welfare economies.

Following World War II, the Scandinavian countries adhered to a policy of low interest rates, subsidies for housing and industrial construction, and other selective measures. As world demand for goods and services increased during the Korean War, inflationary pressures were strong, followed by a period of business depression. During 1955, the governments of Norway, Sweden, and Denmark reversed their position, allowing interest rates to increase to as much as 5½%; cutting housing subsidies sharply and permitting rentals to increase; increasing bank reserve requirements; and placing taxes on imports, particularly automobiles. The governments also floated loans to reduce purchasing power. These measures, which appear to be effective, are of great long-range importance in preparing Scandinavian currencies for interconvertibility and in maintaining the world competitive position of their export industries.

(See also BANK FOR INTERNATIONAL SETTLEMENTS; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.)

JOHN DE JONG,
Associate Director, News Bureau, The
American Bankers Association.

BAPTIST CHURCHES. According to the *Yearbook of American Churches* (1955 edition), the 27 Baptist bodies into which the autonomous Baptist congregations of the United States have been grouped reported a total membership of 18,448,621 in 1954 (not including membership figures unavailable for one group). Baptists continue to comprise the largest single communion, and represent over one third of all Protestants in the country.

Of the 27 Baptist bodies, the Southern Baptist Convention (see below) is the largest. The National Baptist Convention, U.S.A., Inc., a Negro affiliate, ranks second, with 4,557,416 members reported. Ranking third is the National Baptist Convention of America, an "unincorporated" Negro denomination, with 2,608,974; and fourth, the American Baptist Convention (see below). (Membership figures for 1954 of other large Baptist bodies are given in the article CHURCH MEMBERSHIP, U.S.)

SOUTHERN BAPTIST CONVENTION

Organized in Augusta, Ga., in 1845, this largest of the Baptist bodies reported 29,899 churches in 1954 with a membership of 8,169,491 in 25 states and 1,032 district associations.

The 70 Southern Baptist educational institutions reported 52,314 students in 1954-55, with 5,639 students in the five seminaries located at Louisville, Ky., New Orleans, La., Fort Worth, Texas, Berkeley, Calif., and Wake Forest, N.C. There were 143 students in the American Bap-

* The number of chartered banks has been reduced from 11 to 10 as a result of the amalgamation of the Bank of Toronto and the Dominion Bank in November 1954, and will be further reduced to 9 when the proposed merger (Oct. 12, 1955) of the Imperial Bank of Canada and Barclays Bank (Canada) is completed in 1956. The 7 other chartered banks are as follows: Royal Bank of Canada, Bank of Montreal, Bank of Nova Scotia, Provincial Bank of Canada, Canadian Bank of Commerce, Banque Canadienne Nationale, and Mercantile Bank of Canada.

tist Theological Seminary for Negroes located at Nashville, Tenn. The educational institutions reported endowments of \$52,808,162 and property valued at \$127,663,216. The 33 Baptist hospitals reported property valued at \$80,232,825, and 532,947 patients during 1954. The 24 orphanages reported 5,588 children, and property valued at \$21,218,366. The denomination supports 1,010 foreign missionaries and 1,324 home missionaries. Gifts amounted to \$38.13 per capita in 1954, with \$7.39 per capita going to missions and benevolences. The Relief and Annuity Board reported 39,415 active members, with assets totaling \$35,091,515.

The publishing division of the convention is the Baptist Sunday School Board, located in Nashville, Tenn. In 1954 it distributed 59,644,633 periodicals and published 3,109,730 books. Dr. C. C. Warren of Charlotte, N.C., was elected president at the 1955 convention held in Miami, Fla. The office of the Southern Baptist Convention Executive Committee is located at 127 Ninth Avenue, North, Nashville 3, Tenn.

PORTER W. ROUTH,
*Executive Secretary, Executive Committee,
Southern Baptist Convention.*

AMERICAN BAPTIST CONVENTION

The American Baptist Convention, formerly known as the Northern Baptist Convention, received its name in 1950, thus securing a uniformity of nomenclature with national societies such as the American Baptist Foreign Mission Society and the American Baptist Home Mission Society, which cooperate with the convention and participate in its organization.

In 1955 the convention, representing the cooperative interests of 6,490 churches in 34 northern and western states, had a total membership of 1,513,697. Its program of missionary and benevolent work is carried on in the United States, Africa, Asia, Europe, and several Latin American countries by 7 national societies and boards, 33 state conventions, and 15 city societies. It is supported by contributions from churches to a unified budget, representing the interests of all agencies. Because of a change now being effected in the fiscal year, the unified budget for 1955 covers only an eight-month period from May to December inclusive, totaling \$5,161,927. The approved budget for the full year 1956 amounts to \$7,997,338. The raising of the budget is under the supervision of the Council on Missionary Cooperation, of which Rev. Ralph M. Johnson is general director. The convention is affiliated with the Baptist World Alliance, the National Council of Churches of Christ in U.S.A., and the World Council of Churches.

In 1955, at Atlantic City, N.J., Frank A. Nelson of Racine, Wis., was elected president of the convention for 1955-56.

REUBEN E. NELSON,
General Secretary, American Baptist Convention.

BARA, Theda (real name THEODOSIA GOODMAN), American actress: b. Cincinnati, Ohio, 1890; d. Los Angeles, Calif., April 7, 1955. The prototype of the seductive "vamp" in motion pictures, Miss Bara strongly influenced the feminine fashions of her day and provided a definite impetus to the film industry during her brief career.

Cast as a sinuous temptress in her first motion picture, *A Fool There Was* (1915), she became an immediate box-office "hit." The film industry, capitalizing on her success, launched a publicity campaign of fantastic proportions to create the Bara myth which was to carry her

through four and a half years of undisputed queenship in films. Purported to have been born in the Sahara Desert, daughter of a French artist and an Arabian princess, she was publicized as a modern Circe whose name Theda was an anagram for the word death, and Bara, a reversed spelling of Arab. Theda was actually, however, a contraction of Theodosia, and Bara was the family name of her maternal grandfather, François Bara de Coppet, a Swiss national.

Miss Bara appeared in 40 films from 1915 to 1920, mostly under the aegis of William Fox. These included *The Vampire*, *Madame Du Barry*, *Cleopatra*, *Salome*, *Camille*, *The Vixen*, and *The She Devil*. Each role, to the increasing delight of the public and to the indignation of the clergy, enhanced the box-office attraction of the sultry-eyed vampire. Nevertheless, in 1920 she forced her producer to let her appear in the less spectacular *Kathleen Mavourneen*. In the same year she also attempted her Broadway stage debut in *The Blue Flame*, which, although a personal success, was an artistic failure. Following this role came the disclosure of Miss Bara's very normal American upbringing, her retirement from films, and her marriage to her director, Charles J. Brabin, in 1921.

BARBADOS. This self-governing British colony (area, 166 square miles) lies 102 miles east of St. Vincent (Windward Islands) in the West Indies; its population (222,942, in 1953, of which about 93% were Negro) averages 1,250 persons to the square mile, thus being second in density only to Bermuda in the Western Hemisphere. The capital is Bridgetown (est. pop., 18,000) on Carlisle Bay, in the southwestern part of the island.

The governor (Brig. Sir Robert D. H. Arundell, appointed May 14, 1953) is assisted by an Executive Council, a 15-member nominated Legislative Council, and a 24-member House of Assembly, elected triennially. The prime minister, Grantley Adams, made a goodwill visit to the United States in April 1955. An Executive Committee supervises the general policy of government departments. The plan for a British Caribbean Federation has been ratified by the House of Assembly.

The British West Indian dollar (equals U.S.\$0.5833) is the currency unit. In 1954-55 estimated revenue was BWI\$13,672,184; expenditure, BWI\$12,912,425. The British government has approved in principle the construction of a deep-water harbor for Barbados. In 1953-54 there were 124 primary schools (31,696 pupils); and 10 grant-aided secondary schools (3,115 pupils); the government expended BWI\$2,307,377 on education.

Barbados depends financially on its production of sugar. Benefiting from the recently inaugurated government irrigation project, an above-average crop of 178,960 long tons was harvested in 1954, including the equivalent of 4,130,569 wine gallons of fancy molasses. Some 46,253 acres were under sugarcane. Other industry includes light manufactures. Fish canneries handle the catch of about 600 boats, and the government is helping in the conversion of the fishing fleet to motor power.

Imports (principally of foodstuffs, clothing, and metal manufactures) during the first half of 1954 were valued at BWI\$23,643,700, compared with BWI\$21,252,500 in 1953. Great Britain was the chief supplier. The total value of domestic exports for the first half of 1954 was BWI\$24,-

676,100, compared with BWI\$20,340,100 in the same period in 1953.

Highways total 623 miles of bituminous-surfaced roads. Barbados is served by British West Indian Airways and Trans-Canada Air Lines. (See also **BRITISH WEST INDIES**.)

BARITE. See **MINERAL PRODUCTION**.

BARLEY. See **GRAINS**.

BASEBALL. See **SPORTS, GAMES, AND SHOWS**.

BASKETBALL. See **SPORTS, GAMES, AND SHOWS**.

BASUTOLAND. Bounded by the Orange Free State, Natal, and Cape Provinces of the Union of South Africa, but not part of the Union, Basutoland (area, 11,716 square miles) constitutes one of three British-administered High Commission Territories—the others being Bechuanaland Protectorate and Swaziland (q.v.). The estimated population was 583,000 in mid-1953 (at the 1946 census, 563,845, comprising 561,298 natives, 1,689 whites, 602 mixed races, and 274 Indians). The capital is Maseru (pop., 3,432), where an appeals court was established May 1, 1955, for the three High Commission Territories. Much of the male population provides migrant labor for the South African mines.

The high commissioner (Sir Percival Liesching, assumed office, 1955) is represented in Basutoland by a resident commissioner (E. P. Arrowsmith, appointed 1952). A paramount chief (since 1941, Bereng, a minor; Ma'Ntsebo, senior widow of Chief Seeiso Griffith, is regent) has executive and judicial authority. A 99-member native advisory council elects 5 of its members as a standing advisory committee. In 1953–54 revenue was £1,513,606, including colonial development and welfare grants; expenditure, £1,406,410. Estimated revenue and expenditure for 1954–55 were £1,228,911 and £1,262,617, respectively. Educational expenditure from territorial revenues was £188,076 in 1953–54. There were 835 aided and partially-aided schools (14 secondary, teacher-training, and technical institutions; 68 intermediate schools; 746 elementary vernacular schools). In addition there were 116 unaided private schools. Pupil enrollment was 103,332 in 1954.

Large acreages of corn, wheat, and other subsistence crops are planted. Livestock in 1953 included 406,454 cattle, 92,884 horses, 53,543 donkeys, 1,303,325 sheep, and 550,612 goats. Exports in 1954 totaled £1,930,486, including £916,122 to the United Kingdom; imports, £2,612,007, including £164,967 from the United Kingdom. A spur rail line (16 miles) links Maseru with Marseilles, Orange Free State. A new road into the mountainous hinterland is nearing completion.

BAUXITE. United States production of bauxite on a dried equivalent basis reached a peak of 2,005,927 long tons in 1954, compared with 1,579,739 tons in 1953, according to figures compiled by the U.S. Bureau of Mines. Production during the first half of 1955 reached 975,739 long tons. Imports reached a peak of 5,291,862 long tons in 1954, but a total of 2,429,990 tons for the first half of 1955 indicated a downward trend. Although nearly three fourths of the domestic supply originated in foreign countries, the strategic situation is favorable because the major sources of supply are relatively close as indicated by the following tonnages imported in 1954: Surinam, 3,129,611 tons; Jamaica, 1,987,759 tons; and British Guiana, 174,492 tons. (See **MINERAL PRODUCTION** for output of major producing countries.)

BEANS. See **VEGETABLES**.

BECHUANALAND PROTECTORATE. Bordered by South West Africa, Southern Rhodesia, and the Transvaal Province, and extending between the Molopo and Zambezi rivers, the Bechuanaland Protectorate is the largest of the three British-administered High Commission Territories in South Africa, the others being Basutoland and Swaziland (q.v.); area, about 275,000 square miles. The population, estimated in 1954 at 300,000, was 296,883 at the 1946 census, then comprising 292,754 Africans, 2,325 Europeans, and 1,804 Asians.

The protectorate is administered from Mafeking, Union of South Africa, by a resident commissioner (W. F. Mackenzie). Local rule remains in the hands of African chiefs, heading 8 tribal administrations, of which the Bamangwato (pop., 100,987; capital, Serowe) is the largest. Revenue in 1953–54 totaled £908,255; expenditure, £891,700. British Treasury grants are being used for educational, medical, agricultural, and other development work. Schools in 1954 numbered 162 (African, 148; mixed races, 5; whites, 9). African schools are controlled by tribal committees, which include mission representatives. Supplementing missionary expenditures in 1953–54, a total of £84,085 was spent on education, including £38,835 from native treasuries.

The economy is almost entirely pastoral. Surplus harvests permitted exportation in 1954 of sorghum and millet (83,793 bags, valued at £124,750), against grain importations (chiefly wheat) totaling 32,098 bags (200 pounds each). Minerals worked in the Tati district in 1954 included gold, 1,216 ounces; silver, 292 ounces; and cyanite, 2,054 tons. Asbestos mining in the Bangwaketse Reserve produced 885 tons in 1954. Exports in 1954 were valued at £2,423,683 (cattle, £1,562,067; hides, skins, and karosses, £101,709; sheep and goats, £60,312); imports, £2,053,423.

The government-owned Southern Rhodesia Railways operates on a single track (394 miles) from Ramathlabama to Ramaquabane. There are 1,500 miles of roads (main roads, 550). Airfields are located at Gaberones, Mahalapye, Francistown, Serowe, and Maun, and landing grounds and emergency strips at 10 smaller places. The Union of South Africa operates 9 post offices and 39 postal agencies in the territory.

BEEF. See **MEAT INDUSTRY**.

BEER. See **BREWING INDUSTRY**.

BEETS. See **VEGETABLES**.

BELGIAN CONGO. A Belgian colony in equatorial Africa. Area, 904,991 square miles; pop. (est. mid-1954), 12,250,000, including (as of Dec. 31, 1953) 86,688 Europeans, mostly Belgians. Chief cities and populations (1953): Léopoldville, 257,197; Elisabethville, 117,879; Jadotville, 55,960; and Matadi, 48,351.

The People.—The natives are mainly Bantu and Sudanese tribesmen, with some Nilotics, Pygmies, and Hamites. About 2.6 million natives live outside the tribal areas and are subject to restrictions on movement and on holding of landed property. Several thousand *evolus* hold good-behavior cards which permit a greater degree of freedom. A few hundred natives have been "matriculated," a legal process involving renunciation of tribal ties to assume equal status with whites. Indigenous wage workers numbered 1,146,284 at the end of 1954. Some 120,000 native families had been settled on government-sponsored *payssannat* farm communities by 1954.

Government.—The Belgian governor general is responsible to the minister for the colonies at Brussels, but has unrestricted powers in the Congo. He is aided by a vice governor, a consultative council, and a provincial governor in each of the 6 provinces. There is no legis-

BELGIUM

lature or election of officials, Native chiefs and tribunals, under Belgian supervision, administer customary law on a local scale.

Education and Religion.—Nearly half the native school-age population attends school. At the end of 1953 there were 24,579 schools (mostly conducted by missions) with 1,053,119 native pupils. There are several hundred secondary, vocational, teacher-training, and other specialized schools. The University of Louvain, a Catholic institution, had 29 Africans and 4 Europeans enrolled in 1955, when its buildings were nearing completion. Roman Catholic missionaries numbered 5,937 in 1953; Protestants, 2,260.

Finance.—In the ordinary budget for 1954, revenue was estimated at 7,879,951,000 francs; expenditure, 7,534,844,000. Public investment under the 10-year development plan (1950-59) was 6.2 billion francs in 1954; by mid-1954, a total of 18.2 billion of the projected 48 billion had actually been spent. The Belgian Congo franc equals U.S. \$0.02.

Production.—The colony's vast mineral wealth is exploited by a few giant enterprises. Output of chief minerals in 1954 was (in metric tons): copper, 223,750; cobalt metal, 8,609; zinc concentrates, 150,331; electrolytic zinc, 32,000; cassiterite, 18,350; and manganese ore, 384,937. Gold output totaled 11,215 kilograms; industrial diamonds, 12,092,377 carats; and other diamonds, 527,721 carats. Other minerals include tantalum-columbite, cadmium, wolframite, silver, and coal. The Belgian Congo is also a major source of uranium and other strategic minerals. Industries are chiefly processed foods, construction materials, chemicals, soap, textiles, leather, footwear, glassware, and other light items. Industrial output quadrupled in volume between 1945 and 1953, and provided about 6% of the 1953 national income of 43,160 million francs. Hydroelectric generating capacity rose from 96,500 kw. in 1949, to 275,000 at the end of 1953.

Chief subsistence crops are cassava, corn, rice, sorghum, peanuts, sweet potatoes, and bananas. Principal cash crops and 1954 output in metric tons were: palm oil, 195,245; palm kernels, 118,918; coffee, 28,422; rubber, 25,004; and cacao, 2,643. Cotton production for 1954-55 (prelim.) was 240,000 bales. Forest products include hardwoods, cinchona bark, ivory, derris, skins, and pyrethrum.

Foreign Trade.—Exports from the Belgian Congo and Ruanda-Urundi in 1954 (exclusive of uranium and other strategic ores for which data are not published) totaled 20,224,665,000 francs; imports, 18,492,605,000. Minerals constituted 62% of exports by value; agricultural products, 35%. Chief exports, with values in millions of francs, included: copper, 6,884; cobalt products, 2,065; coffee, 1,935; cotton, 1,524; palm oil, 1,256; and tin ores, 1,035. Imports are mainly textiles, foodstuffs, petroleum products, machinery, and transport equipment. Belgium-Luxembourg took 40% of 1954 exports and provided 37% of imports. Much of the Congo's exports to Belgium are directly transhipped to the United States.

Transportation and Communications.—The Belgian Congo had 76,461 miles of roads (including 19,742 of main roads) and 2,996 miles of public railways at the beginning of 1954. There are 5 major airports and numerous smaller ones. Registered motor vehicles in 1955 included 24,015 passenger cars and 22,777 trucks. Telephone subscribers numbered 11,015 in 1953. In 1955 there were 8 daily newspapers, all in French.

Principal Events, 1955.—King Baudouin I arrived in Léopoldville on May 16 on a 27-day, 3,500-mile tour of the Belgian Congo and Ruanda-Urundi. The young king's visit, the first by a Belgian monarch since 1928, highlighted the considerable economic and social progress

that has taken place in the colony in recent years. On July 31 the \$14 million Tshopo hydroelectric plant was inaugurated at Stanleyville. It was the first of four such plants projected under the 10-year development plan. Another major plant at Zongo Falls, outside Léopoldville, was inaugurated on October 23. A decree signed by King Baudouin on November 8 provided for the establishment of a university at Elisabethville, to be open to both native and European students.

BELGIUM. A constitutional monarchy on the northwest coast of Europe. Area, 11,779 square miles; pop. (est. Dec. 31, 1954), 8,841,000. Chief cities and populations (Dec. 31, 1953): Brussels, the capital (with suburbs), 972,629; Antwerp, 257,634; Ghent, 164,260; and Liège, 155,900. Both French and Flemish are official languages. French is spoken chiefly by the Walloons of the south; Flemish in the north. About two thirds of the population is urban. The birth rate in 1954 was 16.7; the death rate, 11.9; and the infant mortality rate, 49.1. The average life expectancy at birth for the years 1946-49 was 62.0 for males and 67.3 for females.

Government.—King Baudouin I (b. 1930) acceded to the throne on July 17, 1951. The Belgian Parliament is elected for a 4-year term. The Chamber of Deputies (212 members) is elected directly by the people. Of the Senate's 175 members, 106 are elected by the people, 46 by provincial councils, and 23 by Parliament itself. Following the elections of April 11, 1954, seating in the Chamber of Deputies was: Social Christians, 95; Socialists, 86; Liberals, 25; Communists, 4; and independents, 2. Premier Achille Van Acker heads a Socialist-Liberal coalition cabinet formed in April 1954.

Education.—Elementary schools in 1953 included 8,745 primary schools (826,328 pupils), and 4,223 infant schools (324,119). On the secondary level there were 499 free higher-grade schools (78,475 pupils), 158 *écoles moyennes*, 88 royal atheneums, 21 royal *lycées*, and other institutions. Chief institutions of higher education are the universities at Brussels (3,228 students in 1953-54), Ghent (3,075), Louvain (8,381), and Liège (3,195).

Religion.—A majority of the population is Roman Catholic. There are small Protestant and Jewish minorities. Religious freedom exists.

Finance.—Budget estimates for 1954 were: receipts, 80,943 million francs; expenditure, 96,732 million. Twenty-one billion francs was budgeted for defense in 1954. The Belgian franc is equal to U.S. \$0.02.

Production.—Manufacturing, especially heavy industry, and coal mining predominate in the Belgian economy. In 1954, industrial output recovered from the recession of 1952-53, the index of industrial production (base: 1949 = 100) rising to 122, from 114 in 1953. Output of crude steel in 1954 was 5,009,000 metric tons (a rise of 13% over 1953); pig iron and ferroalloys, 4,619,000 (up 10%); coal, 29,429,000 (down 3%); and electricity, 880 million kw.-hr. monthly (up 8%). Cotton yarn production totaled 112,560 metric tons (a rise of 12.5% over 1953), and woven cotton fabrics, 77,040 (up 16%). Other important Belgian industries are metal manufactures, chemicals, construction materials, paper, nonferrous metals, leather, ceramics, foodstuffs, tobacco products, diamond-setting, and footwear. National income in 1954 was estimated at 330.3 billion francs (314.4 billion in 1953).

Chief agricultural yields in 1954 were (in thousands of bushels): wheat, 20,800; rye, 9,000; barley, 10,550; oats, 30,200; and flaxseed, 719. Other important farm products are potatoes (1,569,093 metric tons in 1953), sugar beets, fodder beets, and meat and dairy products. Belgium depends on imports to meet most of her requirements for food and agricultural raw materials.

Foreign Trade.—Exports of the Belgium-Luxembourg Economic Union in 1954 totaled 115

billion francs; imports, 126.7 billion. Exports are chiefly metals and metallurgical products, textiles, mineral products, chemicals, and other manufactures; imports: industrial raw materials, fuels, grains and other foodstuffs, and machinery and vehicles. The Netherlands purchased 21% of 1954 exports; Germany, 10%; and France, 10%. Germany provided 14% of imports; the Netherlands, 13%; and France, 12%.

Transportation and Communications.—The length of railways in 1953 totaled 5,681 miles (standard and meter-gauge track). The highway network included 13,676 miles of state, provincial, and main local roads. The merchant fleet in 1953 aggregated 483,000 gross registered tons. Sabena, the national airline, operates services in western Europe, North America, Africa, and the Middle East. Passenger cars numbered 418,000 in 1954; radio sets, 1,863,000 (1953); telephones, 743,988 (1952); television sets, 15,000 (March 1954). Daily newspapers in 1952 numbered 39, with a total circulation of about 3,343,000.

Principal Events, 1955.—The major issue in Belgian public life during 1955 involved the government's effort to reduce the number and influence of the nation's Roman Catholic schools. The ensuing controversy, the most bitter since the 1950 furore over the return of former King Leopold III, sharply divided the country during the year.

The Socialist-Liberal coalition government of Premier Achille Van Acker, charging that the Catholic schools had been unduly favored under the previous Social Christian governments, introduced a measure into Parliament on May 17 to reduce the government subsidy to Catholic schools from the equivalent of \$74 million in 1954 to \$64 million in 1955. The bill also called for the government to establish and maintain more nondenominational schools and to equalize teachers' standards and conditions as between the two types of schools. (About 930,000 children attend Catholic schools, as compared with 720,000 in nondenominational schools.)

The government proposal was sharply fought by the Social Christian Party and by Catholics throughout the country. On March 26, over a hundred thousand Catholics, largely students, demonstrated in Brussels against the measure, despite a government ban. Tension was high in the capital and several minor clashes took place between demonstrators and police. On March 28, Catholics clashed with Socialist groups at Tongeren and Mons, and a state school was set afire at Couillet. Demonstrations and street fighting took place in Antwerp on April 17, and in Liège on July 2. Another mass protest involving some 150,000 persons took place in Brussels on July 10, although the tension and clashes which had marked the March 26 occurrence were absent. Meanwhile the Chamber of Deputies had passed the bill on June 13 by a vote of 111-1, after the Social Christian deputies had walked out. On July 21 the Senate passed the measure, 91-0, after a similar walkout.

The principal development in the field of foreign affairs was the ratification by Parliament of the 1954 Paris agreements on German rearmament and the expansion of the Western European Union. The Chamber of Deputies voted its approval on January 20, by 181-9 (with 2 abstentions), and the Senate voted its accord on April 6, by 142-2 (with one abstention).

In the economic sphere, the recovery of 1954 developed into a moderate prosperity in 1955, based on strong demand for iron and steel prod-

ucts, metallurgical goods, and coal. Some industries, however, such as textiles and leather, showed weaknesses in the face of foreign competition. Unemployment in the second quarter of 1955 was the lowest in seven years, the June total amounting to 137,000, as compared with 207,000 in June 1954. In the first eight months of 1955, exports were some 20% over those of the like period of 1954. Following the announcement in December 1954 of a \$50 million loan by the International Bank for Reconstruction and Development for the modernization of Belgian internal waterways and the port of Antwerp, the Netherlands Bank on March 11, 1955, announced a loan of 100 million guilders to the Belgian government.

M. J. G.

BENELUX ECONOMIC UNION. A projected union of the economies of Belgium, the Netherlands, and Luxembourg. Major decisions are made by a Benelux ministers committee, subject to ratification by the respective parliaments. Beginning in 1948, steps toward union included adoption of a uniform tariff system on goods from the outside, elimination of tariffs on many goods traded between members, and reduction of tax differences. A common trade and payments policy toward other nations was inaugurated on March 1, 1954, and capital movement between member nations was considerably liberalized beginning July 16, 1954. However, full economic union, originally set for 1950, has not been attained mainly because of differences in wage levels and agricultural costs between Belgium and the Netherlands. At a conference of Benelux ministers held at Brussels on May 3, 1955, it was agreed that agricultural policies of member nations would be coordinated within a period of seven years (1955-62) to permit free exchange of farm products.

BENSON, Ezra Taft, U.S. secretary of agriculture: b. Whitney, Idaho, Aug. 4, 1889. After an extensive career in agriculture as a farm manager at Whitney (1923-29), as an economics and marketing specialist for the University of Idaho (1930-38), and as executive secretary for the National Council of Farmer Cooperatives (1939-44), Ezra Benson took office as U.S. secretary of agriculture on Jan. 21, 1953.

One of the more controversial figures in the Eisenhower administration, Benson has forthrightly held the view that the American farmer does not wish to be dependent on the federal government. He has consistently advocated the program of flexible (75%-90% of parity) price supports which was enacted in the Agricultural Act of 1954. Faced in 1955 with a continuing decline in farm prices (4% to 5% from 1954 levels), Benson offered proposals, which President Eisenhower submitted to Congress on April 27, for improving economic and social conditions for the nation's 1.5-million low-income farm families.

A major controversy in which Benson became involved in 1955 was the case of Wolf I. Ladejinsky, land-reform expert, whom the Department of Agriculture had suspended as a security risk in December 1954, and who was hired by the Foreign Operations Administration on Jan. 5, 1955. Benson publicly admitted on September 27 that his department had erred in originally firing Ladejinsky as a security risk.

BERLIN. See GERMANY.

BERMUDA. This British colony in the Atlantic Ocean, lying 580 miles east-southeast of Cape

Hatteras, North Carolina, comprises some 300 small islands, of which about 20 are inhabited, notably Main Island (on which is Hamilton, the capital), St. George's, St. David's, Somerset, and Ireland. The total land area is 20.58 square miles; the civilian population of 40,445 (1954 est.) includes 25,047 colored. Strategically important, Bermuda is the base of the American and West Indies Squadron. Since 1941, 2.83 square miles have been used under a 99-year lease for the operation of United States naval and air bases, on Tucker and Morgan, and St. David's and Longbird islands, respectively. The British garrison was withdrawn on April 25, 1953, after an occupancy of 156 years, but was restored on March 1, 1954. The Bermuda Rifles and the Bermuda Militia are recruited locally.

A governor appointed by the crown (Lieut. Gen. Sir John Woodall, assumed office in 1955) is assisted by a 7-member Executive Council (including 4 nonofficials), an 11-member Legislative Council (including 8 nominated nonofficials), and a House of Assembly (the oldest British colonial parliament) of 36 elected members. Revenue in 1954 was £2,976,251; expenditure, £3,389,381. Expenditure on education totaled £405,049 in 1954. There were 46 schools in 1954 (8,770 pupils), including 35 primary (government, 19; state-aided 1; private, 15); and 11 secondary (state-aided, 8; private, 3). The colony's healthful subtropical climate and beautiful scenery attract large numbers of Americans; they are not required to have passports. Nearly three fourths of the 89,071 visitors in 1954 arrived by air. Automobiles may not exceed 166 inches in over-all length and 14 hp.; a maximum 20-mph. speed limit is strictly enforced on the 127.81 miles of narrow, winding, hilly roads. No used cars may be imported.

In 1954 imports had an aggregate value of £12,458,711 (United States, £5,626,835; Great Britain, £2,520,430; Canada, £1,097,383); exports, including re-exports of bunkers and ship stores, £1,204,223, and alcoholic liquors, £116,308, totaled £3,246,312 (concentrated essences, £85,083; cut flowers, £26,049; pharmaceutical products, £10,301). Regular air services are operated by 8 principal companies to the United States via New York, Canada, Cuba, Mexico, Venezuela, the Caribbean, the Azores, Great Britain, and Europe.

BERNARDES, Artur da Silva, former president of Brazil: b. Viçosa, Minas Gerais, Brazil, Aug. 18, 1875; d. Rio de Janeiro, March 23, 1955. After taking his LL.B. degree from the University of São Paulo in 1900, Bernardes established a law practice in his native Viçosa. He entered politics in 1907 as a deputy in the state government of Minas Gerais. In 1909 he was elected to the federal Chamber of Deputies, and later he won election to the Senate. He also served as secretary of finance and later as president (1918-22) of Minas Gerais.

Bernardes was elected president of Brazil on March 1, 1922, over the bitter opposition of conservative army officers led by a former president, Marshal Hermes da Fonseca. Because the country continued to be in the throes of a depression following the administration of Epitácio da Silva Pessôa, Bernardes was forced to introduce an unpopular policy of strict economy, cutting government expenditures drastically and introducing new sources of revenue such as the income tax. Continually harassed by the hostility of the conservative military clique during his entire four

years in office, he was forced to impose martial law and to suppress three revolutionary uprisings. The most destructive revolt occurred in July 1924 in São Paulo, and was put down in early 1925.

In 1932, Bernardes participated in the abortive São Paulo revolt against the provisional dictatorial government of Getúlio Vargas. Exiled by the latter, he went to Portugal, where in 1934 he was named professor of Brazilian studies at the University of Lisbon. He returned to Brazil soon afterward, when the president decreed a general amnesty for political exiles. In his last years he led the parliamentary fight against the operation of foreign capital in Brazil.

BERYLLIUM. The mineral beryl is the only commercial ore of beryllium. World output of beryl reached only 5,700 metric tons in 1954, compared with 8,400 tons in 1953, and the United States produced only 10% of the world total. (See MINERAL PRODUCTION for output of major countries.)

United States production declined from 751 short tons in 1953 to 669 tons in 1954. As imports also declined from 8,245 short tons in 1953 to 5,816 tons in 1954, total supply was at the low level of 6,485 tons, compared with 8,996 tons in 1953. Consumption also dropped from 2,661 tons in 1953 to 1,948 tons in 1954; and industry stocks were, respectively, 4,987 and 4,101 short tons.

BETHUNE, Mary McLeod (née MARY McLEOD), American Negro educator: b. Mayesville, S.C., July 10, 1875; d. Daytona Beach, Fla., May 18, 1955. Former president of Bethune-Cookman College, she was nationally known for the dedication of her life to Negro advancement through education and for her contributions to interracial goodwill.

The 17th child of parents who had been slaves, she received her elementary education in a one-room school house in the vicinity of Mayesville. Later she was able to attend Scotia Seminary, a normal school in Concord, N.C., from which she was graduated in 1893. She spent the next two years at the Moody Bible School in Chicago, and was graduated in 1895.

She began her career as an educator in 1897, when she was appointed an instructor at the Haines Institute in Augusta, Ga. From 1899, the year in which she was married to Albert L. Bethune, a teacher from Savannah, Ga., until 1903, she taught at the Palatka (Fla.) Mission School. In 1904 Mrs. Bethune founded the Daytona Normal and Industrial School for Girls, which merged in 1923 with the Cookman Institute to become the coeducational Bethune-Cookman (junior) College. She served as the institution's president from 1904, when its enrollment was five students, until 1942, when its student body numbered nearly a thousand.

During two terms (1936-44) of President Franklin D. Roosevelt's administration, Mrs. Bethune served as director of the Division of Negro Affairs in the National Youth Administration and as special presidential adviser on minority affairs. She was a consultant to the United States delegation to the United Nations Conference at San Francisco in 1945.

An indefatigable and versatile worker, she held important posts in numerous organizations dedicated to the welfare of the Negroes. These included principally the National Association for the Advancement of Colored People, in which she held a vice presidency, and the National Council of Negro Women, of which she was the founder

and president. For her distinguished services to the Negro people, Mrs. Bethune received the Spingarn Medal in 1935 and the Francis A. Drexel Award in 1936.

BETTING. See Index entry, *Gambling*.

BHUTAN. Crossed by snow-capped mountain ranges rising to more than 24,000 feet, this autonomous protected Himalayan state is bounded on the north and east by Tibet, and on the south and west by the Indian state of Assam and territory of Sikkim, respectively. Area, 18,000 square miles; pop., est., 300,000. Bumthang has superseded Punakha as the winter capital; Tashi Chho Dzong, site of the largest lamasery (300 priests), is the summer capital. The religion of the dominant Bhotias (descendants of Tibetan Mongolian race) is Lamaism.

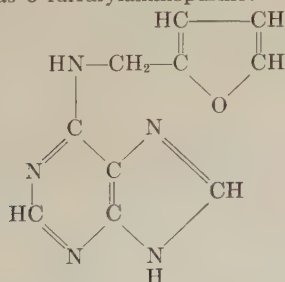
Formerly a British protectorate, Bhutan in 1949 gave India the direction of its external affairs, and receives an annual subsidy of Rs.500,000 from the Indian government. India's political officer in Sikkim represents his government in both Tibet and Bhutan, and an agent of Bhutan is stationed in Kalimpong, West Bengal. Maharajah Jigmi Dorji Wangchuk (installed Oct. 27, 1952), is the present hereditary ruler.

Chief crops are corn, rice, millet, wheat, and mustard. Iron, copper, and silver are mined for use in the making of temple vessels, swords, and muzzle-loading rifles. Needlework is a special art in the lamaseries. Livestock breeding includes a type of hardy mountain pony.

BICYCLING. See SPORTS, GAMES, AND SHOWS —Cycling.

BILLIARDS. See SPORTS, GAMES, AND SHOWS.

BIOCHEMISTRY. **New Substances.**—It has been demonstrated that certain plant cells can grow and increase in weight but cannot divide unless a special cell division factor, called kinetin, is present. This substance cannot produce its maximal effect, however, unless the well-known growth hormone, auxin, is simultaneously present. Kinetin has been isolated from the desoxyribonucleic acid fractions from such diverse sources as herring sperm and calf thymus. Degradation studies and synthesis have established the structure as 6 furfurylaminopurine:



Neuraminic acid was first isolated many years ago, but attracted relatively little attention. As a result of a number of new studies, it has been shown to be widely distributed in animal tissues and fluids. Through the use of analysis and actual isolation, it has been found in serum, saliva, and associated with mucinous materials of the submaxillary gland and urine. It is present in the gray matter of the brain (but not in the white) and, interestingly, the concentration is markedly elevated in the brain of children afflicted with infantile amaurotic idiocy (Tay-Sachs disease). Investigations on human milk have also shown it to be present in this fluid.

New research on human milk has demonstrated the first truly qualitative difference from bovine milk. A polysaccharide containing the sugars glucosamine, galactosamine, galactose, and fucose was accidentally discovered in human milk because it proved to be a growth factor for a new strain of the bacterium, *Lactobacillus bifidus* var. Penn, isolated from the stools of nursing infants. This substance is absent from cow's milk. It is not known, however, whether this polysaccharide increases the nutritional value of human milk for the human infant.

While methyl mercaptan is not a new substance to the organic chemist, it has now been uncovered as the substance responsible for the strange odor of the breath and urine of individuals suffering from severe liver disease. It presumably arises from the metabolic destruction of the amino acid, methionine, which is found in high levels in the sera of such patients. Since methyl mercaptan and methionine are toxic in high concentrations, these may aggravate the symptoms of the disease.

Hemoglobin.—Hemoglobin, the red substance of the red blood cell, is composed of two portions—heme, an iron-containing red compound, and globin, a colorless protein. It had long been known that at least two kinds of hemoglobin existed: the hemoglobin of the normal adult, and fetal hemoglobin, found to a large extent in the red cells of the fetus and newborn but disappearing from the blood of the child in about a year. Several years ago an additional hemoglobin was discovered to be present in the red cells of individuals having sickle-cell anemia. Intensive study of the hemoglobins of humans suffering from hemolytic anemias have now shown that at least six abnormal hemoglobins exist. These are designated *a* to *h*; *a* and *f* are normal adult and normal fetal hemoglobin respectively; hemoglobin *b* is present in the erythrocytes of individuals suffering from sickle-cell anemia; the other letters refer to additional abnormal hemoglobins.

The abnormal hemoglobins differ from the normal only in the protein moiety; the heme, or iron-containing portion, is identical in all. The presence of these hemoglobins is genetically controlled, and the individual possessing one gene for an abnormal hemoglobin and one for normal hemoglobin usually has a mixture of normal and abnormal hemoglobins in his red cells; this type of person is largely free of clinical disease. If a gene for abnormal hemoglobin is obtained from each parent, then the offspring suffers from hemolytic anemia.

Curiously, the gene for abnormal hemoglobin does not have to be the same one from each parent to cause disease. Thus, if an individual inherits the gene for sickle-cell hemoglobin from one parent and hemoglobin *d* from the other, he will suffer from sickle-cell hemoglobin *d* disease, and both types of hemoglobin can be found in his red cells. A number of hemoglobin combinations have been found to lead to disease, even though the parents are symptom free, since each parent has only one gene for the abnormal type, the other gene representing the normal type.

Nutrition and Metabolism.—Experiments carried out over a period of many years have established that certain amino acids are essential for human nutrition while others are not; the latter type of amino acid is synthesized by the body cells and therefore need not be ingested intact. It has now been found that no mixture of amino acids is a complete substitute for the protein from which they are derived. It requires an increased

caloric intake to maintain nitrogen balance in an adult if the diet contains a mixture of individual purified amino acids, rather than whole protein. It therefore appears that the idea that proteins are of nutritional value only because of the amino acids they contain is something of an oversimplification. The complete protein, therefore, may contain some new component as yet unidentified, or, more likely, the body can use relatively large products of protein breakdown with greater efficiency than it can the ultimate products of protein digestion—the single amino acids.

The metabolism of carbohydrates by means of the pentose cycle was discovered a few years ago. In this cycle, glucose is oxidized to gluconic acid, then degraded to carbon dioxide and the five-carbon sugar, ribulose. Two of the five-carbon units interact and are converted to a three-carbon sugar and a seven-carbon sugar, sedoheptulose; the seven-carbon sugar is converted to glucose, thereby completing the cycle. (See also CHEMISTRY.)

HAROLD BAER,

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BIOGRAPHY. See Index entry, *Literature*; also bibliographical articles in their alphabetical order.

BIOLOGY. See Index entry.

BIRDS. See Index entry.

BIRTH STATISTICS. See Index entry, *Births*.

BISMUTH. Bismuth is produced in substantial quantities in the United States as a byproduct in the refining of lead, but these figures are not published. Imports reached 708,300 pounds in 1952, 641,400 in 1953, and 644,300 in 1954. Exports for these years were, respectively, 244,800 pounds, 117,300 pounds, and 137,900 pounds. Domestic consumption was 1,775,000 pounds in 1952, 1,568,000 pounds in 1953, and 1,439,000 pounds in 1954. Imports in the first half of 1955 totaled 301,800 pounds; exports, 145,700 pounds; while consumption showed a strong upward trend to 926,000 pounds. (See MINERAL PRODUCTION for output of major producing countries.)

BLIND, Aid to the. See Index entry.

BLOOD DISEASES. See Index entry, *Blood*.

BOATING. See SPORTS, GAMES, AND SHOWS.

BOLIVIA. A South American republic covering an area of 424,162 square miles, landlocked Bolivia is bordered on the west by Chile and Peru, on the north and east by Brazil, on the southeast by Paraguay, and on the south by Argentina.

Population.—The latest official estimate (Nov. 1, 1954) placed Bolivia's population at 3,162,000, as compared with 3,019,031 at the 1950 census. The population density is slightly over 7 persons per square mile. Principal cities, with 1954 estimated populations, are La Paz, the seat of the national government (360,000); Cochabamba (80,000), Oruro (50,000); Potosí (40,000); Santa Cruz (35,000); Sucre, the legal capital (35,000); and Tarija (20,000).

Most of Bolivia's population is concentrated in the higher altitudes, and particularly in the altiplano plateau at heights ranging from 12,000 to 14,000 feet. La Paz, at 12,200 feet, is the world's highest big city. About 33.5% of the population is urban. The official language is Spanish, but large segments of the population speak only Indian languages, including Quechua, Aymará, and Guaraní. About 75% of the population is Indian, the remainder being composed of mestizos (cholos) and people of European descent.

Government.—Under the Constitution of 1938, as revised in 1945 and 1953, Bolivia is a unitary republic. Executive authority rests in a president who is elected directly for a six-year term, but is not eligible for immediate re-election. President Victor Paz Estenssoro took office on April 16, 1952; his National Revolutionary Movement (MNR) controls the government. The 12-man cabinet may be questioned by Congress, but is responsible only to the president. The 27 senators and 112

deputies who make up Congress are elected directly for four- and six-year terms, respectively.

Finance.—The Bolivian budget for 1955, approved by the cabinet on April 29, estimated expenditures at 30.3 billion bolivianos (U.S.\$1 = 190 bolivianos on the official market, and about 4,000 on the free market) and receipts at 29.3 billion. It was expected that taxes would yield 26.9 billion bolivianos. Government obligations, estimated at 8.2 billion bolivianos, comprised the largest proportion of expenditures; the estimate for education was 4.2 billion, and for national defense 3.6 billion.

Education and Religion.—Only an estimated 25% of the children of school age attend the 2,200 primary and 60 secondary schools, despite a constitutional provision for free compulsory education for all between the ages of 7 and 14 years. Higher education for some 7,000 students is supplied by 5 universities. In 1954 the Ministry of Education, responsible largely for urban schools, reported a total registration of 167,000 in public schools and 29,700 in private schools. This number included 123,887 in primary schools and 20,227 in high schools. For the same year the Ministry of Rural Affairs, responsible for rural education, reported a total enrollment of 105,686, largely in the first three grades. Roman Catholicism is the established religion, but free religious practice is guaranteed by the constitution.

Economic Developments.—For many years tin production has been the basis of Bolivia's economy, with taxes on its export providing about 70% of all funds for governmental operations, but phenomenal oil production added another major source of income in 1955.

Bolivia's tight exchange situation has been reflected in a steadily rising cost of living. An index calculated by the Central Bank of Bolivia shows the cost of living to have risen from 100 in April 1953 to 411 in December 1954. As a means of combating inflation, the Bolivian government has been emphasizing the greater need for the investment of foreign private capital, a radical departure from its recent nationalizing policies.

In March 1955, the government authorized general wage and salary increases. Increases authorized for male day laborers were from 70% to 75%, and for male salaried employees in private industry from 51.9% to 75%.

The United States approved \$18 million in aid on Jan. 20, 1955, including \$5 million for development assistance and nonsurplus foodstuffs and \$8.7 million worth of United States surplus food products. These funds were in addition to the more than \$4 million authorized in 1954.

Agriculture and Food Supplies.—A limited foreign exchange and an outmoded system of agricultural production have resulted in a general scarcity of basic foods. Decreases in exports during the period 1953–55 have forced the government to take substantial measures to increase the production of food. Government agencies are making special efforts to meet the urgent need for increased foodstuff production, especially of wheat (of which an estimated 30,000 tons are produced annually, as compared with a consumption of 150,000 tons), rye, rice, and potatoes. The Servicio Agrícola Interamericano, a technical service offered jointly by the Bolivian and United States governments, worked more than 10,000 acres of land in 1954. Despite all efforts, however, the government's program of agrarian reform has not attained a level of agricultural production commensurate with the country's needs.

Mining.—The value of Bolivian mineral production declined from \$121.1 million in 1953 to \$100.8 million in 1954. Exports of leading minerals in 1954 were as follows, in metric tons: tin concentrates, 29,287; tungsten, 2,667; lead, 18,227; antimony, 5,217; zinc, 20,398; and copper, 3,661. The temporary agreement signed in June 1953 by Patiño Mines and the Mining Corporation of Bolivia, under which owners receive com-

pensation for the nationalized tin mines, was renegotiated in 1955. Similar agreements were proposed to the other big mining interests, Hochschild and Aramayo.

In addition to export outlets for Bolivian petroleum products in Argentina, Chile, and Brazil, obtained in agreements signed in 1954, negotiations were begun with Paraguay in January 1955 to supply the Chaco region with 1.2 million liters of gasoline and 300,000 liters of kerosine annually; the first shipments were made in June. Total Bolivian petroleum production rose from 95,522,000 liters in 1953 to 269,482,000 liters in 1954. Construction of a \$4 million pipeline from Camiri to the Argentine border was completed on July 1, 1955; under an Argentine-Bolivian agreement, it was to carry 2,500 barrels of crude oil daily.

Foreign Trade.—Exports in 1954 amounted to \$94,300,000 and imports to \$65,500,000, as compared with \$124,522,072 and \$68,006,168, respectively, in 1953. Imports from the United States were heavy enough to require the establishment of the Bolivian Government Central Purchasing Agency in New York. Important imports included \$500,000 in raw cotton and \$14 million in foodstuffs. In addition, Bolivia acquired, under economic assistance from the United States, foodstuffs valued at over \$2 million.

Transportation and Communications.—Bolivia has approximately 1,500 miles of completed railway, including government-owned and private lines. A line from Yacuiba, Argentina, to Santa Cruz, Bolivia, was expected to be completed by October 1956, and one from Corumbá, Brazil, to Santa Cruz was completed in January 1955. The latter is a 423-mile line, supplying the final link in a 2,300-mile road and railway system reaching from the port of Arica, Chile, to Santos, Brazil, on the Atlantic Ocean. It connects the Bolivian oilfields with the largest center of industry in South America, and provides Bolivia with its first access to the Atlantic.

About 6,500 miles of roads and highways are available for Bolivia's 22,569 automotive vehicles (including 6,218 passenger cars and 14,395 trucks), exclusive of those belonging to the army. In 1955 the Export-Import Bank approved a loan of \$4.7 million to complete the paving of the 300-mile Santa Cruz-Cochabamba highway, linking the highlands with the rich agricultural lands east of the Andes.

Airway services operating in Bolivia are Lloyd Aéreo Boliviano and Pan American-Grace Airways (Panagra) which links Bolivia with other points of the Americas. The Lloyd Aéreo Boliviano line carries about 55,000 passengers and 33 million pounds of freight per year.

Principal Events, 1955.—Some 75 persons were arrested in April 1955 in connection with an alleged revolutionary plot to assassinate President Paz Estenssoro. Financial backing for the plot was attributed to the "nationalized tin companies. . . ."

On January 5, President João Café Filho of Brazil joined President Paz Estenssoro at Santa Cruz, where they jointly inaugurated the completed railroad from Corumbá to Santa Cruz. On August 4, President Carlos Ibañez of Chile paid an official five-day visit to Paz Estenssoro, allegedly for the purpose of discussing problems of mutual interest to the two countries.

During 1954 and early 1955, President Paz Estenssoro frequently refuted allegations, both foreign and domestic, that his government had

Communist leanings, labeling the Communists enemies of the regime. The government estimates that members of the Communist Party number only about 3,000; they lack a leader whose popularity even remotely approaches that of the president.

During 1955, Bolivia made notable efforts to create a climate favorable to the increase of foreign trade and the investment of foreign private capital. The president assured potential investors that no systematic policy of nationalization exists, and responsible labor leaders seemed to support this view.

OLEN E. LEONARD,
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BONDS. See STOCKS AND BONDS.

BOOK PUBLISHING AND SALES. Generally speaking, 1955 was devoid of spectacular new developments, but it was by far the year of greatest expansion and growth for the United States book industry.

Copyright continued to hold the center of attention in the industry during 1955. The United States acceptance of the Universal Copyright Convention in 1954 was that year's most dramatic event. Including the United States, ratification by 12 countries had been needed to make the Universal Copyright Convention operative. On June 16, 1955, the principality of Monaco became the 12th country to ratify. By September 16, when this great boon to the literary world became a reality, 30 other countries had signed but not yet ratified, and at year's end the ratifying total was approaching 20. (See also COPYRIGHTS.)

The year 1955 produced an estimated increase of between 6% and 8% in dollar sales of books. This compares with a 1% to 2% increase in 1954 over 1953. The growth of the hard-bound trade book market since 1929 may be observed in a report released by the American Book Publishers Council covering statistics extending through 1954. The number of copies of adult general books, including book club sales, sold in various years since 1929 was as follows: 1929, 73 million; 1939, 48 million; 1947, 110 million; 1954, 115 million (an increase of 57% over 1929). Sales of juvenile books, including the 25-50-cent lines, were as follows: 1929, 37 million; 1939, 35 million; 1947, 54 million; 1954, 95 million (an increase of 157% over 1929).

Domestic book output for the United States in 1955 totaled 12,589 titles, of which 10,226 were original publications and 2,363 were revised editions of previously published books. Figures for 1954 and 1955 compare in various categories as follows: fiction, 2,073 titles in 1955, as against 2,098 in 1954; general literature and criticism, 660, as against 558; and children's books, 1,485, as against 1,342. Educational titles numbered 274 in 1955 (264 in 1954), and religious titles, 849 (875 in 1954).

Paper-back publishing of the mass market variety made important strides in sales and editorial content as well as in art work and design. No absolute figure is obtainable, but the number of units sold in 1955 was well up over that of the previous year, probably exceeding the 300 million mark. A companion trend making for much better health of the market was the very noticeable decrease in dealer returns of unsold stock.

Similar developments took place in the so-called better paper-back field where prices are

higher than the drug-stationery store variety, and where distribution is confined largely to bookstores. These quality paper-backs were up in sales by 50% over 1954, and reached a figure somewhere between 2½ and 3 million units sold. Although representing an important trend, these sales were but 1% of the mass market figure.

The past year witnessed the spread of interest in the possible connection between "crime and horror" comics and juvenile delinquency. Thirty state legislatures had that topic up for consideration, and some of them passed measures aimed at curbing delinquency by censoring certain kinds of books and magazines. Among these states were New York, Connecticut, Maryland, Ohio, and Washington. In many quarters the constitutionality of these bills was questioned, and many booksellers and newsdealers complained that they imposed undue and impractical restrictions. (See also CENSORSHIP.) The Post Office Department tightened its enforcement of restrictions on the use of the mails for the circulation of subversive or indecent publications. Sen. Estes Kefauver of Tennessee conducted a thorough investigation of the distribution of pornographic material.

At its annual national convention, and at a series of regional meetings held throughout the country, the American Booksellers Association gave formal recognition to the desirability of establishing a national TV program designed to promote books. By the close of 1955, plans were under way to make such a program a reality before the end of 1956.

In his report to the nation on the Summit Conference of heads of state in Geneva (see GENEVA CONFERENCE), President Eisenhower singled out books as a prime medium for the cultural exchange which was to mark the easing of the cold war between East and West. Hopes were raised and preliminary plans were made for a large-scale interchange of books, but these hopes suffered along with the rest of the agenda at the October-November Geneva meeting when the Big Four foreign ministers failed to reach agreement.

American books exported to free countries of the world through normal commercial channels jumped from an estimated \$6 million in 1939 to about \$40 million in 1955. Public and private agencies in the United States (the U.S. Information Agency, foundations, and other groups) expanded their translation and other programs designed to increase the availability of books abroad. Representatives of these agencies met with publishers, librarians, educators, and business executives in late September at Princeton, N.J. This conference on American Books Abroad, sponsored by the National Book Committee, discussed ways and means of finding out what books are needed and how to deliver them overseas. The reverse flow of books was similarly impressive with imports of translations from the Far East, especially from Japan, showing a marked increase in 1955.

(See also AMERICAN LITERATURE; CANADIAN LITERATURE; CHILDREN'S LITERATURE.)

JOSEPH A. DUFFY,

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BORNEO. Lying north of Java, northeast of Sumatra, and separated from Celebes by the Macassar Strait, Borneo (area, 286,916 square miles) is the largest among the four principal islands of the Malay Archipelago, and the third largest island in the world. Near its greatest

width (600 miles) it is crossed by the equator. British Borneo, occupying the northern part of the island, comprises the contiguous colonies of Sarawak and North Borneo, the former containing in two separate areas the protected sultanate of Brunei. The island settlement of Labuan (pop., 8,784 in 1951; capital and chief town, Victoria) was attached to North Borneo on July 15, 1946. Formerly known as Dutch Borneo, the southern part of the island (208,232 square miles, or 73.79%) became a constituent unit in 1949 of the Republic of Indonesia (q.v.), known as Kalimantan.

The areas, populations, and capitals of the components of British Borneo are as follows:

	Area (sq. mi.)	Population (1955 est.)	Capital
North Borneo.....	29,837	355,000	Jesselton (11,704)
Sarawak.....	47,071	602,000*	Kuching (37,954)
Brunei.....	2,226	52,600	Brunei (13,500)
Total.....	78,684	1,009,600	

* Midyear 1954.

The three British territories are coordinated administratively with British Malaya by a commissioner general in Southeast Asia (Sir Robert Heatlie Scott), and are served juridically by a single supreme court.

The area is rich in natural resources. In Brunei the largest oil fields in the British Commonwealth are operated, and petroleum is also an important export of Sarawak. Rubber, the most valuable export of North Borneo, is produced also in Brunei and Sarawak.

Malayan Airways operates a service five times a week from and to Singapore, with service to Kuching and Sibiu in Sarawak; to Labuan; and to Jesselton and Sandakan in North Borneo. An international airport is being built in Brunei.

NORTH BORNEO

The colony is located at the northern end of British Borneo, northeast of Sarawak and Brunei. A governor (R. E. Turnbull, assumed office March 4, 1954), is assisted by a 9-member Executive Council (including 4 nonofficials—1 native, 1 Chinese, 2 Europeans), and a 22-member Legislative Council (including 10 nonofficials—3 natives, 3 Chinese, 1 Eurasian and 3 Europeans). Revenue in 1954 was M\$34.4 million; expenditure, M\$35.6 million (one Malayan dollar = 32.5 U.S. cents), including Reconstruction and Development and Colonial Development allocations of M\$10.5 and M\$3.8 million, respectively, and loan expenditures of M\$4.5 million. No further subvention to the budget was to be sought from the United Kingdom after 1955.

Schools of all types at the end of September 1954 numbered 249 (government 75, including a trade school and a teacher-training college; mission, 67; Chinese, 81; and others, 26), with a total enrollment of 26,420, of whom 1,994 were receiving secondary education.

Estimated crop acreages and production in 1954 included rice, 73,125 (50,220 tons of paddy); rubber, 120,418 (17,115 tons exported); copra, 45,663 (26,645 tons exported, including re-exports); and hemp, 3,900 (1,876 tons exported). Production in 1954 of high-grade cigar wrapper leaf for the European market was estimated at 280,000 pounds. Acreage under native tobacco in 1954 was estimated at 1,200 acres, producing about 720,000 pounds of prepared tobacco, most of which went to local markets. Exports of estate- and native-grown tobacco totaled 311,326 pounds. Forests occupy 77% of the total land area. Production of timber in 1954 was 14,905,437 cubic feet, of which 10,472,623 was exported.

Imports in 1954 were valued at M\$74.3 million; exports, M\$77.2 million, including rubber, M\$24 million; timber, M\$17.4 million; copra, M\$13.8 million, including re-exports; and tobacco, M\$3.5 million.

A 116-mile railway connects Jesselton on the west coast with Tenom in the interior, and extends to Weston on Brunei Bay. In 1954, metalled roads totaled 248 miles; earth roads, 249 miles. Sandakan, Jesselton, Labuan, and Tawau are the major ports.

SARAWAK

The colony comprises a 450-mile coastal strip of northwestern Borneo. A governor (Sir Anthony F. Abell, assumed office April 4, 1950) is assisted by a Supreme

Council and a 25-member Council Negri (State Council), which includes 11 nominated nonofficials and 14 natives who are members for life. Recommendations are under consideration for a nonofficial majority on the council.

In 1954 there were 31 district schools, staffed by 74 teachers, with 2,239 pupils; 112 local-authority schools (174 teachers, 5,515 pupils); 54 private schools (66 teachers, 2,573 pupils); 94 mission schools (381 teachers, 10,622 pupils); and 242 Chinese schools (1,084 teachers, 30,084 pupils). Pupil enrollment totaled 52,788, and estimated expenditures on education, M\$2,-218,547.

The chief tree crop is rubber. Under the government's development plan, M\$1.5 million has been allocated for rubber replanting projects, with a subsidy to cultivators of M\$200 per acre. Sarawak's staple food is rice. In spite of excellent harvests in 1953 and 1954, production fell short of requirements; 23,477 metric tons were imported in 1954. Sago is grown on 150,000 acres; coconut plantations occupy 21,000 acres. Natural forests cover 34,000 square miles; forest revenue, including exports to 14 countries of 29 different kinds of timber, totaled M\$1,198,365 in 1954.

Oil production at Miri by the Sarawak Oilfields (a subsidiary of the Royal Dutch Shell Oil Company) totaled 503,429 barrels, valued at M\$3,687,142 in 1954. Other mineral production in 1954 included phosphate (620 long tons, M\$101,120) and building materials (M\$1,068,744, est.).

Exports in 1954 were valued at M\$425,984,000, including petroleum, M\$300,089,301; rubber, M\$31,078,000; and pepper, M\$43,688,400. Imports were valued at M\$397,517,000, including foodstuffs, M\$46,172,400; petroleum, M\$268,922,100; and manufactured goods, M\$36,793,300.

There are 470 miles of roads, but rivers afford the principal means of internal transportation. A broadcasting station was opened in 1954.

BRUNEI

The territory of Sarawak divides this British-protected sultanate on the northwest coast into two separate parts. The governor of Sarawak is high commissioner, and a British Resident (J. C. H. Barcroft) heading an 11-member State Council, administers the state on behalf of Sultan Sir Omar Ali Saifuddin (acceded June 6, 1950), aided by district advisory councils. From these councils it was proposed in 1955 that representatives be selected to serve as members of the State Council. Malays (41% in 1951) predominate in the population, of which other indigenous races compose 25%, and Chinese, 24%.

Coastal oilfields at Seria, operated by the British Malayan Petroleum Company (subsidiary of the Royal Dutch Shell Oil Company), are the largest in the British Commonwealth, making Brunei a wealthy state, with revenue (75% from petroleum royalties) exceeding expenditure by M\$75.52 million in 1953. Revised estimates in 1953 showed revenue of M\$99,367,000; expenditure, M\$23,845,500 (M\$589,000 for education). Brunei's M\$100 development plan, introduced in 1954, includes agricultural improvement and provision from the territory's own resources for communications, power, health service, and education, the latter being extended free at primary level to all children between the ages of 6 and 12 years. Schools in 1953 numbered 48 (Malay 34; mission, 6; and Chinese, 8), with aggregate enrollment of 7,144. Payment of old-age and disability pensions of M\$20 per month to all persons over 60 years of age came into effect April 1, 1955.

Crude oil exports, sent by pipeline to the Lutong refinery in Sarawak, totaled 4,712,000 tons in 1954. Plantation rubber is also a valuable export. There are no railways. Highways total 160 miles (56 miles all-weather).

DONOVAN ROWSE,
Author and Publicist.

BOSTON. Chief city of New England and most populous capital city in the United States, Boston is one of the smallest in area (47.8 square miles) of any large city, but ranks 10th nationally in population (1954 est., 829,598). The Boston metropolitan area ranks 6th nationally in population (2,369,986 in 1950).

The new city charter, adopted in 1951, provides for a mayor with a term of four years and a City Council of nine members elected at large and without party designations for two-year terms. In the election of Nov. 8, 1955, the incumbent mayor, John B. Hynes, was re-elected to his third term. During Hynes' second term he had completed the reorganization and consolidation of city departments, which now function under an administrative director. The city's School Committee, a board of five members elected for two-year terms, has absolute control of the conduct and operation of the



WIDE WORLD

Boston's Old North Church, damaged by hurricane Carol on Aug. 31, 1954, receives a new steeple on July 6, 1955.

school department. Its budget must be approved by the mayor, but he may not reduce it.

The total city budget (1954) provided for the expenditure of \$154,819,459. Tax rate (1954): \$69.80 per \$1,000 of assessed valuation (\$1,566,676,000). Gross debt (Dec. 31, 1954): \$123,180,500; net debt, \$63,-584,472.

Average public school enrollment (1954): 97,474 (kindergarten, 8,151; elementary and junior high, 54,546; senior high, 16,201; and special schools, 1,800).

Tonnage shipped through the port of Boston (1954): 4,486,050 import tons (\$416,500,000) and 338,200 export tons (\$85,600,000). Total employment (metropolitan area, 1950): 611,647 males and 303,306 females. Manufacturing employment (August 1955) for the Boston district: 219,300, including 162,600 production workers who averaged \$72.14 weekly; for Boston city proper, 91,700, including 68,700 production workers who averaged \$70.74 weekly. Unemployment in the Boston district (March 1955): 96,767.

The Boston Artery, a state-financed highway officially named in honor of John F. Fitzgerald, former Boston mayor, was opened for traffic as far as Fort Hill Square in 1955, at a cost of \$100 million. Part of the highway will pass through the widest automobile tunnel in the United States and will have six lanes and intermediate ramps extending for 2,400 feet in front of the South Station. Construction on this section, to cost \$13.5 million, was scheduled to start on Nov. 15, 1955.

Buildings in the area of the tunnel have been removed, and the wide plaza will be used for the expansion of the downtown shopping district. Six new garages had been constructed by late 1955, and plans were made to use the area above the train sheds back of South Station as additional parking places for 10,000 cars.

The \$4,136,000 South End redevelopment project, the city's first slum-clearance project, got under way in 1955. Buildings were demolished on a 22-acre site, and new streets were being laid out to make the area suitable for light industrial and commercial purposes.

In an advisory opinion requested by the state legislature, the Massachusetts Supreme Judicial Court held it to be unconstitutional to make tax concessions on the proposed development on the site of the Boston and Albany yards on Huntington Avenue. This project was postponed until new financing could be devised.

Among other developments in 1955, a new steeple for the Old North Church was dedicated on October 12, replacing the one blown over by Hurricane Carol on Aug. 31, 1954; and metropolitan Boston's first noncommercial television station, WGBH-TV, went on the air on May 2.

DENNIS A. DOOLEY,
Massachusetts State Librarian.

BOTANY. Taxonomy.—Gratifying progress has been made in this, the oldest discipline in plant science. Before the turn of the century, taxonomists were largely limited to characteristics supplied by external structure for use in naming and classifying plants; often much taxonomic work was confined to the study of dried specimens with little reference to the living plant. Now, however, it appears that taxonomy may well become the integrating center in plant science, with emphasis shifted to the totality of characteristics as the basis of classification.

Accordingly species are being thought of as populations with a certain degree of essential homogeneity based on characteristics from cytology, genetics, and comparative biochemistry, as well as on the comparative morphology of the flower, pollen, fruit, vascular system, growing regions, leaf, node, glandular structures, and pubescence. Geographic distribution and response to environment, particularly soils and climate, are often of critical importance in determining possible relationship.

The increased amount and complexity of available data frequently require biometric treatment for adequate evaluation (Whitehead, F. H., "An Example of Taxonomic Discrimination by Biometric Methods," *New Phytologist*, 53:496, 1955). This new taxonomy is well illustrated in a recent paper by A. J. Cronquist ("Phylogeny and Taxonomy of the Compositae," *American Midland Naturalist*, 53:478, 1955).

Plant Serology.—M. A. Johnson ("The Precipitin Reaction as an Index of Relationship in the Magnoliaceae," *Bulletin of the Serological Museum*, 13:1, 1954) and his students, W. C. Baum ("Systematic Serology of the Family Cucurbitaceae, with Special Reference to the Genus Cucurbita," *Bull. Ser. Museum*, 13:5, 1955) and H. D. Hammond ("Systematic Serological Studies in Ranunculaceae" and "A Study of Taxonomic Relationship within the Solanaceae as Revealed by the Proton'er Serological Method," *Bul. Ser. Museum*, 14:1, 1955) have used the precipitin test for indicating protein similarity from which relationship may be deduced. This method has been particularly successful in determining relationship among animals.

The technique is relatively simple. A plant protein is injected into the rabbit as the experimental animal. Antibodies are formed in the blood of the animal, and when these are reacted with the original protein in a test tube, a white precipitate is formed. When protein from a related species is reacted with these antibodies, a precipitate is formed but in lesser amount. The amount of precipitate indicates the degree of protein similarity and hence provides the basis for estimating the possible degree of relationship.

Chloroplasts and Photosynthesis.—D. I. Aron, his coworkers, and other investigators have succeeded in isolating chloroplasts from green cells which, when placed in a suitable medium, are capable of photosynthesis (*Science*, 122:9, 1955). Thus the chloroplast functions as a complete photosynthetic unit with its complement of en-

zyme systems independent of those in the cytoplasm of the cell.

Isolated chloroplasts may become valuable material for experimental study because, paradoxical as it may seem, much fundamental biochemical information has been discovered only when certain processes have been isolated and carried on outside the living cell. Even so, the isolated chloroplast is an extremely complicated biochemical system, for it is the seat of the photodecomposition of water, of photosynthetic phosphorylation, and of the fixation of carbon dioxide with the resulting production of starch. Starch formation is preceded by the elaboration of: (1) phosphate esters of fructose, glucose, ribulose, and dihydroxyacetone; (2) glycolic, malic, and aspartic acids; and (3) alanine, glycine, and free dihydroxyacetone. Aron is of the opinion that the discovery of photosynthetic phosphorylation, through which light energy is transformed into chemical energy, may be a promising approach to this problem—a problem which man must solve if he is to exploit solar energy fully.

Chlorophyll.—Now that certain unsupportable claims for the use of chlorophyll are diminishing, we may well examine the evidence for its economic value (Kephart, J. C., "Chlorophyll Derivatives—Their Chemistry, Commercial Preparation and Uses," *Economic Botany*, 9:3, 1955). Certainly chlorophyll retains its position as one of the most significant organic compounds for the world of organisms because of its role in photosynthesis. At present, 80,000 pounds of chlorophyll are extracted annually from alfalfa in the United States. When properly extracted, processed, and prescribed, its derivatives have real value in medicine for treatment of anemia, hypertension, and certain types of wounds; also as deodorants and in oral hygiene.

Flowering Hormone.—Jersey varieties of sweet potatoes are grown so far from their native habitat that they fail to flower in continental United States. As a consequence, breeding programs in the development of new varieties are hampered for lack of flowers. S. Lam and H. B. Cordner (*Science*, 121:140, 1955) have secured an abundance of flowers by the simple expedient of grafting sweet potato shoots on morning-glories (*Ipomea tricolor* and *I. hederacea*). This is readily possible since the morning-glory and sweet potato are of the same genus. The number of flowers is roughly proportional to the number of leaves on the morning-glory stock; if all leaves are removed from the stock, the sweet potato scions fail to flower. It is postulated that a flower hormone is synthesized in the morning-glory leaves and transferred from stock to scion.

Nutrient Deficiencies.—M. Chessin and H. A. Scott (*Science*, 121:112, 1955) have found that the diseased areas induced by tomato mosaic virus are larger when the host plants are deficient in iron and sulfur. No increase in lesion size is obtained when plants are deficient in calcium or magnesium. This work suggests that mineral nutrition may be of importance in the development of systemic infection in plant viruses.

It is well known to plant physiologists that copper at the level of a few parts per million in the nutrient media may be required for normal plant growth; also that above this level, copper may be highly toxic. R. Child (*Tropical Agriculture*, 32:100, 1955) reports that tea leaves must contain 12 parts per million of copper for the production of high-quality beverage. This is because polyphenol oxidase, an enzyme with a

copper-protein base, is essential for fermentation of the tea leaves in commercial processing.

(See also AGRICULTURAL RESEARCH SERVICE; HORTICULTURE.)

M. A. JOHNSON,
Professor of Botany and Dean of the Graduate School, Rutgers University.

BOWLING. See SPORTS, GAMES, AND SHOWS.
BOXING. See SPORTS, GAMES, AND SHOWS.

BRANDO, Marlon, American actor: b. Omaha, Nebr., April 3, 1924. One of the most powerful performers on the American stage and screen, he was chosen best male actor of 1954 by the Academy of Motion Picture Arts and Sciences (an-



COLUMBIA PICTURES CORP.

Marlon Brando in a scene from *On the Waterfront*. His role won him the 1955 Academy Award for best actor.

nounced March 30, 1955) for his portrayal of Terry Malloy in the Academy Award-winning *On the Waterfront*.

Marlon Brando completed his formal education in 1943, when he withdrew from Shattuck Military Academy in Faribault, Minn., shortly before graduation. In the fall of that year he enrolled in the Dramatic Workshop of the New School for Social Research in New York City. Influenced by the teaching of actress Stella Adler, he developed a naturalistic acting technique that was both communicative and intense, and he subsequently appeared in several student productions directed by Erwin Piscator.

In his first appearance on Broadway as the 15-year-old Nels of Kathryn Forbes' *I Remember Mama* (1944), Brando drew only mildly favorable reviews. Then followed a series of roles that were generally praised by the critics: Sage McRae in Maxwell Anderson's *Truckline Café* (1946); Eugene Marchbanks in Katharine Cornell's revival of George Bernard Shaw's *Candida* (1946); and David in Ben Hecht's *A Flag Is Born* (1946). After a brief period of study and foreign travel, he returned to the Broadway stage as Stanley Kowalski in Tennessee Williams' turbulent Pulitzer Prize play, *A Streetcar Named Desire* (1947).

Brando's motion picture career began with *The Men* (released in 1950), in which he portrayed with delicate sensitivity and power a bitter paraplegic veteran. Next, he recreated Stanley Kowalski in a motion picture adaptation of Williams' play (1951). There followed roles as Emiliano Zapata in John Steinbeck's *Viva Za-*

pata! (1952); Mark Antony in Shakespeare's *Julius Caesar* (1953); a young hoodlum, who possesses a human, if chaotic, heart, in *The Wild One* (1953); Terry Malloy in *On the Waterfront* (1954); and Napoleon in *Désirée* (1954). In 1955, Brando turned to musical comedy in the role of Sky Masterson in the film version of *Guys and Dolls*.

BRASS AND BRONZE. As reported by foundries in the United States to the U.S. Bureau of Mines, the consumption of brass and bronze ingots declined from 255,770 tons in 1953 to 242,497 tons in 1954. In addition, 6,000 tons were used in 1954 in wire mills. Shipments of brass ingot totaled 291,000 tons in 1954. Because virtually all of it (except 6,000 tons to mills) was shipped to foundries, it is estimated that foundry consumption was about 85%. Consumption in 1954 included 143,268 tons of leaded red brass, 43,599 tons of leaded tin bronze, 17,991 tons of leaded yellow brass, 13,045 tons of manganese bronze, 12,831 tons of tin bronze, and 11,763 tons of other products. Geographically, the chief consuming states were: Ohio, 15%; Pennsylvania, 13%; Illinois, 11%; New York, 8%; Michigan and California, 7% each; Wisconsin and Indiana, 5% each; and Connecticut and Massachusetts, 4% each.

BRAZIL. A Portuguese-speaking republic which covers nearly half of South America, Brazil fills the great eastern bulge of the continent with its 3,288,042 square miles of territory. As of July 1, 1955, its population was estimated at 58,456,000 (exclusive of jungle Indians). The two largest cities, with their 1953 estimated populations, are the great industrial center of São Paulo (2,564,411), one of the most rapidly growing cities in the world, and the beautiful capital, Rio de Janeiro (2,604,018). Other cities with populations (1953) of over 400,000 are Recife (595,035), Salvador (463,260), Porto Alegre (441,262), and Belo Horizonte (412,262).

Government.—When Dr. João Café Filho, vice president under the late Getúlio Vargas, took over the executive power on Aug. 24, 1954, to finish the presidential term ending on Jan. 31, 1956, he became ineligible for a successive term in office. The hotly contested elections of Oct. 3, 1955, resulted in the selection of Juscelino Kubitschek as president for the next 5-year term. One month later, President Café suffered a heart attack which, on November 8, led to his request for an indefinite leave of absence. Carlos Luz, who, as speaker of the Chamber of Deputies, was next in line of succession, became provisional president on that day. A military coup then resulted in congressional replacement of President Luz by Nereu Ramos, speaker of the Senate (November 11). When physicians pronounced President Café well enough to resume the presidency, Congress declared him "unable to continue in office" (November 22). Since he refused to resign, Brazil was unconstitutionally ruled by a *de facto* government under a state of siege declared on November 25. There were two presidents. (See also below, *Principal Events*, 1955.)

Legislative power rests in a bicameral Congress, with senators and deputies serving 8- and 4-year terms, respectively. The judiciary is headed by a Supreme Court in Rio de Janeiro.

Education and Religion.—In addition to the federal University of Brazil, located in Rio de Janeiro, Brazil has seven state and three Roman Catholic universities; in 1953 they had a combined enrollment of 288,131. As of 1954, there were 796 pedagogical schools with 59,521 students, and 2,485 secondary schools with 535,775 students. In 1953 there were 99,809 elementary schools with 6,258,976 pupils. In September 1954, Brazil opened its first school of business administration, with a 12-week course to provide modern training in business management.

Roman Catholicism is the dominant religion; 93% of the population were listed as of this faith in the 1950 census.

Economic Conditions.—Although the industrial production index rose from 146 in 1953 (1948 = 100) to 156 in 1954, the accounts of the federal

government in 1954 showed a deficit of 7,122 million cruzeiros,* with expenditures of 53,661 million and revenues of 46,539 million. The 1955 budget revenues were estimated at 53,482 million cruzeiros and expenditures at 56,497 million, leaving a theoretical deficit of 3 billion cruzeiros. In his summary of the nation's financial outlook for the fiscal year, however, President Café disclosed that to the budget's admitted deficit, 5 billion cruzeiros were added for an emergency bonus to civil service workers, 3 billion for expenses incurred by government-controlled companies, and 2 billion in allocations brought forward from 1954—in all, an additional financial burden of almost 14 billion cruzeiros for which there was no corresponding revenue.

There was serious inflation in 1954, and the increase in national income to 410 billion cruzeiros from 337.4 billion in 1953 represented little change in real values. During the year the money supply increased by 23%. The general wholesale price index rose from 188 in 1953 (1948 = 100) to 245 in 1954 (269 in June 1955), and the cost-of-living index in São Paulo from 162 to 190 (225 in June 1955).

As of June 30, 1955, Brazil's dollar debt obligations reached \$1,061,465,000, representing an aggregate of 41 loans dating back to 1940. The amount of credit extended by Brazil's own banking institutions in 1954 amounted to 203,377,180,000 cruzeiros. Despite discouraging principal and interest payments, however, in 1954 bank deposits increased to 177,089,228,000 cruzeiros, and 586 new organizations with a total capital of 7,348 million were set up.

In 1954, Brazilian exports totaled \$1,562 million, and imports, \$1,634 million, leaving a deficit of \$72 million. In the first six months of 1955 exports dropped to \$613 million from \$730 million in the same period of 1954, and imports fell to \$662 million, from \$749 million in 1954. Finance minister José Maria Whitaker attempted to liberalize exchange restrictions and so improve the trade situation, but his program was rejected, and he resigned on Oct. 10, 1955.

A commercial agreement with Bolivia, designed to save the foreign exchange needed in petroleum purchases, became effective in January 1955; it provides for a monthly exchange of Bolivian gasoline and kerosine in return for Brazilian coffee, cotton, and hides. It is distinct from a previous arrangement by which Brazil is to share in the exploitation of Bolivian oilfields in return for having aided in financing the Corumbá-Santa Cruz railway to the oil region.

Agriculture.—Farm output in 1954 was valued at 140 billion cruzeiros, an increase of about 26% over 1953. At the end of 1954, Brazil had 2,064,519 farms and other agricultural establishments, occupying 563,442,464 acres, but only 8.6% of the nation's vast area was under productive cultivation; pasture land accounted for 46% of the total, 24.1% was woodland, and 14.5% was cultivable but not under cultivation.

Of the export crops, coffee usually produces some two thirds of the nation's foreign exchange income, but in the 1954-55 crop year Brazil exported only 10,796,677 bags (132 pounds each), a 24.7% decline from 1953-54. For the year beginning July 1, 1955, there was a carry-over of 8.4 million bags, and the new crop was estimated at 17.2 million bags.

Among other important export crops, cacao production for the year ending May 30, 1955, re-

* As of August 1955, U.S.\$1 = 18.82 cruzeiros at the official selling rate, and 71 at the free rate.

sulted in a record export of 2,776,151 bags. The 1954 sugar crop, at 39,048,431 tons, was the largest on record. The ginned cotton output was 447,295 metric tons, as compared with 374,913 tons in 1953. The 1954 jute harvest, totaling 45 million pounds, put Brazil in third place among world producers and raised production above domestic needs. Rubber production in 1954 amounted to 21,272 tons, but it was still necessary to import 16,308 tons. Tobacco production totaled 340,000 bales in 1954, the best yield in five years, but the 1955 crop, reduced by drought, was expected to reach only 100,000 bales.

As for its cereal crops, Brazil produced 7.1 million metric tons of corn and 3.4 million tons of rice in 1954, and in 1955 expected to have an exportable rice surplus of over 1 million tons. The situation in wheat, however, continued unfavorable. Although production was about 800,000 tons in 1954, the 1955 crop was estimated at only 500,000 tons, necessitating large imports.

Industry.—Brazil has an industrial plant second to none in Latin America, but its industrial growth is hindered by the need for more electric power and for fuels (notably oil). Due to the opening of two new power plants—the 200,000-kw. Piratininga steam plant in the State of São Paulo and the 330,000-kw. Nilo Pecanha underground plant in Rio de Janeiro, electricity rationing was not as severe as usual in the capital in 1954, even though consumption was up 20% and considerable power still had to be diverted to the São Paulo system. All three of the 60,000-kw. units of the great Paulo Afonso hydroelectric power development on the São Francisco River were in operation by mid-1955, supplying power to eight northeastern states, and a new hydroelectric plant was also inaugurated at Itutinga in Minas Gerais.

Petroleum imports take an increasing amount of Brazilian foreign exchange (about \$275 million in 1954) despite efforts to increase domestic refining facilities. In late 1954 production of refined petroleum products, chiefly at the Mataripe refinery in Bahia, totaled about 5,500 barrels per day, or slightly over 2.5% of consumption. New refineries inaugurated in December 1954 were the Manguinhos refinery at Rio de Janeiro (10,000 barrels per day) and the Capuava refinery in the State of São Paulo (25,000 barrels). In January 1955, a third refinery, at Cubatão, São Paulo, began operating; its capacity is 53,000 barrels per day.

Production of rolled steel products in 1954 was 1,171,893 tons, of which 550,000 tons came from the great national steel plant of Volta Redonda. Consumption was estimated at 1,715,500 tons in 1955, and plans were being made to increase production to 1.8 million tons. At the end of May, President Café inaugurated at Sorocaba, São Paulo, an aluminum plant scheduled to begin production at 10,000 tons a year.

The output of the cement industry in 1954 reached a record 2,439,968 tons, but 340,000 tons still had to be imported. In the first six months of 1955 production totaled 1,148,667 tons, or 20.9% over the corresponding period in 1954. Brazil's five-year-old plastics industry expanded to an output of 11,475 tons in 1954.

The automobile and truck assembly industry had a 100,000-unit capacity as of July 1955. Tire production in 1954 totaled a record 2,054,246 units; inner tubes, 1,284,698 units. Production for 1955 was expected to rise to 2.3 million and 1.44 million units, respectively. Airplane manufacturing is as yet limited to the assembling of

training planes for the Brazilian Air Force from parts imported from the Netherlands by Fokker Industria Aeronáutica, a joint stock company working under contract with the government.

Mineral Products.—To add to present riches in manganese and iron (1,678,000 metric tons of iron ore were exported in 1954), new deposits of iron ore were discovered in Minas Gerais and of manganese in the Territory of Amapá, along the border of French Guiana, in 1955. A large bauxite deposit, with a mineral content of over 69%, has been found in the same territory.

Brazil is potentially rich, too, in petroleum, for it has 6% of the world's sedimentary rock, the type in which oil is found. At present only the wells around Bahia are producing, but new deposits have been discovered at Nova Olinda and Marajó Island in the Amazon Basin.

Transportation and Communications.—In 1955 a new railway, linking Corumba with Santa Cruz in Bolivia, was inaugurated, and another new line, from São Paulo to Porto Alegre, was under construction. Some 90% of the existing track (20,492 miles as of 1953) is almost unusable, and half the locomotives are over 40 years old. In 1954 the deficit on the federally owned lines amounted to 3.6 billion cruzeiros.

Brazil's 212,325 miles of roads (1952) are in such generally poor repair that 15% of the country's vehicles are scrapped annually, and trucks have an average life of only three years. In 1954 only 7,974 passenger cars and 34,796 trucks and buses could be imported, while in the first six months of 1955 vehicle imports dropped to a total of 2,316 passenger cars and 8,251 trucks and buses.

Replacement problems also face Brazilian shipping. Of 307 vessels in the coastal fleet, only 30 are modern ships capable of carrying out merchant marine operations; 51 vessels, representing 150,000 tons, are 40 years old. Shipping facilities were improved in 1955 by the order of 9 new vessels for the line which travels the 2,000-mile Amazon route from Belém to Iquitos, Peru; by the opening of the São Sebastião port to ease the congestion at Santos; and by the allocation in the budget of over 600 million cruzeiros for new port construction and equipment, as well as a National Economic Development Bank loan of 113,240,000 cruzeiros specifically for work at Santos.

At the end of 1954, 11 foreign and 5 national lines were providing air service between Brazil and foreign countries. Air transport news of 1955 included authorization of Bolivia's Lloyd Aéreo Boliviano to operate in Brazil and the opening of direct New York-Rio de Janeiro service by Braniff Airways.

As of Jan. 1, 1954, Brazil had 679,540 telephones, and by mid-1955 there were four television stations in the country.

Principal Events, 1955.—Aside from President Café Filho's state visit to Portugal in April and the meeting of the 36th International Eucharistic Congress in Rio de Janeiro (July 17-24), the main events which marked the year were political, centering on the election of the president and vice president to take office on Jan. 31, 1956.

Despite Conservative gains in the congressional and gubernatorial elections of 1954, there was a leftist trend in the 1955 contest for the presidency, which was won in the October 3 election by Juscelino Kubitschek, a former governor of Minas Gerais, with João Goulart as vice president. Backed by Brazil's two strongest political parties, the Social Democratic Party and the



UNITED PRESS

Brazil's President Juscelino Kubitschek, elected Oct. 3, 1955, is hoisted to shoulders of jubilant supporters.

Labor Party, they represent left-of-center policies.

Since the election of Senhor Goulart on this ticket would mean the return to power of forces ousted by the military in 1954, the contest for the presidency filled the year with political maneuvering. An attempt to forestall any possibility of military intervention in the election by the united backing of a coalition candidate failed, as did certain legislative measures. Bills to eliminate the vice presidency, to require an absolute majority for election, and to change from a presidential to a parliamentary system failed in Congress, where a combination of Social Democratic and Labor votes was dominant. Two other main candidates entered the race—Maj. Gen. Juarez Távora and Adhemar de Barros. After the outlawed Brazilian Communist Party publicly announced support of the Kubitschek-Goulart ticket and there was no refusal of such aid, what had promised to be a close race became explosive with the possibility of civil war. (Estimates of the number of Communist votes among the some 9.5 million cast in the election ranged from 300,000 to 500,000.) Of the total number of votes, Kubitschek received 2,878,345, compared with 2,543,067 for General Távora, his closest opponent.

In accordance with the promise of President Café and his war minister, Lieut. Gen. Henrique Teixeira Lott, both of whom were determined that the will of the Brazilians should be honestly expressed, the election had been one of the most orderly ever held in the country. Unfortunately, the war minister was also determined that the electoral decision should be carried out, even if by unconstitutional means. Knowing that neither President Luz nor President Café had favored the Kubitschek candidacy, General Lott led the army coup which promptly drove President Luz from office, promoted congressional installation (November 11) of Nereu Ramos as his successor in the presidency, and—again with the support of Congress—deprived President Café of his constitutional right to return to office (November 22).

MADALINE W. NICHOLS,
Specialist in Latin American Affairs.

BREWING INDUSTRY. The calendar year 1954 saw the continuation of marketing trends in the United States which have raised public and social acceptance of beer to its highest level. Although sales of 83,305,402 barrels fell far short of the all-time peak of 87,172,334 barrels in 1947, a nationwide survey indicated that beer probably was consumed by more Americans in 1954 than ever before. In 1954, nearly two thirds of all American families served beer at home, and 3,691,400 more families did so than five years previously. Women now account for 22% of all malt beverage consumption.

As a result of the trend toward increased home consumption, packaged beer accounted for 76.7% of all beer sales—a new record. Of packaged beer, 63.2% was in returnable bottles, 5.3% in nonreturnables (no deposit), and 31.5% in cans—another new high.

For the second consecutive year, beer was a billion-dollar producer of public revenues through payments of \$744,304,000 in federal taxes (at \$9 per barrel), \$198,977,000 in state taxes, and an undetermined total in local taxes.

It is the belief of market analysts that state tax rates continued to exert an influence on local beer sales. Wisconsin, Nevada, and Michigan, each with a comparatively low state tax, respectively led in per capita consumption. North Carolina, Mississippi, and Alabama, each with a relatively high state tax, had the lowest per capita consumption.

The United States, with per capita consumption of 15.9 gallons, ranked eighth among all countries. On the basis of compilations by the Brewers' Society, London, it was led by Belgium, Luxembourg, Australia, New Zealand, the United Kingdom, Denmark, and West Germany.

The 1955 edition of the *Brewers Almanac*, published by the United States Brewers Foundation, Inc., showed that American breweries exported 1,960,895 gallons of beer and ale, exclusive of about 31,000,000 gallons for the armed forces overseas.

Weekly earnings for brewery production workers averaged \$92.80, a new high, as compared with \$71.86 for all manufacturing.

EDWARD V. LAHEY,

Chairman and President, United States Brewers Foundation, Inc.

BRIDGES. Mackinac Straits Bridge.—A dream of American bridge engineers—to link Michigan's upper and lower peninsulas with a long-span suspension bridge across deep water of the Straits of Mackinac—was coming true in 1955. The nation's biggest bridge project progressed favorably, as difficult underwater pier construction was brought near completion, and as superstructure work began on the \$80 million project. Sinking of the caisson foundations for the suspension span's towers was an outstanding feat of bridge construction. One footing is 195 feet and the other 190 feet below water level; each is 116 feet in diameter.

To be completed late in 1957, this four-lane toll bridge will make possible a 10-minute crossing from Mackinaw City to St. Ignace, instead of a 53-minute ferry trip. The structure will be the world's longest suspension bridge—8,614 feet from anchorage to anchorage. But its 3,800-foot center suspension span will be exceeded by the 4,200-foot main span of San Francisco's Golden Gate Bridge. The two main towers, each containing 6,250 tons of structural steel, will rise to 552 feet above water level. There will be a clearance

of 148 feet between water level and the underside of the structure's main span.

New Orleans Bridge and Causeway.—Construction continued in 1955 on a new highway crossing of the Mississippi River. It is to have the longest cantilever span (1,575 feet) in the United States, and will be exceeded only by the 1,800-foot main span of the Quebec Bridge crossing the St. Lawrence River.

The Mississippi crossing at New Orleans is to be a \$65 million part of a \$200 million bridge and expressway plan to unravel a difficult traffic situation in and around the city. It will provide for four traffic lanes and have an overall length of 2.3 miles, and will take motorists across the river to Algiers from an intersection with the Pontchartrain Expressway in New Orleans.

Pontchartrain Expressway is to be a \$33.2 million link between this river bridge and a 24.3-mile concrete causeway across Lake Pontchartrain. This \$53 million, two-lane causeway, itself a major structure, has been called the world's longest bridge. Its reinforced concrete trestle structure is of particular interest because it is being built by lifting total precast spans, 56 feet long and 33 feet wide, from barges onto pile bents. The precast concrete roadway structures as well as the hollow piles being used are of special interest to bridge engineers, inasmuch as both are prestressed. (Prestressing of concrete is basically the putting of artificial stresses into a structure as it is cast so that it will better resist the stresses under the loads it is designed to carry.)

Tappan Zee Bridge.—This is the major structure on the New York State Thruway, the 2.8-mile crossing of the Hudson River at Tappan Zee (widest spot on the river, between Nyack and Tarrytown). It was virtually completed in 1955, representing a \$60 million triumph in bridge building, and was opened to traffic on December 15.

Tappan Zee Bridge is most famous for its foundations, which cost only one third of the project's total price, despite very difficult river bottom conditions. These foundations, under the major piers, are buoyant, watertight concrete boxes, designed to carry by their buoyancy a portion of the load upon them. The mammoth boxes were built in dry-dock, towed to the site by tugboats, positioned, sunk, and eventually pumped dry to become submerged floats on which the great bridge rests. At its center the bridge has a 1,212-foot cantilever span which was floated into place and completed in mid-1955. Roadway paving operations on the six-lane structure were then rushed toward completion. The bridge totals 166 fifty-foot spans, seven 250-foot spans, two 600-foot spans, and thirteen 240-foot spans, in addition to the main span.

Kingston-Rhinecliff Bridge.—Steel erection on this high-level truss structure, serving as a Hudson River highway crossing, progressed steadily toward a November 1956 completion date. The \$19.3 million bridge will have a total length of 7,793 feet, and will serve as a toll facility to replace existing ferry service.

Richmond-San Rafael Bridge.—Crossing the northern arm of San Francisco Bay, this \$68 million bridge, with two steel cantilever spans, plus other truss and girder spans, will total four miles in length. It will have two separate levels, each carrying three lanes of traffic. One of its two major spans was completed in October 1955; the other was the only major steel erection work remaining unfinished. Each major span will provide



N.Y. STATE THRUWAY COMMISSION

New York Thruway bridge, spanning the Hudson River at the Tappan Zee, as it neared completion late in 1955.

a 1,000-foot wide channel. The west span will provide a 185-foot vertical clearance over the major shipping channel; the east span will clear a secondary channel by 135 feet.

A major feature of construction was the use of 280-foot aluminum falsework truss spans to support the bridge's steelwork during erection. One roadway of the double-decked bridge was scheduled to be opened for traffic by October 1956.

Delaware River Bridges.—Another major crossing of the Delaware was under construction in 1955, slightly more than three miles downstream from the Philadelphia-Camden Bridge. This is a \$90 million suspension bridge to have a center span of 2,000 feet and to carry seven lanes of traffic when opened early in 1957. Steel tower construction was the major building operation in 1955, the difficult dredged caisson foundation work having been completed previously. Foundations were constructed by first dredging up temporary sand "islands" as a work area for caisson and open cofferdam operations.

Completion was expected by the end of 1955 of the main span of the 6,571-foot bridge across the Delaware between Edgely, Pa., and Florence, N.J., which will connect extensions of the New Jersey and Pennsylvania turnpikes. The bridge will carry six road lanes, and its center span will be 636 feet long and clear the Delaware's high-water level by 135 feet.

Newark Bay Crossing.—An eight-mile extension of the New Jersey Turnpike, to connect it directly with the Holland Tunnel under the Hudson River to New York, has involved construction of a major high-level crossing of Newark Bay. This two-mile, \$40 million structure will carry six lanes of traffic when completed in 1956. The final link went into its main truss span in August 1955, 240 feet above the bay (see also **HIGHWAYS**).

Narrows Bridge.—What would be the world's largest suspension bridge, the Narrows crossing between Upper and Lower bays of New York City's harbor, remained in the planning stage during 1955. The \$204 million project would measure 7,200 feet between anchorages and have a main span 4,400 feet long—200 feet longer

than the Golden Gate Bridge. It would clear the water by 237 feet at mid-span.

This project, approved by the Department of Defense, was in 1955 part of a developing master plan of the Port of New York Authority and the Triborough Bridge and Tunnel Authority. Also included in this plan is double-decking of New York's George Washington Bridge at a cost of \$20 million, and paralleling, a mile upstream, the Bronx-Whitestone Bridge with a similar, \$93 million suspension bridge, to be known as the Throggs Neck Bridge.

Macdonald Bridge, Nova Scotia.—An \$11 million suspension span from Halifax to Dartmouth in Nova Scotia was completed in 1955. Known as the Angus L. Macdonald Bridge, it is 5,210 feet long, with a center span of 1,447 feet, and is second in length in Canada to the Lions Gate Bridge at Vancouver. There is 165-foot minimum clearance under the main span, and towers reach to 309 feet. The roadway is 27 feet wide. (See illustration under **NOVA SCOTIA**.)

Japan.—In Japan the world's fourth longest steel-arch bridge was opened to traffic early in 1955. Costing approximately \$1.5 million, it connects Nagasaki and Sasebo with a 1,042-foot arch which is 712 feet high at its center.

ARTHUR J. FOX, JR.,

Associate Editor, "Engineering News-Record."

BRITISH BORNEO. See **BORNEO**.

BRITISH CAMEROONS. See **CAMEROONS**.

BRITISH COLUMBIA. Most westerly of the Canadian provinces, British Columbia has an area of 366,255 square miles, and ranks third in size. Forming a part of the province are the Queen Charlotte Islands (3,866 square miles) and Vancouver Island (12,408 square miles). The estimated population as of June 1955 was 1,305,000, compared with 949,000 ten years earlier. A large part of the population is concentrated in and around the southern coastal cities of Vancouver (1951 pop., 344,833) and Victoria, the capital (51,331), whose metropolitan areas in mid-1955 contained populations of 624,000 and 121,000, respectively. Other chief urban centers and their 1951 populations include: New Westminster,

28,639; North Vancouver, 15,687; Trail, 11,430; and Penticton, 10,548.

Government.—British Columbia is represented in the Dominion Parliament by 6 senators (appointed for life) and 22 members of the House of Commons. The provincial government is administered by a lieutenant-governor and a Legislative Assembly of 48 members. A Social Credit government was re-elected in the most recent general election held on June 9, 1953. Party standings in 1955 were: Social Credit, 27; Co-operative Commonwealth Federation, 14; Liberal, 4; Labour, 1; and Independent, 1. There was 1 vacancy.

Education.—Education is compulsory for children between the ages of 7 and 15. During the school year 1953-54 there were 210,174 pupils enrolled in 1,027 public schools instructed by 7,574 teachers. In addition, there are a number of private institutions modeled on the English public school system. Higher education is provided by the University of British Columbia at Vancouver, which had an enrollment of 5,644 undergraduates during 1954-55. There are also two normal schools, a vocational institute, and a junior college.

Finances.—Estimated revenue for 1955-56 was \$194,522,469; estimated current expenditure, \$212,059,341.

Industries.—The four major industries of British Columbia yielded the following returns in 1954: forestry, \$528,022,783; mining, \$153,377,315; agriculture, \$140,206,635; and fisheries, \$69,400,000. The gross value of manufacturing production in 1954 was estimated at \$1,366,824,000.

Trade.—Exports and imports through British Columbia customs ports in 1954 were valued at \$692,239,650 and \$338,624,048, respectively. Exports of forestry products, such as lumber, newsprint, plywood, and related products, accounted for approximately 40% of the total. Steel products, lead, copper, zinc, apples, and fish were other leading commodity exports.

Transportation and Communications.—The province is crossed from east to west by two trans-continental railways, the Canadian Pacific Railway and the Canadian National Railway, both with terminals at Vancouver. The CNR also has a terminal at Prince Rupert. A provincially owned railway, the Pacific Great Eastern, operates a line running north and south from Squamish on the coast to Prince George in the interior. In 1955 the line was being extended from Squamish to Vancouver at the southern end. Current plans also called for a northern extension from Prince George to the Peace River area. During 1954, 12,359,945 tons of railway freight originated and 13,588,476 tons terminated in British Columbia. Railroad mileage as of Dec. 31, 1953, comprised 4,549 miles of mainline track and 1,226 miles of sidings.

Since World War II, British Columbia has spent many millions of dollars extending and improving its highway system, including nearly \$40 million during the fiscal year 1953-54. By March 31, 1954, exclusive of urban streets, there were 22,797 miles of highway in British Columbia, of which 11,693 miles were surfaced.

Air transportation connecting Vancouver and Victoria with other parts of Canada is provided by Trans-Canada Air Lines. In addition there are a number of interprovincial routes, and international connections. Ocean-going, coastal, and lake steamship services are provided by the ship services of the Canadian Pacific and Canadian National Railways, and the Union Steamship Company.

As of Dec. 31, 1954, there were approximately 363,032 telephone connections listed within the province.

Principal Events, 1955.—The approval of importation of natural gas by the U.S. Federal Power Commission on Nov. 25, 1955, opened the way for developing the natural gas fields in the

Peace River area, as the British Columbia demand for natural gas was not sufficient in itself to justify operations of a pipeline. The West Coast Transmission Company has already started the construction of the 650-mile, \$150 million pipeline from the Peace River block to Sumas on the British Columbia-Washington border. As it is anticipated that the British Columbia line will not be completed until 1957, it is expected that American natural gas will be piped into the province until the British Columbia line is completed.

A new surge in plans for the expansion of pulp and paper plants materialized in 1955. Major companies announced plans for: a 500-ton unbleached sulfate mill and expansion of present facilities (at a cost of \$28.5 million); a 250-ton sulfate mill, 180-ton multipurpose paper and board machine, and 300-ton newsprint mill (\$40 million); newsprint machines and modernization (\$20 million); a 250-ton Kraft pulp mill (\$25 million); and a 300-ton sulfate mill (\$30 million).

In an official ceremony on July 22, 1955, Grosvenor Estates, of London, officially opened the Annacis Causeway and Annacis Island. The island, with its 1,200 acres, is visualized as the future industrial hub of metropolitan Vancouver. The company was offering to build large or small industrial plants for tenants on long- or short-term leases.

The first steel pipe to be manufactured in western Canada was being tested prior to full-scale operation of the newly completed \$6 million plant at Port Moody of the Canadian Western Pipe Mills.

Another new industry for the province was promised by announcement that the Hooker Electro-Chemical Company was planning to build a chlorine-caustic soda plant on a 75-acre site in North Vancouver, at a cost of \$11 million.

For the first time in its history, British Columbia is to have its economic and social geography presented within a single volume. The publication, to be produced by the British Columbia Natural Resources Conference, of Victoria, will be issued in the form of an atlas containing 50 maps in full color, faced by illustrated pages of text.

G. T. HATCHER,

Director, Bureau of Economics and Statistics.

BRITISH COMMONWEALTH. See COMMONWEALTH OF NATIONS.

BRITISH EAST AFRICA. These British East African territories comprise, in continental Africa, the Uganda protectorate; the crown colony and protectorate of Kenya; the territory of Tanganyika, administered by Great Britain under United Nations trusteeship; and in the Indian Ocean, the protectorate of Zanzibar, comprising the islands of Zanzibar, lying about 22½ miles off the northeast African coast, and Pemba. The total area of the territories is 682,469 square miles; the population, 18,478,648 (1948 census).

Government.—The East Africa High Commission, consisting of the governors of Kenya, Tanganyika, and Uganda, assisted by the 23-member East Africa Central Legislative Assembly, administers specified common services, including railways, income tax, customs and excise, posts and telegraphs, civil aviation, and a defense force (the King's African Rifles). The establishment of the High Commission has involved no change in the constitution of the territorial governments, which remain responsible for basic services such

as administration, police, health, education, agriculture and forestry, labor, housing, and public works. Revenue of the High Commission is derived from contributions by the three governments and by Zanzibar; the United Kingdom contributes substantially to research and other services. The common currency is the East African shilling (equals U.S.\$0.14).

BRITISH EAST AFRICA

Territory	Area (sq. mi.)	Population (1948)	Capital
Kenya Colony and Protectorate . . .	224,960 ¹	5,405,966 ²	Nairobi (134,043) ³
Tanganyika Territory . . .	362,688 ⁴	7,850,000 ⁵	Dares Salaam (99,140)
Uganda Protectorate . . .	93,981 ⁶	4,958,520 ⁷	Entebbe (7,231) ⁸
Zanzibar Protectorate . . .	1,020 ⁹	264,162 ¹⁰	Zanzibar (45,284)
Total . . .	682,649	18,478,648	

¹ Land area, 219,730 sq. mi.; protectorate, 2,000 sq. mi.
² July 1, 1953, est., 5,800,000. ³ 1954 est., 186,000. ⁴ Inland water, 19,982 sq. mi. ⁵ 1955 est., 7,965,000, excluding non-African population. ⁶ Water area, 13,689 sq. mi.
⁷ 1954 est., 5,425,000. ⁸ 1951, 7,942. ⁹ Zanzibar, 640 sq. mi.; Pemba, 380 sq. mi. ¹⁰ 1952 est., 270,786.

The governors of the three mainland territories are: Kenya, Sir Evelyn Baring (sworn in Sept. 30, 1952); Tanganyika, Sir Edward Francis Twining (appointed June 18, 1949); Uganda, Sir Andrew Benjamin Cohen (sworn in Jan. 17, 1952). The British resident of Zanzibar is H. S. Potter (appointed Sept. 25, 1954). Constitutional changes increasing the participation of native populations in political affairs took effect in 1955. Parity of representation between the three main races was inaugurated in the Tanganyika legislature; in Uganda, reforms were approved affecting both the Executive and Legislative councils; and in Kenya, where the Mau Mau terrorist emergency has delayed constitutional progress, sanction was nevertheless given to the formation of political associations at district level, preliminary to the holding of national elections. Proposals under consideration in Zanzibar envisage an increased representation of native groups in both the Executive and Legislative councils. Major land reforms in East Africa were recommended by a British Royal commission in a report issued June 9, 1955.

KENYA

Formerly known as the East Africa protectorate, the Kenya crown colony comprises four provinces (Central, Coast, Nyanza, and Rift Valley) and three extraprovincial districts (Masai, Northern Frontier, and Turkana). Coastal territories rented from the sultan of Zanzibar form the Kenya protectorate, administratively part of the Coast Province. Chief towns are Nairobi, the capital; Mombasa, the principal harbor, and terminus of the Kenya and Uganda Railway; Kisumu, and Nakuru, capital of Rift Valley Province.

Government.—A Council of Ministers, inaugurated April 13, 1954, is the principal instrument of government, and consists of the deputy governor, a chief secretary, and 13 ministers (including 1 European and 1 Asian minister, both without portfolio) who together function also as an Executive Council. The Legislative Council, presided over by the governor, consists of 54 members (8 ex-officio ministers; 18 nominated members; 14 European elected members; 6 Asian elected members; and 1 Arab and 6 African representative members). With the reduction of Mau Mau terrorism, the formation of a new political organization for Africans, preparatory to the election of national officials in 1956, was under consideration by the Council of Ministers.

Mau Mau Terrorism.—Although confined to the Aberdare and Mount Kenya forest areas, terrorist activity continued on a limited scale during 1955. New surrender terms involving no penalty were announced by the governor at a rally of loyal tribesmen at Nyeri, on Jan. 18, 1955, but were withdrawn on July 10. Surrender passes were widely scattered from airplanes, which flew low over the forests repeating the amnesty offer over loud-speakers. By June 8, 650 terrorists, including 20 gang leaders, had



BRITISH INFORMATION SERVICES

Two Mau Mau terrorists are captured by British white hunters in Kenya Colony back country, British East Africa.

given themselves up, and 1,499 terrorists had become casualties. From the beginning of the emergency, proclaimed on Oct. 21, 1952, to Oct. 20, 1955, 9,802 terrorists had been killed, 2,009 captured, and 2,009 surrendered. Some 1,462 civilians and 541 members of government security forces had been killed by June 8, 1955.

Talks initiated by Mau Mau leaders to arrange mass surrenders broke down, however, and it was announced that military operations would therefore continue under Maj. Gen. Gerald W. Lathbury, appointed Jan. 10, 1955 (with temporary rank of lieutenant general) as commander in chief in East Africa, effective from May. Although between 3,000 and 7,000 terrorists remained at large in July 1955, police and administration security forces were considered strong enough to resume responsibility in all districts except in the prohibited areas, without assistance from the army, whose forces were to be progressively reduced.

Education.—In 1954 there were 314 government schools. Other schools included 18 European, 318 Asian, 256 African, and 9 Arab institutions; also 17 teacher-training centers and 6 African technical and vocational training centers. There were also 2,338 government-aided schools (14 European, 83 Asian, 1 Arab, and 2,240 African, including 40 African teacher-training centers). Private institutions numbered 1,192 schools (11 European, 9 Asian, and 1,172 African), exclusive of nursery schools.

Finance.—In April 1955, the Kenya government budget showed a deficit for 1955–56 of £14.7 million. With proposed increased duties and taxes, the estimated deficit would be reduced to £13.4 million, bringing the total estimated deficit on exchequer account to nearly £20 million, including a deficit for 1954–55 of £6.26 million. This was to be met in part by a British government grant of £10 million (authorized in February 1955). Up to February 1955 the United Kingdom had made available £11.5 million for emergency expenditure.

Production.—Coffee is Kenya's most valuable crop. Also grown in the highlands and Nyanza province are maize (corn), wheat, wattle, tea, and pyrethrum; elsewhere production of cotton, sugar, coconuts, beans, and peanuts is important. Podocarpus and other timbers are produced in a forest area of 6,916 square miles. Principal agricultural and forest products in 1954, and their value, were: coffee, 10,801 tons (£5,726,824); cotton, 61,002 cwt. (£796,041); corn, 918,332 cwt. (£1,013,192); sisal, 32,232 tons (£2,041,563); tea, 96,800 cwt. (£2,062,654); wattle extract, 24,204 tons (£1,668,037); hides and skins, 120,984 cwt. (£1,836,576); and sawn podocarpus, 69,300 cubic feet (exported). Principal mineral products, and their value in 1953, were: gold, 9,603 troy ounces (£122,801); soda ash, 76,032 tons (£790,732); salt, 20,886 tons (£164,439); and kyanite and mullite, 5,434 tons (£129,992).

Foreign Trade.—The total value of Kenya's imports was £60.1 million in 1954; exports, £22.8 million. Principal exports included gold, coffee, tea, raw cotton, hides and skins, lumber, and sisal fiber and tow. Imports included principally cement, cotton piece goods, piece goods of synthetic fibers, iron and steel, metal manufactures, machinery, automobiles, and commercial vehicles.

Communications.—About 1,670 miles of railway are operated in Kenya and Uganda, the main line extending from Mombasa through Nairobi, 879 miles to Kampala in Buganda Province. Kenya has approximately 20,500 miles of first-class bitumen-surfaced highways, secondary roads, and motor tracks. Eastleigh is the principal airport used by international services at Nairobi. From Nairobi West

Airport internal services are operated to Mombasa, Kisumu, Eldoret, and Kitale, as well as connecting services to neighboring territories.

TANGANYIKA

Mandated to Great Britain after World War I, this former German East African territory has been administered since 1946 by Great Britain as a United Nations trusteeship territory. In its total area (362,688 square miles) are counted 19,982 square miles of lakes, including Lake Tanganyika (12,700 square miles) through which the border with the Belgian Congo passes. The chief coastal towns are Dar es Salaam (the capital), Tanga, Mtwara, Lindi, and Kilwa. The African population, estimated at 7,965,000 in 1955, consists of over 100 tribes, mostly of mixed Bantu origin.

Government.—Tanganyika is administered by a governor, assisted by an Executive Council of 3 ex-officio, 5 official, and 6 nonofficial members. The Legislative Council, presided over by a speaker, has a membership of 61; the official bench numbers 31 (17 government officials, and 14 nonofficials), the government having thus an official majority of 1. Beginning with the legislative session commencing April 19, 1955, the nonofficial bench of 30 included 10 members of each of the three main races.

The territory is divided into 8 provinces: Central, Eastern, Lake, Northern, Southern, Southern Highlands, Tanga, and Western, and 56 districts. To a growing extent government policy is implemented by county councils, town councils, township authorities, or other native authorities. All races are represented on local government bodies.

Finance.—Revenue of the territory for the fiscal year 1955-56 was estimated to be over £24 million, with expenditure slightly higher. A budget deficit of £135,970 was anticipated as of June 30, 1956. Tanganyika continued to benefit from allocations under the British Colonial Development and Welfare Act.

Education.—Expenditure on African education in 1954 was £2,733,885. In 1954 there were 593 government and native authority African primary schools, with a total of 74,733 pupils, and 1,543 voluntary agency assisted primary schools, with an enrollment of 195,882 pupils. There were 305 postprimary schools, 90 managed by government or native authorities, and 215 by voluntary agencies (enrollment, 10,909, and 20,468 respectively); and 4 government Asian schools (enrollment 3,913) and 105 assisted Asian schools (enrollment 13,250). In addition there were 9 government European schools, and 18 assisted European schools (aggregate enrollment, 1,963).

Production.—The economy is primarily agricultural, devoted largely to the cultivation of subsistence cereals and other food crops. Industry other than mining is mainly concerned with the processing of primary products. Secondary manufacturing industries include the canning of meat, fruit, and vegetables; paint; metal containers; coir matting; macaroni; and bleaching and dyeing of textiles.

A feature of economic development has been the growth of the cooperative movement, which has become well established among African coffee producers around Mount Kilimanjaro, and which handles all African-produced coffee, amounting to over 19,000 tons annually. A large proportion of the cotton crop of the Lake Province is also handled by cooperatives. The Tanganyika Agricultural Corporation, which came into being March 30, 1955, was continuing the experimental tenant farming started at Nachingwea by the Overseas Food Corporation.

Foreign Trade.—The value of principal exports, other than mineral, in 1954 was: sisal, £10,902,033; coffee, £10,002,726; cotton, £3,356,844; and hides and skins, £1,529,029. In 1954 a new record was established in the value of mineral production, which reached £5 million. Principal minerals exported were: diamonds, £3,107,241; gold, £891,807; and lead concentrates, £360,000. A large pyrochlore (columbium oxide) orebody was discovered near Mbeya.

Communications.—The territory has 1,568 miles of railways comprising the Tanga line (272 miles), Central line (1,064 miles), and Southern province line (132 miles). New roads were recently completed between Dar es Salaam and Morogoro, and between Tanga and Korogwe; the new Morogoro-Iringa road was expected to be opened by October 1956. British Overseas Airways maintain a weekly direct service from Dar es Salaam to London. Internal air services connect the main administrative and commercial centers throughout East Africa, and there are external services to Nyasaland, Northern and Southern Rhodesia, Portuguese East Africa, the Belgian Congo, and the Union of South Africa.

UGANDA

The area of the protectorate (93,981 square miles) includes the northern half of Lake Victoria (13,689 square miles) from which the Nile begins its course to Nimule in the Anglo-Egyptian Sudan. The population, which by 1954 numbered 5,425,000, included at the

latest census 4,917,555 Africans, among which were 850,000 Baganda, the principal tribe, from which the protectorate takes its name, and which is recognized as a native kingdom. Chief towns are Entebbe, headquarters of the administration, Kampala, the principal commercial center, Jinja, and Fort Portal.

Government.—Uganda comprises Buganda, Eastern, Western, and Northern provinces. Changes in structure of both the Executive and Legislative Councils were approved in July 1955. By these changes the Executive Council consists of 15 members, and the Legislative Council, 60 members. A kabaka (or king) rules in Buganda with the assistance of native ministers and a Lukiko, or native assembly. Kabaka Mutesa II, who was removed from his throne and exiled in London in November 1953, was permitted to return in 1955. He resumed his reign as a constitutional monarch after signing a new administrative agreement at Kampala on Oct. 18, 1955. Under the new agreement, indirectly elected representatives of Buganda were to be included for the first time among the 30 African members of the Uganda Legislative Council. Local powers of the kabaka were to be exercised by a Council of Ministers. The expulsion was ordered on March 31, 1955, of most Kikuyu, Meru, and Embu tribesmen, to prevent the infiltration of Mau Mau terrorists into the protectorate.

Finance.—Revenue for the fiscal year 1954-55 was estimated at £18,543,451; expenditure, £18,724,464 (since 1954 the fiscal year runs from July 1 to June 30). Revenue for 1955-56 was estimated at £17,063,063; expenditure at £17,055,462.

Education.—The majority of the African schools are managed by religious voluntary agencies; administration of Asian schools is shared between government and local communities. Primary education is provided for European children in the big towns. At the end of 1954 there were 1,700 grant-aided primary schools (231,000 pupils), and 150 grant-aided secondary schools (16,000 pupils). The number of unaided schools exceeded 2,000, with an estimated school population of 300,000. At the beginning of 1955 there were also 38 teacher-training colleges (3,184 students), which had trained 919 teachers in 1954. The University College of East Africa at Makerere (Kampala) furnishes facilities for all the East African territories.

Production.—Cotton is grown in Uganda entirely by African farmers; acreage in 1953-54 totaled 1,174,838, the crop amounting to 398,000 bales of 400 pounds each. Other principal production (1953-54 season) included coffee, 40,000 tons; and in 1954: tea, 6,233,217 pounds; tobacco, 1,980,000 pounds of cured leaf; hides, 1,879 tons; goat skins, 932,000; and sheep skins, 77,000. Maize (corn) totaling 85,000 tons was marketed in 1954. Mineral production included in 1954: tin, £57,061; tungsten, £140,741; and tantalite columbite, £20,123. Copper deposits are to be exploited at Kilembe, at the foothills of the Ruwenzori (Mountains of the Moon).

Foreign Trade.—There was again a favorable balance of trade in 1954. Exports totaled £40,574,810; imports, £25,198,645. Exports to Commonwealth countries came to £26,488,088 in 1954. Among non-Commonwealth countries, the United States took goods worth £3,006,294. Imports from Commonwealth countries amounted to £15,736,898; from the United States, £810,323. Values of principal exports were: cotton, £20,877,000; coffee, £13,478,000; animal feeds, £1,593,000; oilseeds, £977,000; tea, £950,000; and hides and skins, £752,000.

Communications.—The Public Works Department maintains 2,900 miles of all-weather roads, and 200 miles of two-lane bitumenized highways. The Buganda and African local governments maintain an additional 8,300 miles of road, toward which current grants totaling £96,000 were made by the protectorate government. There were 21,106 registered motor vehicles in 1954. At Entebbe there is a first-class international airport used extensively by British Overseas Airways en route to South Africa, by Air France, Sabena, and other international services, and by East African Airways. Landing strips are maintained at 16 other centers in the protectorate.

ZANZIBAR

This largest coral island on the East African coast, separated from the mainland by a channel of about 22½ miles at its narrowest point, constitutes with Pemba and adjacent small islands a protectorate, administered by Great Britain since 1891 under a sultan (Seyyid Sir Khalifa bin Harub, acceded Dec. 9, 1911). The indigenous population is principally African (199,860 at 1948 census), Arabs numbering 44,560, and Indians, 15,892. Most of the natives are Moslems.

The British resident is assisted by an 8-member Executive Council, presided over by the sultan; and a Legislative Council of 9 official and 8 nominated non-official members. Under proposals advanced by the administration in 1955, the sultan would withdraw from the Executive Council to become head of a privy council and the Executive and Legislative councils would be expanded to include additional native members.

Finance.—The ordinary budget showed a total revenue in 1954 of £2,652,317; expenditure, £2,391,241. Up to 1954, Zanzibar had received grants totaling £1,390,087 under the Colonial Development and Welfare Act.

Education.—Under a revised development plan, £264,257 was expended on education in 1954. There were 61 public schools (pupil enrollment, 11,824); 4 independent schools (enrollment, 354); and 2 teacher-training centers.

Production.—Zanzibar's agricultural industry centers around clove production; copra (for export and local use in soap manufacture) is next in importance. Livestock is raised, and fisheries are a valuable resource. Other principal exports are chilies, fresh fruits, hides and skins, marine shells, and coir fiber. Rice and cassava are cultivated as subsistence crops.

Foreign Trade.—Total imports (more than half of which came from the United Kingdom and other Commonwealth countries) were valued at £5,877,454 in 1954. Exports (of which 53% went to Commonwealth countries) totaled £6,429,287 in 1954. The export clove crop was valued at £4,031,946; other principal exports were: clove oil, £143,850; coconut oil, £410,251; and copra, £404,735.

DONOVAN ROWSE,
Author and Publicist.

BRITISH GUIANA. This British crown colony (area, 83,000 square miles) is situated on the northeast coast of South America, with Surinam on the east, Venezuela on the west, and Brazil on the south and west. Its three administrative counties are named after the principal rivers: Berbice, Demerara, and Essequibo. The population was estimated at 465,416 in 1953, of which 215,260 were of East Indian descent, and 162,700 of African origin. The capital is Georgetown (pop., 87,279 in 1953); other towns include New Amsterdam, Mackenzie, Springlands, and Bartica. A United States naval base at Makouria and a United States military base on the Demerara River are de-activated, the latter now being operated as a civil airport (Atkinson Field).

Government.—Under a British order in council made on Dec. 22, 1953, following political disturbances which had resulted in the suspension of the newly inaugurated constitution, the governor (Sir Alfred W. S. Savage, appointed Sept. 18, 1952) heads an interim government which since January 1954 has comprised a wholly nominated 27-member Legislative Council and a 10-member Executive Council, all of whom are members of the Legislative Council. Opening the council's second session on April 22, 1955, the governor declared that in spite of "difficulties, hindrances, misrepresentations, and threats against security," British Guiana generally had recovered its self-respect and confidence. Earlier, a commission appointed by the British secretary of state for the colonies, which visited British Guiana in 1954, had recommended that the interim government should continue for four years beginning Jan. 1, 1954.

Finance.—The British West Indian dollar equals U.S.\$0.5833. The 1955 budget (the largest in the colony's history) provided for current expenditure of BWI\$37,583,000—an increase of nearly BWI\$6 million over 1954. After modifications in the tax structure, a revenue surplus of BWI\$479,000 was expected.

A development plan for 1955 provided BWI\$16 million for economic development and BWI\$4 million for housing, health, and education. Within its first year of operation (to June 1955) the British Guiana Credit Corporation had approved loans totaling BWI\$4,442,400, the largest part of which was for housing, and the remainder to assist food production and agricultural and industrial projects.

Education.—Public schools receiving government aid in 1953 numbered 321, including 6 nursery schools. Educational enrollments included 84,091 primary pupils; 2,506 secondary and vocational students; and 16 teacher-training students. There were 1,914 indigenous teachers, and 43 nonindigenous teachers at work in public schools. Facilities for secondary education include Queens College for boys, and Bishop's High School for girls.

Economy.—In spite of bad weather conditions the economically important sugar crop amounted to 238,922 tons in 1954, compared with 238,700 in 1953. Sugar exports, having a value of BWI\$34,464,354, totaled 244,000 tons for the first 10 months of 1954, exceeding by 2,000 tons the record export total of the full year 1952. Production of rice in 1954 was 71,000 tons (75,600 in

1953) and of bauxite, 2,310,000 tons (2,274,600 in 1953). Exports of these two commodities during the first 10 months of 1954: 36,700 tons of rice worth BWI\$7,370,858, compared with 39,400 tons during all of 1953; and 2,126,000 tons of bauxite valued at BWI\$19,753,562, against 2,115,000 tons in the full year 1953. Bauxite shipments valued at BWI\$14,866,571 went to Canada during the first 10 months of 1954. Other British Guiana exports include lumber, gold, and diamonds. Total imports in 1954 were valued at £16.7 million; exports, £17.8 million.

Communications.—The colony maintains 317 miles of motor roads and 239 miles of forest roads; there are 268 miles of trails. The government owns and operates 95 miles of railroads. British West Indian Airways and Pan American Airways maintain external services; internal services are operated by British Guiana Airways. Motor vehicles in 1954 numbered 7,710.

Principal Events, 1955.—The United Kingdom adopted on Aug. 2, 1955, the recommendations for reform and extension of local government in British Guiana contained in a report by Dr. A. H. Marshall, who spent three months in the territory on an inquiry into all aspects of the existing system. The pattern of local government covers only about half the population, according to the Marshall report. Its main proposal is that the whole of the coast lands (containing nearly 90 per cent of the population) should be constituted a single-tier system, involving the establishment of 18 rural district councils. These bodies, composed of 24 members each (some nominated for the first term, but afterwards elected), would take over the work of existing authorities and assume additional responsibilities for social welfare and agricultural education. Three temporary local government commissioners were being selected for appointment to the staff of the minister of local government, and a permanent local government service was to be established, operating on the lines of the Public Service Commission.

The governor announced in April 1955 that steps were under consideration to relax the ban on public meetings imposed at the suspension of the constitution. Discussion would thus be possible of important current issues, specifically, that of British Guiana's participation in the British Caribbean Federation. By majority vote in April the Legislative Council approved this step in principle, recommending further study of the question.

A major drive to complete contracts awarded in 1954 under the plan to provide 4,500 low-cost houses for lower income groups at an estimated cost of BWI\$12.3 million, was made by the Housing Department in 1955. Seven additional government-aided, self-help housing projects were established.

DONOVAN ROWSE,
Author and Publicist.

BRITISH HONDURAS. This British crown colony (area, 8,867 square miles) having a coast on the Caribbean Sea, is bordered also by Mexico and Guatemala. Its population, made up of Negroes, Maya Indians, Hispano-Indians, Caribs, and Europeans, is 78,094 (est., 1954). The capital and chief port is Belize (est. pop., 27,500).

Government.—There are six administrative districts: Belize (1,623 square miles), Corozal (718), Orange Walk (1,830), Cayo (2,061), Stann Creek (840), and Toledo (1,795). A governor and commander in chief (Sir Patrick M. Renison, appointed March 1952) is chairman of a 10-member Executive Council, including 6 elected nonofficials, and is assisted also by a 15-

member Legislative Assembly. Eight of the assembly's 9 nonofficial elective seats are held by the anticolonial People's United Party (PUP). Government revenue totaled BH\$5,330,232 in 1954; expenditure, BH\$5,339,679. (The British Honduras dollar equals 70 U.S. cents.)

Education.—In 1954 there were 2 government, 93 government-aided, and 27 nonaided private primary schools (15,066 pupils, 500 teachers); 1 government technical high school; 8 private secondary schools (1,194 pupils, 63 teachers); and 1 government teacher-training college. Expenditures on education in 1954 totaled BH\$432,026.

Economy.—Principal crops (and acreages in 1954) are corn (15,500), beans (3,000), coconuts (7,700), sugarcane (5,000), rice (2,600), root crops (1,500), and citrus fruits (5,000). Products from forest lands (8,331 square miles) include mahogany, cedar, pine, Santa Maria timbers, and chicle. Exports and re-exports in 1954 totaled BH\$7,287,826. Exported domestic produce totaled BH\$6,226,568, including timber, BH\$3,376,340; chicle, BH\$1,009,359; and citrus fruits and products, BH\$1,115,482. Exports went chiefly to Great Britain (BH\$2,602,392, or 41.8%), Jamaica, BWI (BH\$1,344,356), and the United States (BH\$1,209,468, or 19.4%). Imports in 1954 totaled BH\$11,409,568, of which BH\$10,890,444 represented domestic consumption, and included oils and petroleum, flour, cotton piece goods, machinery, rice, and fats. Principal sources were Great Britain (BH\$4,011,465), Trinidad, BWI (BH\$795,136), the United States (BH\$3,807,553, or 33.4%), and the Netherlands (BH\$702,338).

There are 411 miles of motor roads. Four major airlines operate scheduled services to Stanley Field, 10 miles west of Belize.

Principal Events, 1955.—A constitutional advance was inaugurated Jan. 1, 1955, when three nonofficial members of the Executive Council, each with an associate member, were appointed to the Natural Resources, Public Utilities, and Social Services departments, as a first step toward ministerial government.

Parts 1 and 2 of the government development plan were scheduled for completion by 1956. An effort was begun to re-establish banana production in new areas, disease having ravaged the crop in present locations. Drilling of test wells was begun by an oil company.

BRITISH MALAYA. See MALAYA, FEDERATION OF.

BRITISH NORTH BORNEO. See BORNEO.

BRITISH SOMALILAND. See SOMALILAND PROTECTORATE.

BRITISH TOGOLAND. See TOGOLAND.

BRITISH VIRGIN ISLANDS. See LEEWARD ISLANDS.

BRITISH WEST AFRICA. These British possessions on the west coast of Africa comprise the colony and protectorate of Nigeria (constituting since 1954 a federation under a governor general), with which is administered the trust territory of British Cameroons; the Gambia colony and protectorate; the Gold Coast colony, to which are attached Ashanti and the Northern Territories and Togoland trust territory; and the colony and protectorate of Sierra Leone. The aggregate area of British West Africa is 496,295 square miles; its population, 39,546,021.

The heads of government in British West Africa are: Sir James Robertson, governor general and commander in chief of the federation of Nigeria (appointment announced April 9, 1955); Sir Percy Wyn Harris, governor of Gambia (appointed Aug. 5, 1949); Sir Charles Arden-Clarke, governor of the Gold Coast (appointed June 29,

1949); and Sir Robert de Zouche Hall, governor of Sierra Leone (appointed December 1952). Currency in circulation is interchangeable with sterling at par.

BRITISH WEST AFRICA

Group	Area (sq. mi.)	Population	Capital
<i>Gambia:</i>			
Colony.....	29	27,297 ¹	Bathurst (19,602)
Protectorate....	3,974	262,000 ²	
Total.....	4,003	289,297	
<i>Sierra Leone:</i>			
Colony.....	256	130,000	Freetown (70,000)
Protectorate....	27,669	1,858,275 ³	
Total.....	27,925	1,988,275	
<i>Gold Coast:</i>			
Colony.....	23,937	2,050,235	Accra (135,926)
Ashanti.....	24,379	818,944	
Northern Territories....	30,486	866,503	
Togoland.....	13,041	382,768	
Total.....	91,843	4,118,450 ⁴	
<i>Nigeria:</i>			
Colony ⁵	1,381	511,000	Lagos (271,800)
Protectorate....	337,212	31,200,000 ⁶	
Cameroons.....	33,931	1,438,997 ⁷	
Total.....	372,524	33,149,997	
<i>British West Africa</i> 496,295 39,546,021			

¹ In 1951; mid-1953 census est., 27,500. ² Mid-1953 census, excluding about 15,000 seasonal immigrants. ³ Partial census, 1947-48; mid-1952 est., 2,000,000, including colony. ⁴ 1948 census; mid-1955 est., 4,619,000 (Togoland, 423,000). ⁵ Former Lagos colony, now administered as a province. ⁶ Mid-1953 est., 31,500,000; 1953-54 census: Northern Region, 16,840,479; Western, 6,087,917; Eastern, 7,217,829, excluding Southern Cameroons. ⁷ Mid-1953 est., 1,500,000.

Government and Political Events, 1955.—The first session of the new federal House of Representatives of Nigeria was opened on Jan. 12, 1955, under the constitution which came into force on Oct. 1, 1954, and following elections held under varying systems between October 1954 and January 1955. Each of the three principal political leaders took office as prime minister of one of the regions; they were: Northern Region, the Sardauna of Sokoto; Western, Obafemi Awolowo; and Eastern, Dr. Nnamdi Azikiwe. The 184 elected members comprised: Northern People's Congress, 79; National Council of Nigeria and the Cameroons, 56; Action Group (United National Independence Party Alliance), 27; Kamerun National Congress, 6; and others, 16.

The Gambia Executive Council was formed with an elected majority for the first time, and with three nonofficial members as ministers.

In a speech prepared by the Gold Coast ministers and delivered by the governor at the opening session of the Legislative Assembly on Feb. 15, 1955, the hope was expressed that ultimate full independence from Great Britain would be achieved within the life of the present assembly.

The West African Interterritorial Conference, dealing with matters of common interest to the four territories, comprises two members each of the Central Council of Ministers of Nigeria, the Gold Coast cabinet, and the executive councils of Sierra Leone and Gambia. Its third session was held at Accra, Gold Coast, in January 1955.

NIGERIA

The colony and protectorate are administered in three regions comprising 27 provinces. British Cameroons, under United Kingdom trusteeship, became an administrative part of Nigeria in 1946 (see CAMEROONS). Under a new constitution effective Oct. 1, 1954, the Council of Ministers comprises the governor general as president, 10 ministers (3 from each region, and 1 from the Southern Cameroons), and 3 ex-officio members. The House of Representatives consists of the speaker and

184 elected members. Each region has its own Executive Council. Elected Nigerians comprise the majority of both central and regional legislative bodies.

Largest towns (and their populations in 1952-53) include Ibadan (459,196), Lagos (the capital, 271,800), Ogbomoso (139,000), Kano (130,173), Oshogbo (123,000), Ife (111,000), and Iwo (100,000). Besides Lagos, ports on the Gulf of Guinea include Port Harcourt, Calabar, and Tiko.

Finance.—The budget provided for estimated revenue of £54.27 million in 1955-56, of which £22.86 million would be expended on grants to the regional governments. Against the remaining £31.41 million, true federal expenditure will total some £29.44 million. On March 31, 1955, the general revenue balance was estimated at £24.38 million.

Education.—Total estimated expenditure on education in 1953-54 was £4,406,540. There were 37 primary and 11 secondary schools and 17 teacher-training colleges maintained by the government, and 1,105 primary schools, 14 middle schools, and 17 teacher-training centers conducted by native authorities. Many additional schools are maintained by Christian missionary bodies. Provisional enrollment figures in 1953 showed a total of 1,119,400, including 1,094,200 primary and 17,100 secondary pupils.

Economy.—In 1954 the value of Nigerian exports was £149 million; imports, £114 million. Principal exports included coal, 25,600 tons (from production of 636,000 tons); tin concentrates, 7,480 tons; peanuts, 428,000 tons; palm oil, 208,000 tons; palm kernels, 464,000 tons; bananas, 182 million pounds; cocoa, 98,000 tons; raw cotton, 58,100,000 pounds; hides and skins, 167,700 cwt.; and timber, 10,029,000 cubic feet. Major imports included cement, cotton piece goods, iron and steel, machinery, and commercial vehicles. Cotton production rose to an estimated 85,000 tons in 1954-55. Production of columbite (for which the United States government has large contracts with Nigerian producers) increased to 2,914 tons in 1954, and was expected to be still larger in 1955 with the exploitation of new deposits.

Communications.—Principal inland waterways are the Niger and its principal tributary, the Benue. There are 28,807 miles of road (bituminous-surfaced, 1,631 miles). An autonomous corporation was to be established in 1955 to take over the government-operated Nigerian Railway, covering over 2,200 miles, and connecting Nguru and Kano in the north with Lagos and Port Harcourt in the south. Kano, Lagos, and Maiduguri have international airports; West African Airways maintains internal services at 15 other airfields.

GOLD COAST

The prime minister and 10 other ministers comprise the cabinet; the all-African Legislative Assembly is composed of 105 members, including a speaker elected by (but not a member of) the assembly (see above, *Government and Political Events*).

Finance.—For the fiscal year 1954-55, revenue totaled £80,567,534 and expenditure, £79,860,268, including £46,551,092 transferred to development funds.

Education.—In 1953-54 the government spent £5,763,065 on educational facilities, including the Kumasi College of Technology and the University College of the Gold Coast. In January 1954 there were 3,271 primary schools (403,201 pupils), 864 middle schools (104,585 pupils), 3 government trade schools (402 pupils), and 3 technical institutes in the Gold Coast and Togoland. Government and assisted secondary schools numbered 31, with 6,936 pupils; there were some 33 private secondary schools (about 1,666 pupils).

Economy.—The Gold Coast produces nearly one third of the world's output of cocoa; 214,148 tons were exported in 1954 at a value of £84,598,864. Other export crops include kola nuts, copra, and palm kernels. Principal exports in 1954, besides cocoa, included 787,874 fine ounces of gold (£9,822,320), 460,245 tons of manganese (£5,137,713), 2,125,708 carats of diamonds (£4,272,684), and 17,847,376 cubic feet of lumber (£6,680,296).

Total exports and re-exports in 1954 were valued at £114,673,025; imports, £71,154,510.

Communications.—In 1955 mileage of roads suitable for motor vehicles totaled 7,496. Railway mileage totaled 549, including 45.5 miles opened in 1954 to serve a new harbor at Tema; total trunk mileage was 675 miles; 4,803,051 passengers and 1,612,679 tons of freight were carried in 1954-55. The international airport at Accra serves British Overseas Airways, Pan American World Airways, Air France, and other airlines.

SIERRA LEONE

Under the constitution of 1951 the governor is assisted by an Executive Council of 4 officials and 6 non-official members; the chief minister is chosen from the elected members of the Legislative Council; and 5 ministers are responsible for various departments of government. The Legislative Council comprises 7 officials and 23 nonofficial members (21 elected, 2 nominated). Sev-



UNITED PRESS

Nigerian natives on goodwill mission to the United States visit New York City on Aug. 31, 1955.

eral measures giving new functions and wider responsibilities to local bodies came into effect in 1955. District councils were able to have elected or nonofficial presidents, and the first town council in the provinces came into operation at Bo.

Finance.—Revenue of the central government totaled £7,621,299 in 1954; expenditure, £6,863,115.

Education.—In 1954 there were 372 primary schools (46,577 pupils); 20 secondary schools and postprimary departments (4,369 pupils), 19 of which were maintained or assisted by the government; 4 teacher-training colleges (2 maintained by the government, 2 assisted mission institutions); 2 assisted mission teacher-training departments; and a technical institute (500 pupils).

Economy.—More than half the population is engaged in agriculture. Mechanical cultivation projects developed under the 5-year agricultural plan include those in the Bonthe-Pujehun and Northern Boli lands, where production was expected in 1955 to be between 5,000 and 7,000 tons of paddy from between 10,000 and 13,000 acres. Food production, however, has fallen off because of neglect resulting from the attraction of illicit diamond digging, which has also affected production in the mining industry. Sierra Leone's harvests in 1954 included rice paddy (220,000 tons, grown on 640,000 acres), millet and sorghum (26,000 tons, grown on 78,000 acres), palm oil (29,000 tons), cocoa (1,738 tons), and coffee (2,500 tons). Livestock production totaled an estimated 100,000 head of cattle. Forest industries produced 223,556 cubic feet of round and sawn timber.

Mineral production included iron ore (877,306 tons), chrome ore (15,120 tons), diamonds (443,598 carats), and gold (2,530 troy ounces).

Exports totaling £11,398,305 included palm kernels (68,080 tons, valued at £3,763,924); iron ore (877,306 tons, £2,707,324); diamonds (443,598 carats, £1,699,875); and cocoa, unroasted coffee, ginger, and piassava. Imports, valued at £13,376,250, included principally cotton fabrics (£1,832,733), iron and steel, and base metals (£685,824).

Communications.—The first of 11 new major road bridges, to replace ferries, was to be opened in 1955. Railway mileage totaled 394 in 1954; there were 2,912 miles of highways (bituminous-surfaced, 103 miles). The harbor of Freetown is one of the finest in Africa; over 600 ships called in 1954, and 270,782 tons of cargo was handled. There is an international airport at Lungi, near Freetown, at which services are maintained by Air France and West African Airways. Reconstruction of the runway was to be completed in 1955.

GAMBIA

The colony is administered by an Executive Council, consisting of the governor, 4 ex-officio members, 1 official member, and 7 appointed members. For the first time in Gambia's history there was in 1955 not only a

nonofficial majority on the Executive Council, but three of its nonofficial members were ministers. The first meeting took place in December 1954 of the newly-constituted Legislative Council, which consists of the governor as president, a speaker, 4 ex-officio members, 1 nominated official member, 2 nominated nonofficial members, and 14 elected members.

Finance.—In 1954 revenue totaled £1,420,356; expenditure £1,168,309. The estimates for 1955 anticipated revenue of £1,517,830; expenditure, £1,588,297.

Education.—In 1954 there were 44 government and mission primary schools (4,851 pupils), and 5 secondary schools (609 pupils); the government spent £93,085 on education.

Economy.—Production of palm kernels and of hides and skins is second in importance to peanuts (47,260 tons exported in 1954). All exports totaled £3,046,024 in 1954; imports, £2,595,256.

Communications.—The Gambia River affords the principal means of communication. There are 37 miles of surfaced roads in and about Bathurst, and all-weather roads connect Barra and Karang on the route to Dakar, and Brikama and Seletu on the route to Ziguinchor. West African Airways operates services from Yundum Airport, connecting Bathurst with Freetown, Sierra Leone, and Accra, Gold Coast.

DONOVAN ROWSE,
Author and Publicist.

BRITISH WEST INDIES. Six groups of islands in the Caribbean constitute these nine British colonies (four of them known collectively as the Windward Islands), with an aggregate area of 12,447 square miles and a population of 2,918,446. The Bahamas are considered geographically, though not politically, a part of the West Indies.

Colony	Area (sq. mi.)	Popula- tion	Capital
Bahamas.....	4,404	92,598 ¹	Nassau
Barbados.....	166	222,942 ²	Bridgetown
Jamaica ³	4,674	1,546,584 ⁴	Kingston
Leeward Islands.....	422	126,251 ⁵	St. John's
Trinidad and Tobago.....	1,980	678,300 ⁶	Port of Spain
Windward Islands.....	821	251,771 ⁷	St. George's
Total.....	12,467	2,918,446	

¹ 1954 est. ² 1953 est. ³ Colony, 4,411 square miles; dependencies: Turks and Caicos Islands (170 square miles); Cayman Islands (93 square miles). ⁴ Provisional est., 1954 (colony, 1,531,933; Turks and Caicos Islands, 7,000; Cayman Islands, 7,651). ⁵ 1954 est. ⁶ 1953 est. ⁷ At latest (1946) census.

The colonies of British Guiana and British Honduras, on the American mainland, have voted against participation in the projected British Caribbean Federation, but in 1955 the British Guiana interim government approved the principle of federation and decided on further study of its relation to the federal plan.

The legislatures of Barbados, Jamaica, Leeward Islands (excepting the British Virgin Islands), Trinidad and Tobago, and Windward Islands having adopted federation, the secretary of state for the colonies, A. T. Lennox-Boyd, announced on Feb. 2, 1955, that the United Kingdom government would designate the controller for development and welfare in the West Indies (Sir Stephen Luke) as commissioner for the preparation of the federal organization. Three commissions would be appointed to work out fiscal, civil service, and juridical arrangements, in cooperation with the territorial governments and with such regional bodies as the Regional Economic Committee. Constitutional instruments would provide that British Honduras, British Guiana, and any other territory would be free if they wished to join the federation.

Intercolonial migration within the federated area was the subject of a conference at Port of Spain, Trinidad, March 14-17; recommendations of the conference were to be embodied in the final plan of federation. When this had been approved, and Parliament had passed the necessary legislation, prefederal machinery was to be established and arrangements made for the demarcation of constituencies and the holding of elections. The end of 1956 has been set as a target date for the creation of a federal government in the Caribbean. All the British Caribbean territories sent representatives to a conference on training in administration held in April 1955 at the University College, Jamaica.

Under the new Colonial Development and Welfare Act, effective March 29, 1955, allocations of funds to Caribbean territories totaled £13,560,000, exclusive of £4,619,000 representing unspent balances of previous allocations.

Princess Margaret, younger sister of Queen Elizabeth II, made a month's official tour of the West Indies from Feb. 1 to March 2, 1955, traveling between the islands on the royal yacht *Britannia* and being warmly received throughout the colonies.

To assist in relieving distress caused by hurricanes which caused heavy casualties and damage (especially in the Windward Islands) in September 1955, the United Kingdom government made grants of £50,000 each to the governments of Barbados and Granada, and of £10,000 to British Honduras.

(For particulars of government, education, trade, and communications, see the articles on the various colonies.)

BROADCASTING. See FEDERAL COMMUNICATIONS COMMISSION; RADIO AND TELEVISION.

BRONZE. See BRASS AND BRONZE.

BROWNELL, Herbert, Jr., U.S. attorney general: b. Peru, Nebr., Feb. 20, 1904. With a background in law and New York State politics, he conducted the campaigns of Thomas E. Dewey for governor of New York in 1942 and for president in 1944 and 1948, and served as Republican national chairman from 1944 to 1946. Serving as one of Gen. Dwight D. Eisenhower's closest political advisers in the 1952 presidential campaign, Brownell took office in Eisenhower's cabinet as U.S. attorney general on Jan. 21, 1953.

In November 1953 he became involved in the unresolved Harry Dexter White controversy with former President Harry Truman. During the Army-McCarthy hearings in 1954, he forbade the public release of Federal Bureau of Investigation data obtained by Senator McCarthy from an unnamed government employee. Later, when McCarthy called on employees to forward him information on subversion and corruption in government, Brownell held that such an appeal was "an open invitation to violate the laws" and that it lent itself to the substitution of government by an individual for government by law.

Brownell has energetically supported the administration's employee security program. In March 1955, however, the administration reacted to mounting criticism by revising its security procedures to insure accused employees "fair and impartial treatment." Critics, nevertheless, continued to demand that accused employees be granted the right to face their accusers, the denial of which they claimed was a violation of the 5th Amendment's "due process of law" clause. In reply, Brownell has maintained that the clause does not cover government employment and that the government needs publicly unidentified undercover agents and paid informers to protect the basic security of the country.

BRUCKER, Wilber Marion, American lawyer and public official: b. Saginaw, Mich., June 23, 1894. A former Republican governor of Michigan, he was appointed secretary of the army by President Dwight D. Eisenhower on June 22, 1955, following the resignation of Robert T. Stevens.

After receiving his LL.B. degree from the University of Michigan in 1916, Brucker participated in the border campaign of 1916 against Pancho Villa, and later in World War I as a first lieutenant in the 42d Division. On his return to the United States he was admitted to the Michigan bar in 1919 and began practicing law in his native Saginaw. Subsequently he served as assistant prosecuting attorney of Saginaw County (1923-27) and as assistant attorney general (1927) and attorney general of Michigan (1928-

30). In 1930 he was elected governor of Michigan on the Republican Party ticket, serving until 1932, when, in a bid for a second term he was defeated by the Democratic candidate, William A. Comstock. Returning to law practice after his defeat, he became a partner in a major Detroit law firm, Clark, Klein, Brucker, and Waples. He also became chairman of the Committee on Ethics of the American Bar Association.

Although Brucker never held another elective office, he was active as Republican Party chairman of the 14th Congressional District Committee since 1944. On April 6, 1954, he was named general counsel of the Defense Department (confirmed April 19), in which capacity he was serving at the time of his appointment as secretary of the army.

BRUNEI. See BORNEO.

BUDGET, U.S. See TREASURY OF THE U.S.

BUILDING AND CONSTRUCTION. As 1955 drew to a close, it left behind another record for the volume of new construction put in place in the United States. It was estimated by the United States Departments of Commerce and Labor that the total expenditures would be about \$42 billion, 12% above the previous record of \$37.6 billion set in 1954.

The main impetus for 1955's higher level of activity was new housing construction, which increased 22% and accounted for nearly one half of the \$30 billion spent for all new private construction. The continuous process of suburbanization, going on since the close of World War II, plus new highway construction, have created a tremendous demand for stores, restaurants, and garages; this group alone showed an increase of more than 50% in activity over 1954. Industrial construction, responding to the pressure on production facilities evidenced by record industrial production levels, increased 18%. Of special interest also was the continued high level of building of religious structures, which in both 1954 and 1955 increased by 25% over the previous year.

In public construction the overall increase was small (2%). Only moderate gains, in the light of the tremendous backlog of needs, were recorded by schools (15%), sewer and water installations (10%), and highways (9%). Hospital building declined 10%. The \$800 million (or 50%) drop in industrial-type construction, reflecting completion of projects for the Atomic Energy Commission, more than offset the nearly 30% rise in other types of military facilities occasioned by stepped-up air force and continental defense activity. Expenditures for public housing (26% below 1954) and conservation work (15% below 1954) continued their three-year decline.

New Housing.—For the seventh year in a row the number of starts of new nonfarm residential units exceeded 1 million. The preliminary estimate for 1955 of 1,300,000 new units, less than 2% public-owned, exceeds every year except the record 1950 total of almost 1,400,000. For the first six months of 1955 the seasonally adjusted annual rate of new private houses started was only 1% below the same period in 1950. However, increased down-payment requirements for government-insured housing, coupled with tighter credit and monetary policies, kept new starts in the second half of 1955 well below the comparable 1950 period. Nevertheless, strong supporting factors remained, such as high and increasing real incomes, favorable financing, and a relatively high removal rate. Effective vacancy rates were

only slightly above 1950, indicating a sustained demand. (See also HOUSING.)

Building Permits.—As an important indicator of private residential and selected nonresidential building activity (in 7,000 reporting places which account for about 75% of the total non-farm population in the United States), building permit statistics throw important light on the geographic distribution of the building boom. The Northeast area, which population-wise has been relatively more static than other sectors, both in terms of growth and mobility, showed overall increases of about 13% over 1954 in the valuation of all building permits issued during the first 8 months of 1955. The West, with the largest population increases and movements, showed a corresponding 26% increase.

Costs.—After remaining relatively stable for several years, construction costs in 1955 moved upwards. The steady rise which began in February 1955 accelerated significantly in July and August as the basic steel price increase was passed on to fabricators, as copper and brass scarcity became acute, and as the railroad car shortage disorganized lumber distribution schedules. Preliminary indications were that average wholesale prices of construction material would be at least 6% higher than in 1954. According to press reports, shortages of cement, gypsum board, tile, and other materials in high-activity areas resulted in premium prices, allocations, and hoarding.

The year 1955 also witnessed another round of moderate wage increases. A highly competitive bidding situation, especially on highway and engineering projects, coupled with observable but unmeasured technological and productivity gains, countered the above forces. The combined effect was to push apparent overall costs to a level about 5% higher than in 1954.

Employment and Earnings.—Contract construction employment, which continued the gradual decline begun in 1953, fell to an average level of about 2.5 million in 1955. (Inadequate statistics preclude definitive interpretation of this decline in the face of apparent increased construction volume.) Average hourly earnings for all construction workers started at a higher level than the 1954 figure of \$2.54, and it seemed that the average for 1955 would be about 2% higher. Average weekly earnings were rising proportionately, and would be just a few dollars short of \$100 in 1955.

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BULGANIN, Nikolai A(leksandrovich), premier of the Soviet Union: b. Nizhni Novgorod (now Gorki), Russia, June 11, 1895. A member of the Soviet Communist Party since 1917, he served the government and party in a variety of important administrative capacities before World War II. During the war he rose rapidly in the government hierarchy, becoming in 1944 assistant minister of defense, as well as a member of the State Defense Committee (USSR war cabinet). In 1947 he was named minister of defense and was made a full member of the Politburo (renamed the Presidium in 1952). After the death of Joseph Stalin in 1953, he retained his membership in the greatly reduced party Presidium, and was also appointed first vice premier of the USSR, a member of the Presidium of the Council

of Ministers, and was renamed defense minister.

With the sudden resignation of Premier Georgi Malenkov on Feb. 8, 1955, Marshal Bulganin was nominated for the premiership by Nikita S. Khrushchev, first secretary of the Communist Party, and was elected by the Supreme Soviet. In his inaugural address on the following day, he reflected the reversal of Soviet internal policy when he declared that the USSR "must develop heavy industry as the basis of all our economy."

During 1955, Premier Bulganin, as nominal leader of the Soviet Union, headed a delegation to Warsaw, Poland (May 11-14), where a mutual defense treaty modeled after the North Atlantic Treaty Organization was signed between the USSR and its seven eastern European satellites; accompanied Khrushchev to Yugoslavia (May 26-June 2), where discussions with Tito resulted in the resumption of friendly relations between the two countries; attended the Geneva Conference (q.v.); was host to a West German delegation headed by Konrad Adenauer in discussions (September 9-13) which resulted in the establishment of West German-Soviet diplomatic relations and an agreement to release German prisoners of war held in the USSR; and led the Soviet delegation in talks with East German leaders (Moscow, September 17-20) which resulted in an agreement that restored sovereignty to East Germany. On November 17, Bulganin, with Khrushchev and a 100-man party of Soviet officials, embarked from Moscow on a goodwill tour of India, Burma, and Afghanistan.

BULGARIA. A Soviet-controlled and Communist-dominated people's republic of southeastern Europe, Bulgaria is bounded on the north by Rumania, on the east by the Black Sea, on the south by Turkey and Greece, and on the west by Yugoslavia.

Area and Population.—Bulgaria has an area of 42,796 square miles. The population increased from 7,022,206 at the 1946 census to an estimated 7,500,000 in mid-1954. About 73% of the people live in rural areas. A majority (88%) speak Bulgarian as their mother tongue; Turkish speakers (9.8%) are the largest minority group. The principal cities, with their 1946 populations, are the capital, Sofia, 366,925 (est. 1950, 500,000); Plovdiv, 125,440; Stalin (formerly Varna), 77,792; Ruse, 53,420; Burgas, 43,684; and Pleven, 38,997.

Government.—The Bulgarian People's Republic was proclaimed on Sept. 15, 1946. According to the Constitution of 1947, the highest organ of the government is the unicameral National Assembly (Narodno Sobranie), consisting of 249 deputies. Although the constitution supposedly guarantees free elections, citizens cannot organize their own parties or place on the ballot candidates for the assembly who are unacceptable to the Communist Party. The assembly elects and, when not in session, is represented by the Presidium of the National Assembly, whose chairman is Georgi Damianov. The National Assembly also "appoints" the cabinet, which is presided over by Premier Vulko Chervenkov.

Political power is actually vested in the Politburo, an organ of the Central Committee of the Communist Party. The party is the dominant force in the Fatherland Front (Otechestven Front), which also includes splinter groups of traditional democratic parties that are willing to accept Communist control. There are approximately 455,000 members in the party, and 2,000,000 in the Fatherland Front.

Bulgaria is divided into 12 provinces, which in turn are subdivided into 95 districts, 108 towns, and 2,034 village communes. Provincial, district, and local councils are elected by popular vote, but only candidates of the Fatherland Front can appear on the ballot.

In its government organization, constitutional provisions, and political ideology, Bulgaria follows the example of the USSR.

Education.—The government is in complete control of the educational system. Elementary training is obligatory, and according to official reports illiteracy has been reduced to 5% of the population. At the beginning of 1955, Bulgaria had 20 institutions of higher education, with a combined enrollment of 32,000, almost half of whom received government scholarships. Many students live in government dormitories. The largest and most

important of the higher institutions are Sofia, Stalin, and Plovdiv universities.

In 1954 there were 8,635 elementary schools (including 1,116 for Turkish-speaking pupils), with 1,092,042 pupils and a staff of 44,027, and 216 secondary schools (including 7 for Turkish-speaking students). Bulgaria has 24 theaters, 5 opera companies, and 10 symphonic orchestras. The 1955 budget allocated 4,879 million leva* for educational and scientific purposes.

Religion.—Over 85% of the people belong to the Bulgarian Orthodox Church, which, under the Communist regime, has lost all vestiges of independence, and whose position has been further weakened by official antireligious campaigns. Moslems, totaling about 10% of the population, form the second largest religious group. Approximate percentages of other groups are as follows: Roman Catholic, 0.77; Armenian (Gregorian), 0.31; Protestant, 0.21; Jewish, 0.08.

Finance.—The 1955 budget provided for revenue of 18,195,400,000 leva and expenditures of 17,320,400,000. Turnover taxes and profits from socialist industry were to provide 77.8% of the revenue; 54.6% of expenditures was allocated to the national economy, and 11% to national defense. Public health, social security, and pensions were to receive 1,072,000,000 leva.

A government decree of April 22, 1955, reduced retail prices from 10 to 30% on several hundred items of consumer goods.

Defense.—Under the terms of the peace treaty of 1947, Bulgaria's armed forces are limited to 65,500 men, including 55,000 infantry, 5,200 air force troops, 1,800 antiaircraft troops, and 3,500 naval personnel. According to a New York Times report, Bulgarian forces were estimated in 1955 at 11 to 16 divisions totaling 165,000 to 195,000 men. The Western powers have repeatedly protested against Bulgarian violations of peace treaty restrictions. On Sept. 20, 1955, following the Soviet example, Bulgaria announced that she would cut her armed forces by 18,000 men by Dec. 31, 1955.

Agriculture.—According to the Second Five-Year Plan (1953-57), the government will allocate 3 billion leva for capital investments to develop cultivation and stockbreeding. The number of tractors is to be increased to 23,000 (mid-1954 est., 14,700) in terms of 15-hp units, and the number of combines to 5,000 (mid-1954 est., 1,800). If the plan is fulfilled, the total irrigated area will be increased from 675,000 acres in 1955 to 1,250,000 acres in 1957. The 1955 budget allocated 2,252 million leva for mechanization and other improvements. During the year 17 new machine and tractor stations were established, bringing the total to 166.

As of 1954, 51.7% of the arable land had been collectivized; this is a much larger percentage than that of any of the other Soviet satellites. Collectivization has been particularly intensive in the fertile regions north and south of the Balkan Mountains and in Southern Dobruja. There are some communes, but most of the collective farms are organized internally like Soviet kolkhozes. On Jan. 31, 1955, the Central Committee of the Communist Party ruled that the charters of collective farms be amended to permit differential remuneration for work, and so provide financial incentives for increased production. Following current Soviet practice, the same decree ordered that experienced managers and party workers be sent from the cities to assume leading positions in rural communities. Despite official claims of steady progress in agriculture, there are continued reports of peasant opposition to regimentation.

According to official reports, collective farms market 65% of the grain crop, and private farms, which hold 45.5% of the arable land, market 33.5%. Collective farms also play an increasingly important role in the production of industrial crops, raising most of the country's cotton, sugar beets, and roses.

State farms, whose internal organization follows closely that of the Soviet sovkhozes, occupy

* The Bulgarian lev is linked to the Soviet ruble, at the ratio of 1 ruble to 1.70 leva. Since the ruble equals 25 cents in U.S. currency at the official rate, there are 6.8 leva to the U.S. dollar.

2.5% of the arable land and market 1.5% of the country's total grain crop. On March 20, 1955, the government announced that it had decided to consolidate the 108 state farms into 49, allegedly for the purpose of increasing production by reducing administrative overhead.

The Second Five-Year Plan places particular emphasis on livestock breeding, but progress has been negligible. Livestock totals as of December 1953, with 1957 targets in parentheses, are as follows: cattle, 1,700,000 (2,100,000); hogs, 2,070,000 (2,200,000); sheep and goats, 8,400,000 (9,700,000).

In 1954, Bulgaria produced about 2,400,000 metric tons of bread grains and 1,600,000 metric tons of coarse grains. Sugar beet production amounted to 700,000 metric tons in 1952, and tobacco production, 49,799 metric tons in 1949.

Industrial Production.—The Second Five-Year Plan calls for an industrial investment twice as great as that of the First Five-Year Plan. By 1957 the production of machinery and industrial tools is expected to increase by 78%, and that of consumer goods by 48%. Special emphasis is placed on the construction of new power stations, the capacity of which is expected to exceed 430,000 kw. by 1957.

The 1955 annual plan of industrial construction called for an investment of 4 billion leva. The plan stipulated that the hydroelectric stations at Stara Zagora, Pasarel, and Kokalyane be completed during 1955. During the year the thermal power station at Dimitrovo (Pernik) and several diesel stations were expanded, and work was continued on the Stalin Dam, largest in the country, which, when completed, will irrigate 250,000 acres. It was also expected that coal mines with an annual output of 2,275,000 tons of coal would be opened during 1955.

The estimated production during 1954 of selected commodities was as follows: coal and lignite, 8,600,000 metric tons; cement, 793,000 metric tons; pig iron (1952), 10,640 metric tons; electricity, 1.8 billion kw.-hr.; woolen fabrics (1953), 9.8 million meters; and cotton fabrics, 125 million meters.

Foreign Trade.—No reliable statistics are available on Bulgaria's foreign trade. Reciprocal trade agreements were signed for the first time with Indonesia (December 1954), Israel (December 1954), Turkey (Feb. 23, 1955), and western Germany (April 29, 1955). A protocol regulating trade with the USSR during the year was signed on March 2, 1955. Under its terms the USSR was to continue to sell Bulgaria industrial equipment, machinery, and cotton in return for nonferrous metal ores, tobacco, and other agricultural products. During the course of 1955, trade and payments agreements were signed with all other European Communist countries, and on March 16, a trade agreement was signed with Yugoslavia. From September 5 to 20, an international fair was held at Plovdiv.

Bulgaria's trade with western Europe has increased, but that with the United States is negligible. On Aug. 16, 1955, the General Motors Corporation announced that it would not permit its automobiles to be sold to Bulgaria.

Transportation and Communications.—Bulgaria has 13,870 miles of roads (1949) and 2,670 miles of railways (1952). The Danube River is an important traffic artery. Ruse and Vidin are the chief river ports, and Stalin and Burgas are the principal Black Sea ports. On March 10, 1955, a Danube navigation agreement with Austria was

signed in Sofia. Bulgaria has about 61,000 telephones (1954) and 300,000 radios.

Principal Events, 1955.—The year 1955 saw in Bulgaria the same adjustments in domestic and foreign affairs that characterized the Soviet Union and its other satellites. Trade, cultural, and political relations with other Communist nations were further cemented. On February 17, Bulgaria signed a protocol on cultural relations with Communist China. The country participated in the Soviet-sponsored Warsaw Conference and ratified (May 28) the eight-nation eastern European mutual defense treaty. On June 3, the Soviet leaders Nikita S. Khrushchev, Nikolai A. Bulganin, and Anastas I. Mikoyan visited Sofia to explain the Soviet policy of coexistence with the capitalist world. On June 14, Moscow announced that Bulgaria would receive atomic research equipment and scientific and technical equipment.

In Bulgaria, as in other Communist countries, the policy of war with capitalism has been replaced by a policy of coexistence. In March 1955, Foreign Minister Mincho Neichev declared that Bulgaria would pursue a policy of peace and international cooperation. Relations with Yugoslavia have been normalized, although it was reported on September 12 that 50 Bulgarian Army officers had been arrested for urging a military alliance with that country. On March 1 the Presidium decreed the termination of hostilities with Germany. Although tension had subsided on the Turkish and Greek frontiers, relations with Bulgaria's southern neighbors were by no means satisfactory in 1955. On Dec. 15, 1954, negotiations with Greece concerning Bulgarian reparations reached an impasse, but on Aug. 16, 1955, an agreement was signed on the avoidance and settlement of border incidents between the two countries. In March 1955, Turkish soldiers were accused of having fired on Bulgarian frontier guards, and in April Bulgaria announced that she had granted asylum to two Turkish fliers.

A tragedy occurred on July 27, 1955, when Bulgarians shot down a commercial plane of El Al Israel Airlines, Ltd., north of Petrich. All 51 passengers and 7 crew members were killed. On July 29, the Bulgarian government expressed "deep regret" for the disaster, promised to punish those responsible, and offered to pay damages to the victims' relatives. A special note was transmitted on August 11 to the United States via the Swiss legation, in which Bulgaria apologized for the deaths of 12 Americans in the disaster.

On December 14, Bulgaria, along with 15 other countries, was elected to membership in the United Nations.

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BUREAU OF EMPLOYMENT SECURITY. The Bureau of Employment Security (BES) is organizationally in the U.S. Department of Labor, and is the federal partner in the federal-state employment security system. There are two major entities in the bureau—the U.S. Employment Service (USES) and the Unemployment Insurance Service (UIS). Through the USES, the bureau promotes and develops a nationwide system of state-administered public employment offices, and operates an employment service for the District of Columbia and United States territories. Through the UIS, the bureau assists the states in carrying out their responsibilities under their own unemployment insurance laws. The two services

complement each other in carrying out federal responsibility for an employment security system authorized by the Wagner-Peyser Act (1933), the Social Security Act (1935), and supplementary legislation.

United States Employment Service.—The USES includes a Veterans Employment Service and a Farm Placement Service, and provides specialized assistance to state agencies in matters related to the occupational adjustment of workers and the solution of employer manpower problems. This federal-state system is also charged with meeting defense manpower needs during national emergency or partial mobilization. Some 1,700 local employment offices are operated by the states.

Activities of the public employment offices in the fiscal year 1955 reflected the economic changes occurring during the year. As economic conditions improved and unemployment declined from the high levels of the previous year, new applications for work declined about 4% to 8.5 million. Public employment offices made 14.5 million job placements—2% fewer than in the fiscal year 1954. The decline occurred among placements in agricultural jobs, which dropped 3% to about 9 million. Placements in nonfarm jobs remained unchanged at 5.5 million.

Employment counselors in local offices held 1.4 million job-counseling interviews with approximately 850,000 applicants who required assistance in making a vocational choice or adjustment—about 22% greater than the preceding year, and the highest number since comparable data became available in July 1948.

Services to Special Groups.—The bureau developed a *Handbook on Counseling and Employment Services to Special Groups* and issued the first six of a series of guides to be used in evaluating the job capacities of individuals with specific disabilities. To facilitate services to other special groups, Supplement 1 to the *Dictionary of Occupational Titles*, which describes and classifies occupations, was published.

During the fiscal year 1955, 339,400 handicapped persons filed new applications for work—7% more than the number filing in the preceding fiscal year. Approximately 46% of these applicants were given job counseling assistance, and local offices made some 214,200 selective placements of disabled workers to nonfarm jobs. In addition to strengthening job development services for the severely handicapped, studies are being sponsored by the bureau to obtain more detailed information on job opportunities for older workers.

Services to Veterans.—To assure that newly released Korean veterans were fully acquainted with available services, state employment security agencies provided appropriate informational services to some 260 separation installations. At about 80 of these, employment service personnel provided direct services to releasees.

Veteran applications for employment in the fiscal year 1955 totaled 2,089,000—slightly below the number in the previous year. Job counseling interviews with veterans rose to 390,600—more than 20% of the number in 1954. Reflecting the improved economic conditions during the year, nonfarm placements of veterans rose about 6% to 1,381,900.

A total of 125,500 disabled veterans filed new work applications during the year, and 57,700 received job-counseling assistance. In carrying out the policy of extending “preferential treatment” to disabled veterans, public employment

offices made 99,100 placements of such veterans in nonfarm jobs.

Labor Market Conditions.—Starting from relatively low levels of activity in 1954, there was steady improvement in the economy in the fiscal year 1955. Definite indications of the upward trend in the overall economic picture began to appear in October 1954. By mid-1955 a substantial expansion had occurred in economic activities, with many new records established.

Total employment during the fall and winter months of 1954 held firm, except for seasonal fluctuations, but in April 1955 a sharp expansion of employment became evident. In April 1955, the number of employed persons (61.7 million) exceeded the April 1954 number by 1 million, and surpassed by 100,000 the previous all-time high in April 1953. The entire change during this period occurred in nonagricultural employment, which rose to 55.5 million in April 1955, about 1 million above the level for the previous April. The total number of unemployed declined from a peak of 3.7 million in March 1954 to 3 million by April 1955. Similarly, insured unemployment among workers covered by the state unemployment insurance laws dropped from a weekly average of 2,180,000 in April 1954 to 1,471,000 in April 1955.

By the end of fiscal year 1955, the number employed rose to a new all-time high of 65 million. Nonagricultural employment was also at a record level of 57.3 million. Reflecting the employment gains, the total number of jobless persons declined to 2.5 million by July, and insured unemployment dropped to a weekly average of 1,092,000.

During 1955, manpower developments in most of the major labor market areas reflected the widespread and substantial recovery from the economic downturn of the previous year. In July 1954 a total of 53 major production and employment centers—representing a peak figure for the post-Korean War period—were classified by the BES as “areas of substantial labor surplus.” The number of surplus areas dwindled during the first half of fiscal year 1955, as employment totals edged upward, and stood at 44 in the middle of the fiscal year. By the end of the fiscal year, only 31 major centers remained on the substantial surplus list.

As a result of the upward surge in the demand for workers and the consequent tightening of local labor availability, occupational shortages became more numerous during 1955, especially in professional workers, such as electrical and mechanical engineers, and in clerical and sales personnel, such as stenographers and typists. (See also LABOR; LABOR FORCE.)

Community Employment Planning.—Local community activities to stimulate the development of new job opportunities were intensified during fiscal year 1955. The bureau worked closely with state and local offices and employer, labor, and civic groups, and participated in the work of the river basin commissions.

Labor Market Information and Analysis.—Information regarding available job opportunities and the employment and unemployment situation in specific geographic areas, industries, and occupations was made available by the BES to other government agencies, community groups, employers, labor organizations, and the general public.

The bureau released bimonthly analyses covering employment and unemployment conditions in 149 major production and employment centers.

These areas account for about 70% of nonagricultural wage and salaried employment. Surveys of the employment situation in about seven key industries were prepared during the fiscal year, while analyses of occupational shortages, as reflected by the interarea recruitment activities of the employment service, were published each month. A supplement was prepared to the *Job Guide for Young Workers*, which provides information on important entry occupations, and procedures were developed to obtain data on the economic and social characteristics of the insured unemployed on a regular and current basis.

Farm Placement Program.—In order to meet the needs for farm workers in the fiscal year 1955, it was necessary to supplement domestic farm workers with workers recruited from Puerto Rico, Mexico, the British West Indies, and Canada for short periods of temporary work at peak seasons. About 342,000 foreign as well as 15,000 Puerto Rican workers were contracted for farm jobs. During the peak harvest months approximately 195,000 Mexican workers, 10,000 British West Indians, and 6,000 Canadian workers were reported at work in 33 states.

Unemployment Insurance Service.—The UIS carries federal responsibilities for the administration of the federal-state system of unemployment insurance, established by the Social Security Act of 1935. There are 51 employment security agencies in the states, the District of Columbia, and the territories of Alaska and Hawaii, operating under their employment security laws. The purpose of the program is to compensate members of the covered labor force for part of their wage loss when they are unemployed because of lack of work.

The payment of benefits for individual workers' unemployment is made from payroll taxes on employers under the state employment security laws. The Federal Unemployment Tax Act (originally Title IX of the Social Security Act) stimulated the enactment of these state laws by establishing a federal payroll tax of 3% on employers of 8 or more workers in commerce and industry (4 or more workers after Jan. 1, 1956), and by allowing a credit of up to 2.7% against the federal tax for taxes paid to a state under an approved state law. Other parts of the Social Security Act assure high standards for the administration of the program by providing for payment by the federal government of all costs of administration and establishing the conditions which a state unemployment insurance law must meet to entitle the state to federal funds. The statutory responsibility of the Department of Labor for the approval of state laws, and the certification of states for administrative grants are carried by the UIS.

In all states, benefits vary in relation to prior wages. As of October 1955, maximum weekly benefits for resident claimants varied under the laws from \$24 in one state to \$36 in two states and \$45 in Alaska, with 31 states paying \$30 or more. In 10 states the maximum is increased by an allowance for specified types of dependents. The maximum duration of benefits varied from 16 to 30 weeks, with 27 states having a duration of 26 weeks or more, and with one state having a duration of 30 weeks.

Beginning Jan. 1, 1955, federal civilian workers were included in the unemployment compensation program. Unemployed federal workers are paid benefits in the same amounts and under the same conditions as workers in private employment under the applicable unemployment in-

surance law, usually that of the state in which they had their last official status in federal service. During the first six months of the program, nearly 100,000 initial claims were filed by former federal employees, and \$16,000,000 was paid in benefits to nearly 60,000 of these claimants.

During the fiscal year 1955, 5,405,000 claimants drew benefits under the state unemployment compensation program and the unemployment compensation program for federal employees for 73,517,000 weeks of unemployment. Benefit payments averaged \$25.05 per week for an average of approximately 14 weeks. A total of \$1,142,000,000 was collected under the state laws, and \$187,000,000 was paid to the states as interest on the unemployment trust fund. A total of \$1,776,000,000 was paid in benefits under the state laws, and funds available for state benefits at the end of the year were \$8,011,000,000.

Unemployment Benefits for Veterans.—Special federal benefits are payable, under the Veterans' Readjustment Assistance Act of 1952, to veterans with service on or after June 27, 1950. These benefits are paid by the state employment security agencies, as agents of the federal government, under agreements with the secretary of labor; and in Puerto Rico and the Virgin Islands they are paid through their respective employment services. To be eligible for these benefits, veterans must meet all requirements of the law of the state making payment, excepting the qualifying employment and wage requirement. The federal benefits are \$26 a week for 26 weeks. Veterans eligible under a state law must exhaust those benefits first, but if their state benefits are less than \$26 a week, they are entitled to a federal supplement to bring payment to \$26 a week.

From the beginning of the program in October 1952 to the end of the fiscal year 1955, almost 900,000 veterans filed claims for benefits, \$205,985,000 being paid for 8,850,000 weeks of unemployment. During the fiscal year 1955, 369,000 veterans filed new claims, \$106,900,000 in benefits being paid for 4,600,000 weeks of unemployment. (See also VETERANS ADMINISTRATION.)

ROBERT C. GOODWIN,
Director.

BUREAU OF LAND MANAGEMENT. See PUBLIC LANDS.

BUREAU OF MINES. See MINING.

BUREAU OF STANDARDS. See NATIONAL BUREAU OF STANDARDS.

BURKE, Arleigh Albert, United States naval officer: b. near Boulder, Colo., Oct. 19, 1901. On May 25, 1955, he was nominated by President Eisenhower to succeed Admiral Robert B. Carney as chief of naval operations (effective Aug. 16, 1955). Burke was in command of the destroyer forces of the Atlantic Fleet at the time of his appointment.

Graduated from the U.S. Naval Academy in 1923, he was commissioned an ensign and assigned to the battleship *Arizona*. In 1932 he took an M.S. degree in chemical engineering at the University of Michigan. During World War II, he was commander of Destroyer Squadron 23 (the "Little Beavers") which fought 22 actions in the Pacific theater from Nov. 1, 1943, to Feb. 23, 1944. His command was credited with destroying a Japanese cruiser, nine destroyers, a submarine, seven other vessels, and 30 aircraft. He won the nickname of "31-Knot Burke" for his swift and successful action of Nov. 24, 1943, against Japanese transports evacuating troops

from Buka Island in the Solomon group. In 1944 he was named chief of staff to Vice Admiral Marc Mitscher, commander of the famous Task Force 58. A brilliant tactician, he planned the devastating carrier-based assaults on Iwo Jima, Okinawa, and Tokyo. He was aboard the flagship *Bunker Hill* when it was badly damaged by Japanese suicide planes off Okinawa in May 1945.

Immediately after the war, Burke was assigned as a temporary commodore to the General Board, which at the time was the highest policy-study office of the Navy. Later, in his capacity as assistant chief of naval operations for the Organizational Research and Policy Division, he became director of Operation 23, which in 1949 spearheaded the navy's unsuccessful fight against the administration's efforts to unify the armed forces and to give priority to the U.S. Air Force's B-26 strategic-bomber program. Despite this role in the "Admirals Rebellion," he was promoted to rear admiral in June 1950 and, with the outbreak of hostilities in Korea, was named commander of Cruiser Division 5 in Korean waters. He served in this capacity until 1951, when he was assigned to the military armistice commission at Panmunjom.

Prior to his nomination as chief of naval operations, Burke was outranked by 92 officers. The appointment, however, was in keeping with President Eisenhower's policy of placing younger, more vigorous men in the top commanding posts of the armed forces. On taking the new command, Burke was promoted to the rank of full admiral.

BURMA, Union of. Bounded on the west by India, East Pakistan, and the Bay of Bengal; by Tibet and China on the north; and on the east by Indochina and Thailand, this independent southeast Asian republic came into existence Jan. 4, 1948, when a treaty enacted by the British Parliament recognized Burma's independence. The union comprises Burma proper (area, including the Chin Special Division, 162,290 square miles); Shan State (61,090 square miles);

Kachin State (33,903 square miles); Kayah State (formerly Karenni States, 4,506 square miles), and Karen State (1,800 square miles), formally constituted June 1, 1954, after the final suppression of Communist and guerrilla activities in East Burma. The aggregate area is 261,789 square miles (exclusive of Great and Little Coco Islands, lying some 270 miles southwest of Rangoon and north of the Andamans, sovereignty of which passed to Burma under the 1948 treaty).

Population.—The population was provisionally estimated at 19,045,000 in 1955 (1953 census, 18,859,000). Besides indigenous Tibeto-Burman races, there are large elements of Chinese, Indo-Burmans, and Indians. The capital is Rangoon (pop., 1953, 613,000); other principal cities include Mandalay (173,263), Moulmein (89,767), and Bassein (83,569). Buddhism is professed by 843 of every 1,000 Burmese.

Government.—Under a constitution approved by a constituent assembly elected in 1947, Parliament consists of two elected legislatures: a 125-member Chamber of Nationalities, including 53 members representing the central government; and a Chamber of Deputies, composed of 250 members elected on the basis of proportional representation. The government is headed by a president (Dr. Ba U, elected March 12, 1952, by both houses of Parliament for a 5-year term), assisted by a 21-member cabinet. The prime minister is U Nu (appointed March 12, 1952). In 1955 Sao Hkun Hkio was minister of Shan State and chairman of the Burmese delegation to the United Nations. Joseph Satterthwaite took up his duties as United States ambassador at Rangoon on May 10, 1955.

Finance.—Burma's unit of currency is the kyat (K4.7619 = U.S.\$1). Revised budget estimates (in millions) for 1954-55 showed receipts of K1,044 (customs taxes, K239; other taxes, including sales and income taxes, K373; rehabilitation contributions, K306; other non-tax receipts, K106; and reparations, K20); expenditures, K1,307 (current, K753; capital, K554). The proposed budget for 1955-56 projected (in millions) total receipts of K895 (revenue, K738; capital, K159); expenditures, K950 (current, K760; capital, K190), forecasting a deficit of K55. Capital outlays for selected government expenditures amounted in 1954-55 to K770.8 million, comprising (in millions) agriculture, K44.0; irrigation, K5.2; forests, K11.2; mining, K12.0; transportation and communications, K223.2; power, K168.1; industry, K133.1; and construction, K130.6.

Education.—The government's expansion program calls for the yearly addition of 2,000 primary schools and the training of 6,000 additional primary school teachers. In March 1955 more than 1,242,000 students were attending state schools—an increase over 1954 of about 42%. There were 220 high schools (42,600 students), 405 middle schools (103,600 students), and 8,951 primary schools (1,096,000 students) in 1954. Teachers in these categories in 1955 numbered, respectively, 1,076, 3,584, and 23,337. Additional registered private schools numbered 53 in June 1954 (aggregate enrollment, 82,586 pupils). Four colleges, 3 intermediate colleges, and a branch medical college were opened in 1954-55 at the University of Rangoon.

Economy.—On the basis of 1947-48 prices, the gross domestic product (goods and services) was estimated at K4,836 million in 1954-55, an increase of about 6% over 1953-54. National gross income totaled K5,166 million, compared with K4,698 million in 1953-54.

Production.—Agriculture employs two out of every three workers, and accounts for 40% of the national income. The index of total agricultural production rose in 1954-55 to 85% of pre-war volume. Acreages and yields in principal categories were as follows: paddy, 10,161,000 acres, 5,712,000 tons; groundnuts, 779,000 acres, 154,000 tons; sesamum, 1,402,000 acres, 36,000 tons; cotton, 270,000 acres, 23,000 tons; pulses, 1,180,000 acres, 206,000 tons; sugarcane, 90,000 acres, 1,150,000 tons; and millet and wheat, 600,000 acres, 83,000 tons. Jute acreage aggregating 21,700 acres produced 6,000 tons of fiber and 5,000 baskets of seed. There was an estimated sown tobacco acreage of 113,000 yielding 350 tons of cigarette tobacco.

Production of major timbers rose from 630,000 tons in 1953-54 to 662,000 tons in 1954-55,

Premiers Nu of Burma (center), Nasser of Egypt (l.), and Nehru of India (r.) celebrate Burma's New Year in April.

INTERNATIONAL NEWS PHOTOS



but production of teak was still far below the prewar level. A program developed with the assistance of the U.N. Food and Agriculture Organization was seeking to increase the rate of teak extraction (about 150,000 cubic feet in 1954) to 450,000 by 1960, using mechanical equipment to supplement the traditional trained elephants, whose number had declined from 6,500 in 1941 to 1,200 in 1954.

The output of crude petroleum (44 million gallons in 1953-54) reached 25.21 million gallons in the first half of 1954-55, and was expected to exceed 50 million gallons by the end of the production year. Other mineral production for the first half of 1954-55 included lead, 12,200 tons; zinc, 5,900 tons; tin, 300 tons; and tungsten, 200 tons.

External Trade.—During the first half of 1954-55 the total value of exports increased to K597 million, compared with K485 million in the same period of 1953-54; imports totaled K503 million (consumer goods, K370 million; capital goods, K133 million), compared with K442 million in the corresponding period of 1953-54. Under a 3-year trade agreement signed July 1, 1955, with the Soviet Union, Burma is to ship 150,000 to 200,000 tons of rice and other goods to the USSR each year in return for industrial and technical equipment. Rice exports in the first half of 1954-55 amounted to 840,000 tons, valued at K454 million; other principal exports were: cotton, 12,000 tons (K39 million); pulses, 54,000 tons (K26 million); rubber, 8,000 tons (K19 million); oil cakes, 34,000 tons (K15 million); metal and ores, 27,000 tons (K18 million); and timber, 17,000 tons (K12 million).

Communications.—In the course of the K290 million restoration program made necessary by World War II damage to Burma's railways, repairs were completed at the Ava Bridge across the Irrawaddy River near Mandalay, and traffic was resumed in 1955. Of the 2,059 miles of railway operating in 1953, 97 miles were relaid in 1954, and 73 miles of track were rehabilitated in areas recovered from antigovernment insurgents. Burma Railways in 1954-55 carried 21.5 million passengers and 344 million ton-miles of freight; Union of Burma Airways flew 27 million passenger miles and carried 1 million ton-miles of freight; and Burma Inland Waterways carried 3.9 million passengers and 184 million ton-miles of freight. Work in progress in 1955 involved the rehabilitation of the entire 3,125 miles of the railway system; improvement of 6,770 miles of district roads; and construction of 3,500 miles of farm-to-market roads. Burma has 60 miles of canals, more than 4,000 miles of navigable waterways, and 12,500 miles of motor highways. The first radio telephone link between Burma and India was inaugurated on March 24, 1955.

Principal Events, 1955.—The year 1955 was notable for the activity of Prime Minister Nu on visits to various countries. After making a state visit to Thailand (March 7-14), he began an international tour on May 28, during which he visited Israel, Yugoslavia, the United Kingdom, the United States, and Japan. His three-week stay in the United States included a meeting with President Dwight D. Eisenhower on June 29. He spent some time in India en route to the Soviet Union in late October for an official two-week visit. On December 1-7, Soviet Premier Bulganin and Communist Party Secretary Khrushchev visited Burma, where they signed an agreement giving Burma economic aid in exchange for rice.

Marshal Tito, president of Yugoslavia, made an 11-day official visit to Burma beginning Jan. 6, 1955. Subsequently a protocol of economic cooperation was signed at Brioni, Yugoslavia (June 14), under which Yugoslavia undertook to purchase 50,000 tons of Burmese rice annually for five years. A similar agreement was concluded on July 18 with Indonesia.

John Foster Dulles, U.S. secretary of state, conferred with U Nu at Rangoon on Feb. 26, 1955, on questions affecting Asia and the Pacific area.

A new town, Bahtoomyo, was inaugurated Feb. 14, 1955, as the site of Burma's first Defense Services Academy in southern Shan State. The prime minister visited and formally opened the new settlements in the Coco Islands, on March 17.

DONOVAN ROWSE,
Author and Publicist.

BUSINESS AND DEFENSE SERVICES ADMINISTRATION. After lengthy consultations with industry and government officials, the Business and Defense Services Administration was established on Oct. 1, 1953. It was largely a merger of the old National Production Authority and the Office of Industry and Commerce, intended primarily to improve relationships between business and government.

Twenty-five industry divisions were set up to serve as a principal point of contact within government for business. Between them they represent the approximately 450 basic manufacturing industries in the United States. They are staffed with career experts in their various lines, and a majority of the divisions are headed by key executives from industry on loan from their companies for six months. Known as WOC's, because they are serving without compensation from the government, these division directors bring to BDSA a fresh viewpoint from specific industries and help the Department of Commerce in formulating policy. Through industry conferences and other special meetings, BDSA gets an even broader viewpoint from cross sections of specific industries, and at the same time provides a sounding board for industry to get its particular problems aired before the branches of government concerned.

Due to world conditions, BDSA is forced to devote the major part of its time and energy to defense and mobilization problems, under authority of the Defense Production Act. Defense production covers not only the assurance of proper supplies and materials for the production of military and atomic energy programs, but also the development of flexible measures to meet any future emergency. To meet these requirements the Defense Materials System (DMS) was put into effect April 1, 1954, to replace the cumbersome Controlled Materials Plan (CMP), which had taken almost as long to get into operation in the Korean War as it had in World War II. The DMS guarantees that the requirements of the military and atomic energy programs will be met by setting aside percentages of strategic materials to meet those requirements.

BDSA's mobilization responsibilities include the development of estimates on defense supporting and essential civilian requirements and the facilities needed to supply these requirements under stepped-up or all-out mobilization; making recommendations on tax amortization, stockpiling, evaluating the strategic importance of indi-

vidual plants, and stimulating pre- and post-attack measures for their protection.

With America's great industrial plants now vulnerable to devastating attack, proper planning by industry to assure the continuity of production and management is vital to the nation's survival. This is a job only industry can do, but BDSA, in meetings with individual companies, points out

what needs to be done and how some companies are solving the problem.

CHARLES F. HONEYWELL,
Administrator.

BUSINESS TRENDS. See Index entry, *Financial and Economic Review.*

BUTTER. See Index entry.



CABINET, U.S. See UNITED STATES—Government.

CADMIUM. The world supply of cadmium is obtained as a byproduct from the treatment of other metals, chiefly lead and zinc. Domestic production declined from 9,767,197 pounds in 1953 to 9,551,710 pounds in 1954. Consumption declined from the all-time high of 9,570,000 pounds in 1953 to 7,499,000 pounds in 1954. The most significant development in 1954 was the reversal of the import-export position. Imports in 1954 totaled 402,000 pounds, compared with 1,555,000 pounds in 1953; while exports were 999,000 pounds in 1954, compared with only 66,000 pounds in 1953. During the first half of 1955, production was 5,092,026 pounds; imports increased remarkably to 802,320 pounds; and exports were 589,875 pounds. (See MINERAL PRODUCTION for output of major countries.)

CALIFORNIA. Western coastal state, United States; admitted to the Union, Sept. 9, 1850. The "Golden State" ranks 2d in both area and population (1955) among the 48 states.

Area and Population.—Area: 158,693 square miles (land, 156,740; inland water, 1,953), divided into 58 counties. Population: (1950) 10,586,223; (est., July 1, 1955) 12,696,000. Urban places with populations (1950 census figure, unless otherwise indicated) over 15,000 are as follows:

Alameda.....	70,642 ¹	Lynwood.....	28,124 ²
Albany.....	17,590	Manhattan Beach.	30,586 ³
Alhambra.....	53,558 ²	Menlo Park.....	23,811 ³
Alisal.....	16,714	Merced.....	19,481 ³
Anaheim.....	30,059 ³	Modesto.....	17,389
Arcadia.....	33,446 ¹	Monrovia.....	23,408 ²
Azusa.....	15,087 ¹	Montebello.....	25,593 ²
Bakersfield.....	34,784	Monterey.....	19,464 ²
Bell.....	15,430	Monterey Park.....	29,277 ³
Berkeley.....	113,805	Mountain View.....	18,756 ³
Beverly Hills.....	29,032	Napa.....	15,290 ¹
Burbank.....	88,043 ³	National City.....	26,832 ⁴
Burlingame.....	19,886	Newport Beach.....	18,541 ³
Chula Vista.....	25,864 ²	Oakland.....	384,575
Colton.....	17,312 ²	Oceanside.....	18,377 ⁴
Compton.....	63,670 ³	Oildale.....	16,615
Concord.....	18,977 ¹	Ontario.....	34,255 ¹
Coronado.....	17,171 ⁴	Orange.....	16,683 ³
Costa Mesa.....	17,320 ³	Oxnard.....	26,353 ⁴
Culver City.....	28,186 ²	Palo Alto.....	41,002 ³
Daly City.....	23,951 ¹	Pasadena.....	104,577
East Bakersfield.....	38,177	Pomona.....	47,928 ¹
El Centro.....	15,383 ¹	Redlands.....	47,263 ³
El Cerrito.....	22,104 ²	Redondo Beach.....	35,706 ²
Eureka.....	23,058	Redwood City.....	38,960 ³
Fresno.....	107,907 ¹	Richmond.....	99,545
Fullerton.....	36,016 ³	Riverside.....	65,823 ³
Gardenia.....	21,228 ³	Sacramento (capital)	157,182 ³
Glendale.....	35,702	Salinas.....	21,133 ³
Hawthorne.....	28,212 ²	San Bernardino.....	73,827 ⁴
Hayward.....	34,492 ³	San Bruno.....	15,623 ¹
Huntington Park.....	29,450	San Buenaventura.....	16,534
Inglewood.....	50,346 ²	San Carlos.....	16,881 ²
La Mesa.....	16,249 ²	San Diego.....	434,924 ⁴
Lodi.....	16,623 ¹	San Francisco.....	775,357
Long Beach.....	250,767	San Gabriel.....	21,755 ¹
Los Angeles.....	2,104,663 ²	San Jose.....	102,148 ⁴

San Leandro.....	32,729 ¹	South Gate.....	51,293 ⁴
San Luis Obispo.....	16,001 ²	South Pasadena.....	18,025 ²
San Mateo.....	52,309 ²	South San Francisco	29,115 ¹
San Pablo.....	17,218 ³	Stockton.....	75,157 ¹
San Rafael.....	15,255 ²	Sunnyvale.....	26,064 ³
Santa Ana.....	59,010 ¹	Torrance.....	67,459 ³
Santa Barbara.....	44,913	Vallejo.....	34,913 ⁴
Santa Cruz.....	22,794 ³	West Covina.....	28,631 ²
Santa Monica.....	75,132 ²	Whittier.....	29,265 ⁴
Santa Rosa.....	17,902		

¹ Special census, 1954; ² Special census, 1953; ³ Special census, 1955; ⁴ Special census, 1952.

Executive.—Chief state officers in 1955:

Governor: Goodwin J. Knight (Republican)
Lieutenant Governor: Harold J. Powers
Secretary of State: Frank M. Jordan
Treasurer: Charles G. Johnson
Attorney General: Edmund G. Brown
Supt. of Public Instruction: Roy E. Simpson

Constitution and Judiciary.—The present constitution went into effect in 1879. The Supreme Court comprises seven justices; chief justice in 1955 was Phil. S. Gibson.

Legislature.—The legislature (Senate, 40 members; Assembly, 80) meets in general session for 120 days in odd-numbered years, commencing the first Monday after the first day in January; and for a 30-day budget session in even-numbered years, starting on the first Monday in March.

The 1955 regular session of the California Legislature extended from January 3 to June 8. Enactments included creation of a Bay Area air pollution control district, authorization of an air sanitation program by the Department of Public Health, and appropriation of \$140,000 to the University of California for air pollution research. Provision was made for a \$200 million bond issue to finance the state building program. Increases were authorized in unemployment insurance benefits, aid to the needy blind and aged, and workmen's compensation benefits; and eligibility limits were extended under the Veterans Farm and Home Purchase Act. Other laws increased excise taxes on distilled spirits; revised the State Teachers' Retirement System; authorized the Toll Bridge Authority to finance new bridges; increased the state's share of county highway construction; and approved state employees' participation in social security at their own option. The act of 1920 forbidding alien ownership of property was repealed (subject to voters' approval in 1956); laws concerning abandoned iceboxes were tightened; and parents were made responsible for vandalism of minors. A \$500,000 flood control plan on the American River was authorized; up to 2,560 state scholarships were established; and a Legislative Audit Bureau was formed.

Finances.—State treasury receipts (1954-55 fiscal year): \$3,223,766,561.10; expenditures, \$3,196,260,155.68; treasury balance, \$287,453,935.79; long-term indebtedness, \$780,194,000.

Taxation.—State tax revenue (1953-54 fiscal year): \$1,216,917,087, including \$791,263,472 from a 3% general sales tax and selective sales and gross receipts taxes; \$101,143,700 from licensing; \$125,025,800 from corporate income taxes; \$96,168,833 from individual income taxes; \$79,203,428 from property taxes; and \$24,111,854 from gift and inheritance taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 66 national banks had \$14,679,300,000 in assets, \$7,458,898,000 in demand deposits, and \$5,997,891,000 in time deposits; the state's 107 other banks had \$5,498,520,000 in assets, \$2,203,822,000 in demand deposits, and \$1,981,304,000 in time deposits.

Education.—School attendance is compulsory for all between the ages of 8 and 16, inclusive.

Operating expenditures of \$674,596,951 (\$306.16 per pupil) for public elementary and secondary education in the 1953-54 fiscal year comprised (including reserves) \$379,713,415 from local school districts, \$359,504,414 from the state, and \$17,383,698 from the federal government. Expenditures for construction and improvements totaled \$275,118,343. Teachers' salaries (1954-55) averaged \$4,707 (elementary school teachers, \$4,477; high school teachers, \$5,137).

CALIFORNIA SCHOOL STATISTICS (As of March 31, 1955)

Type of school	No.	Teachers	Students
Public elementary (k-8).....	1,685 ¹	51,608	1,785,353 ²
Public secondary (9-12).....	322 ¹	26,998	469,449 ³
Private and parochial elementary and secondary.....			242,702 ⁴
Public junior colleges.....	52	3,244	77,219 ⁵
Private junior colleges.....			2,960
State colleges.....	10	1,675	32,017 ⁶
Colleges and universities.....	61		70,410 ⁷

¹ Number of districts. ² Excluding 25,165 special students. ³ Excluding 287,376 special students. ⁴ September 1954. ⁵ Excluding 112,642 special students. ⁶ Excluding 13,189 limited students. ⁷ Excluding 18,868 part-time students.

Social Welfare.—Public assistance expenditures from federal, state, and local funds in the 1954-55 fiscal year (excluding institutional costs) totaled \$340,237,879, including \$220,262,565 for old-age assistance, \$89,441,051 for dependent children, and \$12,223,017 for the needy blind; a monthly average of 492,409 persons received public assistance, including 59,772 persons who received \$17,867,210 in county-financed general home relief. Expenditures for correctional and penal institutions totaled \$24,065,317, including \$4,808,291 for construction and improvements. The state budgeted \$9,257,885 for the operation of youth correctional institutions in the 1955-56 fiscal year, exclusive of \$2,141,810 for construction and improvements.

CALIFORNIA WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for the mentally deficient and epileptic.....	5 ¹	8,338 ²
Hospitals for the mentally ill.....	10 ¹	36,712 ²
Clinics for the mentally ill.....	1	90 ²
Schools for the blind.....	1	165 ³
Schools for the deaf.....	2	775 ³
Schools for the cerebral palsied.....	2	63 ³
Soldiers and sailors homes.....	1	1,900 ⁴
Youth reception center clinics.....	2	421 ⁵
Forestry-type camps for boys.....	3	261 ⁵
Training schools for delinquent boys.....	4	1,388 ⁵
Training schools for delinquent girls.....	2	330 ⁵
Prisons.....	8	14,589 ⁴
Prison forestry and road camps for adults.....	18	984 ⁴

¹ Includes two hospitals with both mentally ill and mentally deficient patients. ² As of Aug. 31, 1955. ³ Estimated for the 1955-56 fiscal year. ⁴ As of June 30, 1955. ⁵ As of July 1, 1955.

Labor Force.—The labor force in July 1955 numbered 5,336,000, including 517,000 agricultural workers. Nonagricultural employment of wage and salary workers in July 1955 was 4,026,500, and for the 12 months ending July 1955 averaged 3,920,800. There were 172,000 unemployed workers in July 1955, and in the year ending June 1955, \$178,573,020 was paid in all types of unemployment compensation.

Manufacturing.—Establishments numbering 25,068 in 1953 had 1,058,374 employees who received \$4,779,275,000 in salaries and wages. A total of \$419,782,139 was spent for new plant and equipment in 1954. Value added by manufacture amounted to \$8,153,142,000 in 1953. Earnings of production workers in manufacturing

averaged \$81.05 for an average work week of 39.9 hours in 1954, and \$85.30 for 40.5 hours in the first six months of 1955.

MAJOR CALIFORNIA MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr ²
Transportation equipment.....	278,316	\$1,362,009	\$1,964,976
Food and kindred products.....	129,764	496,889	1,158,766
Machinery (except electrical).....	70,917	341,314	610,919
Fabricated metal products.....	75,836	338,640	605,312
Electrical machinery.....	63,209	284,382	449,064
Lumber and wood products (except furniture).....	58,865	248,511	433,976
Primary metal industries.....	47,586	217,102	391,851
Printing and publishing.....	48,065	230,761	390,790
Stone, clay, glass products.....	36,409	146,093	301,323
Apparel & related products.....	54,242	169,821	286,952
Petroleum and coal products.....	20,339	104,296	266,566
Paper and allied products.....	20,014	86,355	175,475
Furniture and fixtures.....	21,376	89,216	150,385

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work.

Mining.—The total estimated value of production in 1954 was \$1,371,941,000, representing a moderate decline from 1953, chiefly in the output of mineral fuels. Minerals of construction; salines; metals; abrasives; and ceramic, fertilizer, and chemical materials were produced at nearly the same level in 1954 as in 1953.

California normally ranks first among the states in production of borates, chromite, diatomite, iodine, mercury, sand and gravel, and tungsten. It stood second in its 1953 output, with 9.69% of the United States total.

CALIFORNIA MINERAL PRODUCTION, 1954¹ (In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.).....	31,600,000	\$ 94,000,000
Chromite.....	28,800	2,347,000
Copper.....	300	178,000
Gold (fine ounces).....	235,030	8,326,000
Iron ore (long tons).....	1,250,000	8,850,000
Lead.....	2,270	631,000
Manganese ore and concentrates (long tons).....	351,000	 ²
Mercury (76-pound flasks).....	11,750	3,102,000
Natural gas (1,000 cubic feet).....	525,000,000	103,400,000
Natural gasoline (bbl.).....	21,200,000	84,000,000
Petroleum (bbl.).....	357,000,000	893,000,000
Petroleum gases (bbl.).....	9,300,000	21,600,000
Salines ³		48,505,000
Silver (fine ounces).....	296,460	283,100
Stone ⁴		68,760,000
Tungsten concentrates.....	3,000	11,360,000
Zinc.....	1,310	288,200
Other metals ⁵		2,880,700
Other nonmetallic minerals ⁶		20,430,000

¹ Estimated. ² Included in "other metals." ³ Includes boron minerals, gypsum, and salt. ⁴ Includes sand and gravel. ⁵ Includes magnesium compounds. ⁶ Includes clay, lime, and talc.

Fisheries.—The commercial fish and shellfish catch in 1954 was valued at \$83,251,512, for 713,406,246 pounds. Poundages and values of major species were: skipjack, 169,463,946 (\$25,680,987); yellowfin tuna, 149,103,693 (\$25,559,675); albacore, 64,573,673 (\$13,142,936); sardine, 136,509,767 (\$3,701,222); bluefin tuna, 21,663,106 (\$3,655,684); sole, 19,732,179 (\$1,144,770); anchovy, 42,410,214 (\$850,527); and Pacific mackerel, 25,392,604 (\$808,592). Some 11,647 persons were engaged in commercial fisheries in the 1954-55 license year.

Agriculture.—Cash farm income in the first half of 1955 totaled \$1,022,254,000, and for the full year 1954 comprised \$905,299,000 from livestock and livestock products, \$1,599,297,000 from crops, and \$14,802,000 from government payments.

Receipts from principal livestock categories in 1954 included: dairy products, \$301,204,000; cattle, \$274,156,000; eggs, \$141,584,000; turkeys, \$49,669,000; and broilers, \$41,934,000. Major crops and receipts: cotton lint, \$251,215,000; grapes, \$107,080,000; oranges, \$90,824,000; lettuce, \$78,503,000; barley, \$72,301,000; hay, \$68,001,000; tomatoes, \$63,216,000; potatoes, \$56,777,000; rice, \$50,225,000; sugar beets, \$46,784,000; peaches, \$45,931,000; lemons, \$44,630,000. Greenhouse and nursery products yielded \$60,742,000.

The state's 123,074 farms (37,800,380 acres; harvested cropland, 8,334,031) had an average of 307.1 acres and \$59,144 in value of land and buildings per farm in 1954. There were 94,996 farms with telephones and 118,656 with electricity. Livestock on farms (Jan. 1, 1955) included 3,583,000 cattle, 461,000 hogs, 2,081,000 sheep, and 29,100,000 chickens (not including commercial broilers). During the 12 months ending June 30, 1955, 467,000 persons were engaged in agriculture.

CALIFORNIA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Almonds (tons).....	38,180	43,200	35,600
Apples (1,000 bu.).....	8,174	9,542	9,180
Apricots (tons).....	211,500	139,000	242,000
Avocados (tons).....	19,750	44,000	20,000
Barley (1,000 bu.).....	48,582	69,898	64,116
Beans, dry (1,000 bags).....	4,044	4,610	4,109
Cherries, sweet (tons).....	31,180	23,200	36,000
Cotton lint (1,000 bales).....	1,048	1,487	1,250
Cottonseed (1,000 tons).....	417	619	511
Dates (tons).....	14,463	15,400	16,500
Grapes (tons).....	2,744,900	2,329,000	2,947,000
Figs (tons).....	44,400	36,700	35,300
Hay (1,000 tons).....	5,849	6,243	6,276
Hops (1,000 lb.).....	13,826	10,080	8,112
Lemons (1,000 boxes).....	13,001	14,000	13,200
Olives (tons).....	44,400	50,000	39,000
Oranges (1,000 boxes).....	44,479	39,140	38,000
Peaches (1,000 bu.).....	32,948	31,252	34,419
Pears (1,000 bu.).....	13,622	16,751	14,376
Plums (tons).....	80,700	72,000	88,000
Potatoes (1,000 bu.).....	41,965	38,210	50,640
Prunes (tons).....	173,900	179,000	135,000
Rice (1,000 bags).....	8,893	12,164	11,186
Strawberries (1,000 crates).....	2,434*	4,142	4,410
Sugar beets (1,000 short tons).....	2,554	4,632	3,504
Walnuts, English (tons).....	64,990	67,000	70,000
Wheat (1,000 bu.).....	11,464	9,260	8,652

* Average 1949-53. (Source: U.S. Dept. of Agriculture.)

Tourism.—California's tourist industry is supported by an estimated annual influx of over 4 million visitors who spend more than \$700 million in the state. (Actual figures for 1953: 4,300,000 tourists who spent \$772,000,000.) One of the new attractions for visitors in 1955 was the 350-room Beverly Hilton hotel opened in August in Beverly Hills.

Transportation and Communications.—All expenditures in the state for roads and highways and city streets in the 1953-54 fiscal year totaled \$391,972,000, and newly completed construction by the state amounted to 1,324 miles. In August 1955, the Toll Bridge Authority announced plans to build two bridges over the Strait of Carquinez.

Highways and roads on June 30, 1954, totaled 125,055 miles (68,042 surfaced, excluding 19,211 miles of city streets). Registered *motor vehicles* numbered 6,194,642 on Dec. 31, 1954, including 4,971,105 passenger cars. There were (1954) 34 *railroads* operating 8,540.5 line miles, and, in 1954, 10 regularly scheduled *airlines* and 465 *airports and airfields* (205 public and 260 limited).

Communications media included (1955) 149 AM and 37 FM *radio stations* and 26 operating *television outlets*; 133 daily *newspapers* (circulation, 4,087,431) and 636 other newspapers; and (Jan. 1, 1955) 1,609,071 for a total of 4,979,803.

Principal Events, 1955.—Within California in 1955, demands were probably never greater for state aid in solving problems created by the state's continued phenomenal growth. Among these was the increase of air pollution in the San Francisco Bay area as well as in the already hyper-irritated Los Angeles region, where the usual clamor went up not only for greater state attention to smog but to civilian defense in that vulnerable aircraft center. Statewide demands were also voiced for stricter control of liquor licenses and for increased water development.

There was much discussion in 1955 of the long-contemplated Feather River Project (see DAMS), comprising a series of dams and canals to bring badly needed water to the southern part of the state. During the year the Trinity River Project (a \$225 million program to create a 2.5 million acre-feet reservoir) was begun.

With the Eel, Russian, Klamath, and Yuba rivers, the Feather was one of several northern California streams that overflowed their banks beginning on December 22, flooding wide areas in a major disaster. Damage was estimated at \$150 million, and 65 lives were lost. Yuba City, which was flooded twice, was among the worst hit of scores of cities and towns affected.

California kept building and growing in a variety of areas. The state highway budget included planned construction of 300 miles of highways and 45 bridges. During 1955 the state legislature passed 2,103 bills, of which the governor approved 1,966 (see above, *Legislature*). All-time employment records were established in construction, finance, and service industries. Manufacturing employment was higher than at any time since 1943—the peak year of World War II. The civilian labor force reached a total of 5,475,000 persons in September. One of the few segments of the economy which suffered serious troubles, due largely to Japanese imports, was the tuna fishing industry. By June 30, 1955, California further solidified itself as the nation's second banking state, its 173 banks having 1,139 branches with assets of \$20,177,620,000.

With a 21.9% increase in its population since 1950, California continued in 1955 to give every indication of becoming one day the most populous state in the Union. At the end of World War II it had been believed that a sizable proportion of the influx contributing to this growth would be made up of elderly persons. This has not proved to be the case. In 1955, although the monthly stipend for old-age security cases was increased, dependency relief showed a downward trend. California's growing population seems to be generating its own prosperity. But accommodation of this population has obviously become California's central problem.

(See also BRIDGES; DISNEYLAND; FORESTRY; HIGHWAYS; LOS ANGELES; RECLAMATION; SAN FRANCISCO; TUNNELS.)

Principal Events by: ANDREW F. ROLLE,
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Occidental College.

CAMACHO, Manuel Ávila. See under AVILA.

CAMBODIA. See INDOCHINA.

CAMEROONS. A former German colony in western equatorial Africa on the Gulf of Guinea, constituted in 1922 as two League of Nations mandates under separate British and French administrations, and in 1946 placed under United Nations trusteeship, with Great Britain and France as respective trustees.

French Cameroons, or Cameroun (Cameroons under French Administration).—This trust territory lies between the British Cameroons and French Equatorial Africa. Estimated area, 166,800; pop. (est. mid-1952), 3,121,000, including about 13,000 Europeans, mostly French. The natives are mostly Bantu tribesmen and Sudanic-speaking peoples. Yaoundé (est. 1952, 31,800) is the capital, and Douala the chief port. The territory is ruled by a French high commissioner aided by a Territorial Assembly of 50 members (32 elected by Africans and 18 by Europeans). Local administration is still largely by tribal chieftains in the north, while 13 townships and 52 elected rural district councils have been set up in the south. The territory sends 4 deputies and 3 senators to the French Parliament in Paris and 5 representatives to the Assembly of the French Union. The 1954 budget totaled 11,537 million francs CFA. In 1953 there were 1,336 primary schools (152,006 pupils), 23 secondary schools (3,008), and 27 technical schools (1,137).

Cacao, the chief cash crop, is cultivated mainly by native planters. Other commercial crops are palm kernels, coffee, sesame, bananas, and rubber. Minerals include rutile, gold, tin, copper, and molybdenite. To provide power for an aluminum plant scheduled to begin operations in 1957, the capacity of the hydroelectric plant at Edéa is being expanded from 20,000 kw. to 120,000. Exports in 1954 totaled 15,247 million francs CFA; imports, 16,266 million. Chief exports and quantities (in metric tons) were: cacao, 50,032; coffee, 11,399; bananas, 73,704; timber, 95,396; and palm kernels, 16,810. France took 51% of exports and provided 63% of imports. The territory has about 6,000 miles of all-weather roads and 313 miles of railways.

In the last week of May 1955, 50 persons were reported killed in native riots and French repressive actions arising out of demands by the Communist-led Cameroon People's Union for a united and independent Cameroons. The party, which petitioned the United Nations in 1955 for a native plebiscite on union of the trust territories, was outlawed by French High Commissioner Roland Pré in July.

British Cameroons or Cameroons (Cameroons under British Administration).—The territory under United Nations trusteeship comprises two mountainous strips, 700 miles in length, and 50 miles in average width, extending from Lake Chad to the Atlantic Ocean on the eastern frontier of Nigeria. The population of diverse African tribes was 1,438,999 at the 1952-53 census.

Previously administered with the Eastern Region of Nigeria, the former Cameroons and Bamenda provinces have been separated therefrom and since Oct. 1, 1954, have been known as the quasi-federal territory of the Southern Cameroons. It remains, however, a part of the newly formed Federation of Nigeria (q.v.), and has its own legislature and Executive Council. Approval by the governor general is required of legislative enactments. The northern parts (totaling 17,350 square miles), comprising sections of the Adamawa, Bornu, and Benue provinces of the Northern Region of Nigeria, continue to be administered with that region. Buca, the capital of Southern Cameroons and headquarters of the commissioner, lies on the slopes of Cameroon Mountain. Ports are Tiko, Bata, and Victoria.

Revenue in 1952-53 was estimated at £1,994,000; expenditure, £1,832,000 (£156,500 for colonial development and welfare, £245,100 for public works, £158,000 for education, and £307,000 for road construction). In 1953 there were 373 schools (35,780 pupils), 15 hospitals, 83 dispensaries, 9 maternity units, 6 rural clinics, and 4 leprosy centers. Subsistence production includes coco-yams, plantains, beans, cassava, corn, and rice. Cattle are raised in the Bamenda and Mambilla plateaus. Major exports (in metric tons) and their values from Cameroons ports in 1953 included cocoa (6,460, £1,611,000), rubber (2,070, £337,000), bananas (91,810, £3,005,000), palm kernels (4,570, £240,000), and palm oil (2,830, £192,000); total exports were valued at £5,571,900. Imports (principally of food, drinks, tobacco, textiles, vehicles, and machinery) were valued at £1,617,800 in 1953, including goods valued at £44,200 from the United States. The territory had 1,470 miles of motor roads in 1953. There are airfields at Tiko (all-season) and Mamfe (dry season).

CANADA. Largest in area among the countries of the Western Hemisphere and the second largest in the world, Canada comprises all of North America north of the United States, except Alaska, Greenland, and the French islands of St. Pierre and Miquelon. The capital is Ottawa (pop. 1951, 202,045) in the Province of Ontario.

Area.—The areas of Canada's provinces and territories, including land and fresh water areas, are shown in Table 1.

Population.—The population of Canada by provinces and territories, at the decennial cen-

TABLE 1—AREA OF CANADIAN PROVINCES AND TERRITORIES
(In square miles)

Province or territory	Land	Fresh water	Total
Newfoundland (incl. Labrador).....	147,994	7,370	155,364
Prince Edward Island.....	2,184	1	2,184
Nova Scotia.....	20,743	325	21,068
New Brunswick.....	27,473	512	27,985
Quebec.....	523,860	71,000	594,860
Ontario.....	348,141	64,441	412,582
Manitoba.....	219,723	26,789	246,512
Saskatchewan.....	220,182	31,518	251,700
Alberta.....	248,800	6,485	255,285
British Columbia.....	359,279	6,976	366,255
Yukon Territory.....	205,346	1,730	207,076
Northwest Territories.....	1,253,438	51,465	1,304,903
Franklin.....	541,753	7,600	549,353
Keewatin.....	218,460	9,700	228,160
Mackenzie.....	498,285	54,265	552,490
Total, Canada.....	3,577,163	268,611	3,845,774

¹ Too small to be enumerated.

suses of 1941 and 1951, and as estimated on June, 1, 1955, is shown in Table 2.

TABLE 2—POPULATION OF CANADA

Province or territory	1941 census	1951 census	1955 (est., June 1)
Newfoundland.....	1	361,416	412,000
Prince Edward Island.....	95,047	98,429	108,000
Nova Scotia.....	577,962	642,584	683,000
New Brunswick.....	457,401	515,697	558,000
Quebec.....	3,331,882	4,055,681	4,520,000
Ontario.....	3,787,655	4,597,542	5,183,000
Manitoba.....	729,744	776,541	849,000
Saskatchewan.....	895,992	831,728	889,000
Alberta.....	796,169	939,501	1,066,000
British Columbia.....	817,861	1,165,210	1,305,000
Yukon Territory.....	4,914	9,096	10,000
Northwest Territories.....	12,028	16,004	18,000
Total, Canada.....	11,506,655	14,009,429	15,601,000

¹ Census of 1945, 321,819; Newfoundland was not admitted into the federation until 1949.

The largest Canadian cities and their populations (1951 census) are: Montreal, 1,021,520 (metropolitan area, 1,395,400); Toronto, 675,754 (metropolitan area, 1,117,470); Vancouver, 344,833; Winnipeg, 235,710; Hamilton, 208,321; Ottawa, 202,045; Quebec, 164,016; and Edmonton, 159,631.

Urban-Rural Ratio.—In 1951 the urban population totaled 3,628,253, an increase over 1941 of 32.7%; while the rural population totaled 5,381,176, a rise of only 7.5% over 1941. Urban dwellers comprised 61.6% of the population in 1951. Canada's farm population totaled 2,827,732 in 1951, about 10% less than in 1941, and representing about 20% of the total population, as against 27% in 1941.

Vital Statistics.—The Canadian birth rate in 1954 was 28.7, the third highest on record; the death rate of 8.2 was the lowest on record and represented a decline of almost 20% in a little over a decade. The 1954 infant mortality rate of 32 (deaths per 1,000 live births) was also a record low, as was the maternal mortality rate of 0.7. Life expectancy at birth in 1950-52 averaged 66.3 years for males and 70.8 for females.

National Derivation.—According to the 1951 census, 85.3% of the population was Canadian born. Canadians of British origin numbered 6,709,685, or 47.9% of the total population; French origin, 4,319,167 (30.8%); other European origin, 2,553,722 (18.2%); and Asian origin, 72,827 (0.5%). Persons of Indian origin numbered 155,874 in 1951; Eskimos, 9,493; Negroes, 18,020.

Immigration.—In 1954 a total of 154,227 immigrants entered Canada (a drop of 9% from 1953), bringing the total since 1946 to 1,112,373. Of the 1954 total, 44,593 were from the United Kingdom and Ireland, 29,845 from Germany, and 24,595 from Italy. In 1954, certificates of Canadian citizenship were granted to 19,545 persons who formerly owed allegiance to other countries.

Religion.—Religious denominations and adherents, as shown in the 1951 census, were as follows (with percentage of total population in parentheses): Roman Catholic, 6,069,496 (43.3); United Church of Canada, 2,867,271 (20.5);

Church of England, 2,060,720 (14.7); Presbyterian, 781,747 (5.6); Baptist, 519,585 (3.7); Lutheran, 444,923 (3.2); Jewish, 204,836 (1.5); Ukrainian (Greek) Catholic, 190,831 (1.4); Greek Orthodox, 172,271 (1.2); Mennonite, 125,938 (0.9); other, 571,811 (4.1).

GOVERNMENT AND SOCIAL WELFARE

Government.—A member of the Commonwealth of Nations, Canada is a self-governing and fully independent nation. (The term "Dominion of Canada" is gradually being replaced by the term "Canada" in official and popular usage.) Canada's sovereign is Queen Elizabeth II. The government, based largely on the British constitutional system, is administered by a prime minister and a cabinet of departmental ministers who are members of the Parliament at Ottawa. The cabinet is responsible to the lower chamber, or House of Commons, and holds office as long as it retains the confidence of that body.

Governor General.—Executive power is nominally vested in a governor general appointed by the British crown on the advice of the Canadian cabinet, usually for a term of five years. The governor general, representing the British sovereign, acts under the advice of the Canadian ministry. Vincent Massey, the first Canadian-born governor general, took office on Feb. 28, 1952.

Judiciary.—The Supreme Court of Canada, composed of a chief justice and eight puisne judges, is the final court of appeal in both civil and criminal cases throughout Canada. Patrick Kerwin was appointed chief justice on July 1, 1954.

Parliament.—The Canadian Parliament consists of a House of Commons and a Senate. The influence of the Senate on legislation is considerably less than that of the House of Commons, in which most public bills are introduced and to which the ministry is responsible.

The Senate, or upper house, consists of 102 members appointed for life by the governor general on the advice of the ministry. It is composed of 24 senators from Ontario, 24 from Quebec, 10 from Nova Scotia, 10 from New Brunswick, 6 each from Newfoundland, Manitoba, Saskatchewan, Alberta, and British Columbia, and 4 from Prince Edward Island.

The House of Commons, or lower house, is elected for a five-year term, or less, if Parliament is earlier dissolved. Representation is based on population. On the basis of the 1951 census, the number of seats was increased from 262 to 265 in 1953. As a result of the general election of Aug. 10, 1953, and subsequent by-elections, party seating at the opening of the parliamentary session on Jan. 10, 1956, was as follows: Liberals, 170; Progressive Conservatives, 53; Co-operative Commonwealth Federation (CCF), 23; Social Credit, 15; and independents, 4.

Ministry.—Louis St. Laurent became prime minister on Nov. 15, 1948, succeeding W. L. Mackenzie King. St. Laurent is the leader of the Liberal Party, which came to power in 1935 and was re-elected in 1940, 1945, 1949, and 1953. The Canadian Ministry, in order of precedence in the Privy Council as of Jan. 1, 1956, was as follows:

Prime minister and president of the Privy Council—Louis Stephen St. Laurent.
Minister of trade and commerce and minister of defense production—Clarence Decatur Howe.
Minister of agriculture—James Garfield Gardiner.
Minister of national health and welfare—Paul Joseph James Martin.
Minister of national revenue—James J. McCann.
Minister of labor—Milton Fowler Gregg.
Secretary of state for external affairs—Lester Bowles Pearson.
Minister of justice and attorney general—Stuart Sinclair Garson.
Minister of public works—Robert Henry Winters.
Minister of veterans affairs and postmaster general—Hugues Lapointe.
Minister of finance—Walter Edward Harris.
Minister of mines and technical surveys—George Prudham.
Minister of fisheries—James Sinclair.
Minister of national defense—Ralph Osborne Campney.
Solicitor general and leader of the government in the Senate—William Ross Macdonald.
Minister of citizenship and immigration—John Whitney Pickersgill.
Minister of northern affairs and natural resources—Jean Lesage.
Secretary of state—Roch Pinard.
Minister of transport—George Marler.

Provincial Government.—Canada is composed of 10 provinces, the Northwest Territories, and the Yukon Territory. Provincial government is conducted along the same lines as the federal government. Each province has a lieutenant governor appointed by the governor general of Canada, its own executive council or cabinet, and a popularly elected unicameral Legislative Assembly; Quebec alone retains an appointive Legislative Council in addition to its Legislative Assembly. The Northwest Territories and the Yukon Territory are under the jurisdiction of the federal government. The Yukon Territory has a Territorial Council of five members elected for a three-year term, with a commissioner, appointed by the governor general, as chief executive. The Northwest Territories are administered by a commissioner appointed by the governor general, and aided by a Council of 9 members, of whom 4 are elected and 5 appointed. (See separate articles on the Canadian provinces and territories.)

Federal Budget.¹—For the fiscal year ended March 31, 1955 (with data for the fiscal year 1954 in parentheses), revenue totaled \$4,123,513,300 (\$4,396,319,583), and expenditure, \$4,275,362,888 (\$4,350,522,378), for a deficit of \$151,849,588 (for a surplus of \$45,797,205). Chief sources of revenue from taxation in the 1955 fiscal year were: income tax (including personal and corporate), \$2,265,297,267; sales tax, \$572,214,713; customs import duties, \$397,228,330; and excise duties, \$226,458,438. Expenditure for national defense totaled \$1,665,968,960 (\$1,805,914,922 in fiscal year 1954), representing 39% of total expenditure (41.5% in fiscal year 1954). Other major expenditure items included interest on the public debt, \$477,914,894; family allowances, \$366,465,965; and veterans affairs, \$240,089,187. The gross public debt as of March 31, 1955, totaled \$17,951,000,000; the net debt, \$11,263,000,000.

The draft budget for the fiscal year 1956 submitted to Parliament by Finance Minister Walter E. Harris on April 5, 1955, forecast revenue at \$4,202 million, and expenditure at \$4,362 million. (See also below, *The Year 1955 in Canada*.)

Defense.—As of Dec. 31, 1954, there were 117,003 men and women in Canada's active forces. Personnel was divided among the three services as follows (with reserves given in parentheses): Canadian Army, 49,447 (46,159); Royal Canadian Navy, 18,806 (5,418); and Royal Canadian Air Force, 48,750 (5,539). (See also NAVAL AFFAIRS.)

Social Welfare.—In June 1954, 725,239 persons over 70 years of age were receiving federal pensions of \$40 per month; an additional 93,592 needy persons between 65 and 70 were receiving old-age assistance payments averaging \$36.50 per month (with 50% of the cost paid by the federal government); and 8,210 blind persons were receiving allowances averaging \$38.91 per month (with 75% provided by the federal government). Federal payments under these three types of assistance totaled \$362,173,044 in the fiscal year 1954. Other federal programs include family allowances, veterans benefits, unemployment insurance, grants to provincial and municipal health programs, and aid to Indians and Eskimos. In the month of July 1955, 2,220,578 families received \$31,674,089 in monthly allowance benefits for 5,248,557 children, or an average of about \$6 per child. Beginning in January 1955 (under the Disabled Persons' Act of 1954), a joint federal-provincial allowance of not more than \$40 per month was paid to totally and permanently disabled persons not in hospitals or institutions. (See also the articles, CHILD WELFARE; MARRIAGE AND DIVORCE.)

¹ All monetary figures used in this article are in Canadian dollars, unless otherwise indicated. In 1954 the monthly average exchange rate of the Canadian dollar was U.S. \$1.027; in January–August 1955, U.S. \$1.019.

Education.—With the exception of Indian and Eskimo education, which is left to the federal government, education is the responsibility of the provincial governments. In the 1954-55 school year, enrollment in provincially-controlled elementary and secondary schools was estimated at 2,835,000; full-time enrollment on the university level, 63,000. The average annual salary of elementary school teachers in 9 provinces (Quebec excluded) was \$2,510 in 1952-53. Expenditures on formal education totaled \$515,972,000 in 1951 (federal, provincial, and private).

TABLE 3—CANADIAN EDUCATION STATISTICS
(Data for 1951-52)

Type of school	Schools	Teachers	Pupils
Provincially controlled:			
Elementary and secondary	30,710	93,694	2,502,403
Evening classes	101	...	187,216
Correspondence courses	5	79	24,524
Schools for the blind	10	...	532
Schools for the deaf	8	232	1,494
Teacher-training	112	1,205	11,463 ²
Privately controlled:			
Academic	799	5,194	100,614
Business training ³	225	778	35,068
Indian schools and education in the Territories	479	1,000	28,045
Universities and colleges:			
Preparatory courses	...	1,616 ⁴	28,956
Courses of university standard	238	5,917 ⁵	92,059
Other courses	...	...	35,231
Totals, 1951-52	32,575	109,715	3,047,605
1950-51	32,809	105,546	2,922,931
1949-50	32,985	100,805	2,840,489

¹ Not included in the total; these courses are provided by the provincial departments of education. ² Including 1,321 in short courses. ³ Day and evening classes. ⁴ Excludes 212 part-time instructors. ⁵ Excludes 4,756 part-time instructors. (Source: Dominion Bureau of Statistics.)

Libraries.—Public libraries in Canada had an estimated total of 9,663,476 volumes in 1954, with total circulation amounting to 33,432,730. Borrowers numbered 1,672,774 in 1953. Expenditures for all public libraries aggregated \$8,540,373 in 1954, a rise of about 9.2% over the 1953 total. In addition to the public libraries, university and college libraries have about 7.4 million volumes in stock, and federal and provincial government libraries, about 2.7 million.

Crime and Delinquency.—Canadian courts in 1952 found 29,761 adults guilty of 41,591 indictable offenses. The courts adjudged 6,068 children delinquent, a record low rate. Canada in 1952 had 8 penitentiaries, 13 reformatory and corrective institutions (4 for women), and 27 training and industrial schools (12 for girls). Inmates of prisons, reformatories, and training schools totaled a record 16,383 at the end of 1953.

THE CANADIAN ECONOMY

Tendencies in 1955.—Recovery from the 1953-54 recession, already under way in late 1954, gathered further momentum during 1955. Overall production and consumption levels reached new peaks by the summer and fall. Industrial production during midsummer exceeded by 8% the previous record level of 1953. Manufactures, particularly durables, which had fallen most during the downturn, rose again in the spring of 1955. Production of automobiles and trucks in the first 10 months of 1955 totaled 395,938 units, a rise of over 22% above output in the like period of 1954. The midyear survey estimated new plant and equipment expenditure at \$5,954 million in 1955, 8% above the \$5,507 million of 1954. Construction boomed in 1955. By the

end of September, the dollar value of construction contracts awarded had exceeded the total for all of 1954. Foreign trade in the first 9 months of 1955 was about 12% over that of the like period of 1954, a notable feature being the improvement in exports to the United Kingdom. The one important exception to these expansive tendencies was agriculture. Farm income continued to decline, falling about 3% in the first half of 1955, as compared with the first half of 1954, and about 13% as compared with 1953. The major farm problem, as in other recent years, was the marketing of the wheat crop, which, at about 494 million bushels, was some 60% greater than the meager 1954 yield.

National Income and Product.—The gross national product in 1954 fell nearly 2% from the record 1953 level. The decline was in marked contrast to the gains of the previous few years and was attributed to a slackening in domestic and foreign demand and a large reduction in the western grain crop. Manufacturing, especially durable goods output, fell off, although expansion continued in services and mining.

Despite increased unemployment, aggregate income from salaries and wages rose by more than 2% in 1954, due to higher rates of pay. Labor income constituted about 64% of national income in 1954, as compared with 58% in 1951. Net farm income declined about a third from the 1953 level. In the investment income category, corporation profits showed a slight decline, while income from interest and rents rose about 12%. On the expenditure side, consumer expenditure and residential construction showed moderate gains, while government expenditure was virtually constant. Net inventory accumulation dropped sharply into the negative column. Exports, nonresidential construction, and investment in new machinery and equipment also showed declines from 1953.

TABLE 4—CANADIAN NATIONAL PRODUCT
AND EXPENDITURE^a
(In millions of dollars)

Item	1952	1953	1954
GROSS NATIONAL PRODUCT			
Wages, salaries and supplementary labor income	10,868	11,706	11,989
Military pay and allowances	270	309	367
Investment income	3,763	3,800	3,715
Net farm income	1,851	1,653	1,058
Net income of unincorporated business (nonfarm)	1,574	1,688	1,645
Net national income at factor cost	18,326	19,156	18,774
Indirect taxes less subsidies	2,714	2,901	2,914
Depreciation allowances and similar business costs	2,120	2,411	2,511
Residual error of estimate	+95	-19	-158
Gross national product at market prices	23,255	24,449	24,041
GROSS NATIONAL EXPENDITURE			
Personal expenditure on consumer goods and services	14,366	15,125	15,676
Government expenditure on goods and services	4,245	4,359	4,361
Gross domestic investment:			
New residential construction	786	1,061	1,166
New nonresidential construction	1,554	1,706	1,676
New machinery and equipment	1,916	2,073	1,711
Net inventory accumulation	+310	+549	-280
Exports of goods and services	5,573	5,400	5,136
Deduct: Imports of goods and services	5,400	5,843	5,562
Residual error of estimate	-95	+19	+157
Gross national expenditure at market prices	23,255	24,449	24,041

* Revised.

Manufacturing.—The general index of industrial production (base: 1935-39 = 100) fell from

248.4 in 1953, to 244.6 in 1954, or 1.5%. The index for manufactures fell by 4.4%, while that of mining rose by almost 13%. Outputs among the important manufacturing industries which showed significant declines in 1954 were: steel ingots, 3,113,822 tons (a fall of 22%); passenger cars (factory shipments), 287,191 (down 20%); and footwear, 37,158,696 pairs (down 5.4%). Virtually the only major durable to show a rise in 1954 was television sets, whose 611,206 units represented a 64% gain over 1953.

About a third of Canada's annual income is earned in manufacturing, or twice as much as in agriculture. Manufacturers' shipments in 1954 (prelim.) had a total value of \$17,497.8 million, down about 2% from the record \$17,785.4 million of 1953. Chief manufacturing industries and estimated 1954 gross output in millions of dollars (with 1953 figures in parentheses) were: foods and beverages, \$3,527.9 (\$3,491.9); iron and steel products, \$1,933.6 (\$2,099.6); transportation equipment, \$1,718.8 (\$2,089.9); paper products, \$1,629.9 (\$1,568.3); wood products, \$1,228.5 (\$1,242.0); and nonferrous metals, \$1,264.9 (\$1,242.0).

Building and Construction.—Capital expenditure on new construction (governmental and private) totaled a record \$3,696 million in 1954 (prelim.), as compared with \$3,665 million in 1953. Residential construction in particular set new marks in 1954. New dwelling units completed numbered a record 101,965 (5.3% over 1953), while starts totaled 113,527 (up 10.9%). Nonresidential construction showed a decline in total value from \$1,706 million in 1953, to \$1,676 million in 1954. Repair construction in 1954 totaled \$994 million (prelim.). In the first half of 1955, housing starts numbered 57,997 (up 25% over the first half of 1954); units completed, 52,228 (up 26%).

Retail Sales.—Sales of retail stores in 1954 (prelim.) amounted to \$11,959,153,000, or 1.4% below the record 1953 figure of \$12,125,802,000. The 1954 decline was confined to independent stores, whose sales dropped to \$9,825,167,000, from \$10,077,574,000 in 1953. In contrast, sales of retail chain stores rose to \$2,133,986,000, from \$2,048,228,000 in 1953.

Labor.—The civilian labor force averaged 5,426,000 in 1954. Of this number, a monthly average of 232,000 were without jobs and seeking work (137,000 in 1953). Weekly wages in manufacturing industries averaged \$57.16 in 1954, a rise of 1.9% over 1953, while average hours worked per week was 40.6, a fall of 1.7%. Time lost in labor disputes totaled 1,475,200 man-working days in 1954 (1,324,700 in 1953). Labor union membership as of Jan. 1, 1955, totaled 1,268,207.

The consumer price index (base: 1949 = 100) averaged 116.2 in 1954 (115.5 in 1953), and stood at 116.8 as of Sept. 1, 1955. (See also COST OF LIVING.)

Corporate Profits and Dividends.—Corporate profits before taxes in 1954 (prelim.) totaled \$2,390 million (\$2,580 million in 1953); profits after taxes, \$1,230 million (\$1,354 million in 1953). Dividends paid out (including charitable contributions by corporations) amounted to \$659 million in 1954 (prelim.), as compared with \$628 million in 1953.

Personal Savings.—A direct estimate by the Bank of Canada placed personal savings at \$1,297 million in 1954 (prelim.), as compared with \$1,737 million in 1953. Personal savings deposits in chartered banks totaled \$5,218 million at the

end of 1954, rising to \$5,696 million as of Aug. 31, 1955.

Agriculture.—Occupied farms in Canada numbered 623,091 in 1951, a decrease of 9% from 1941 (using the 1951 definition of a farm). About 15.5% of Canada's labor force was directly engaged in farming in 1954. Gross farm income in 1954 (prelim. est. \$2,624.7 million) comprised about 11% of gross national product.

Farm Income.—Farm cash income from the sale of farm products and from participation payments totaled \$2,377.8 million in 1954 (prelim.), a substantial fall from the \$2,776 million in 1953. The decline was due largely to a lower return for field crops (especially wheat) and eggs, which outweighed an increased return from livestock and dairy products. Net income from farming operations totaled \$1,125.6 million (\$1,699.6 million in 1953).

Farm Output.—The index of the physical volume of agricultural output (base: 1935–39 = 100) was 114.3 in 1954 (prelim.), down sharply from the 156.2 of 1953. Due chiefly to the smaller wheat crop, the gross value of production of principal field crops in 1954 (prelim.) was \$1,138 million, as compared with about \$1,800 million in 1953.

TABLE 5—PRODUCTION AND ACREAGE OF
PRINCIPAL CANADIAN FIELD CROPS¹
(Figures in thousands)

Crop	Production		Acreage	
	1954	1955 ²	1954	1955 ²
Wheat (bu.)	308,909	494,090	24,267	21,504
Oats for grain (bu.)	306,793	403,835	10,161	11,178
Barley (bu.)	175,509	251,781	7,856	9,912
Rye (bu.)	14,176	14,711	851	778
Mixed grains (bu.)	61,454	65,154	1,633	1,705
Corn for grain (bu.)	22,339	31,510	418	507
Buckwheat (bu.)	2,316	2,243	131	127
Beans, dry (bu.)	880	586	50	45
Peas, dry (bu.)	1,028	1,286	73	81
Potatoes (bu.)	51,783	63,578	300	308
Flaxseed (bu.)	11,238	21,498	1,206	1,988
Soybeans (bu.)	4,953	5,650	254	214
Mustard seed (lb.)	27,733	52,840	67	79
Sunflower seed (lb.)	14,000	14,400	20	18
Rapeseed (lb.)	28,900	55,780	40	136
Tame hay (tons)	19,549	20,018	10,802	11,055
Fodder corn (tons)	2,978	3,243	356	366
Field roots (tons)	440	431	43	42
Sugar beets (tons)	1,004	933	90	82

¹ Not including Newfoundland. ² November estimate. (Source, Dominion Bureau of Statistics.)

The value of the 1954 commercial fruit crop was estimated at \$48.7 million. November estimates of 1955 fruit crops were: (in bushels) apples, 19.5 million; pears, 1.5 million; plums and prunes, 780,000; peaches, 2.9 million; apricots, 218,000; cherries, 544,000; (in quarts) strawberries, 22.7 million; raspberries, 10.96 million; (in pounds) loganberries, 1.5 million; and grapes, 86.5 million. Production of leaf tobacco in the crop year ending Sept. 30, 1954, totaled 184.8 million pounds.

Dairy, Livestock, and Poultry.—Milk production in 1954 (prelim.) totaled 16,884 million pounds; butter (factory production), 141,600 metric tons; and net egg production, 392.4 million dozen. As of June 1, 1955, cattle on farms numbered 10,239,000; sheep and lambs, 1,722,000; hogs, 6,079,000; horses, 901,000; and poultry, 66,214,000 birds. (See also MEAT INDUSTRY.)

Mineral Production.—Canada is the world's largest producer of nickel, asbestos, and platinum. It ranks second in aluminum, gold, zinc, uranium, magnesium, and titanium, and third in silver, cadmium, and cobalt. The total value of mineral production in 1954 (prelim.) was \$1,444.2 million, up 8% from the previous record



NATIONAL DEFENSE PHOTO

A Royal Canadian Air Force radar station, vital link in the country's defenses against hostile air attack.

of \$1,336.3 million in 1953. Production of crude petroleum in 1954 was 96 million barrels (up 17.5% over 1953), and provided 47% of the nation's domestic consumption (21.3% in 1950). Alberta alone provided 87.7 million barrels of the 1954 output. Canada's mineral industry employed 130,038 persons in 1953. (See also **IRON AND STEEL**.)

TABLE 6—OUTPUT OF CANADA'S LEADING MINERALS, 1953 AND 1954

Mineral	1953	1954*
Asbestos (tons).....	911,226	923,581
Cement (bbls.).....	22,238,335	22,441,717
Clay products (value).....	\$29,041,020	\$31,393,714
Coal (tons).....	15,900,673	14,908,741
Copper (tons).....	253,252	302,984
Gold (fine ozs.).....	4,055,723	4,366,506
Gypsum (tons).....	3,841,457	3,947,463
Iron ore (tons).....	6,509,818	7,338,629
Lead (tons).....	193,706	219,280
Lime (tons).....	1,228,760	1,236,123
Natural gas (Mcf.).....	100,985,923	120,878,381
Nickel (tons).....	143,693	158,520
Petroleum (bbls.).....	80,898,897	96,065,294
Salt (tons).....	954,928	970,250
Silver (fine ozs.).....	28,299,335	30,680,491
Zinc (tons).....	401,762	373,448

* Preliminary. (Source: Dominion Bureau of Statistics.)

Forestry.—Canada's vast forests include an estimated 578,000 square miles of woodlands considered accessible for economic exploitation. Canada is the world's leading producer of newsprint, and ranks second in wood pulp and third in sawn lumber. The cut of merchantable timber in 1952 was estimated at 3,565.6 million cubic feet, valued at \$815,651,000. Output of wood pulp in 1954 was estimated at 9.5 million tons; newsprint, 5.9 million; and sawn lumber (1953), 7,305,958,000 feet board measure. (See also the articles, **FORESTRY**; **LUMBER**.)

Fisheries and Furs.—Canada is a leading fish exporter, fisheries products exported in 1954 reaching a record value of \$132.7 million. Chief species caught are cod and lobster in the Atlantic, whitefish and lake trout in inland waters, and halibut and salmon in the Pacific. Landings of sea fish in 1954 totaled 1,900.5 million pounds valued at \$82,762,000. Of the total volume, Atlantic waters provided 1.3 billion pounds.

Pelts taken in the 1953-54 fur season num-

bered 6,275,000, valued at \$19,288,000. Mink accounted for 58% of the total value; muskrat, 16%; and beaver, 13%. Animals on fur farms at the beginning of 1954 numbered 321,057 (including 299,433 mink); and pelts from fur farms accounted for 49% of the total pelt value in 1953-54.

Electric Power.—Canada's abundant water power resources (with only about 25% of known resources thus far developed) afford Canadians one of the world's lowest rates for electric service. Capacity turbine installation of hydroelectric power totaled 16,684,131 hp. at the end of 1954, with new capacity added during the year amounting to 1,758,450 hp. Production of electric energy by central electric stations reached a record 69,136.6 million kw.-hr. in 1954, about 5.6% over 1953 output. (For 1955 developments regarding the St. Lawrence Seaway and Power Project, see the articles, **CANALS**; **DAMS**.)

Foreign Trade.—Canadian exports in 1954 totaled \$3,946.9 million (including re-exports of \$65.6 million), a decline of 5.4% from the 1953 level. Imports amounted to \$4,093.2 million,² a drop of 6.6%. Thus for the first time since World War II, the value of Canada's foreign trade showed a decline. Due to the greater drop in imports, Canada's deficit on commodity trade was reduced to \$146.3 million in 1954, from \$210.2 million in 1953.

The United States purchased 60% of Canada's 1954 exports; the United Kingdom, 16.7% (59% and 16%, respectively, in 1953). The United States provided 72.3% of Canada's 1954 imports; the United Kingdom, 9.6% (73.5% and 10.3%, respectively, in 1953).

Canada's 10 leading domestic exports and values (in thousands of dollars) in 1954 were: newsprint paper, \$635,670; wheat, \$375,339; planks and boards, \$324,724; wood pulp, \$271,418; aluminum (primary and semifabricated), \$182,392; nickel (primary and semifabricated), \$182,154; copper (primary and semifabricated), \$127,334; barley, \$89,363; wheat flour, \$88,029; and asbestos (unmanufactured), \$82,566.

² The change in the import coding month in June 1954 increased the value of imports recorded in the year by an amount estimated at not less than \$40 million, and total trade and the trade balance by the same amount.



Uranium City, a thriving town of 1,000 in the heart of the Beaverlodge uranium area in northern Saskatchewan.

Canada's 10 leading imports and values (in thousands of dollars) in 1954 were: nonfarm machinery and parts, \$380,219; petroleum (crude and partly refined), \$212,787; electrical apparatus, \$207,539; automobile parts (except engines), \$180,433; aircraft and parts (except engines), \$100,397; rolling mill products, \$97,563; internal combustion engines and parts, \$84,914; tractors and parts, \$82,814; fuel oils, \$70,921; and bituminous coal, \$70,445. (See also the articles, INTERNATIONAL TRADE; TOURISTS.)

TABLE 7—CANADA'S EXPORTS AND IMPORTS¹
(In thousands of dollars)

Commodity group	1954 (full year)	1955 (Jan.- June)
DOMESTIC EXPORTS ²		
Agricultural and vegetable products..	\$ 803,481	\$ 369,074
Animals and animal products.....	269,861	126,027
Fibers, textiles, and products.....	20,969	9,340
Wood, wood products, and paper....	1,378,354	730,328
Iron and its products.....	300,692	165,808
Nonferrous metals and their products	709,017	396,071
Nonmetallic minerals and products..	145,573	89,474
Chemicals and allied products.....	161,293	106,158
Miscellaneous commodities.....	92,031	39,169
Total.....	\$3,881,272	\$2,031,400
IMPORTS FOR CONSUMPTION ³		
Agricultural and vegetable products..	\$ 540,289	\$ 270,968
Animals and animal products.....	85,412	50,285
Fibers, textiles, and products.....	333,324	190,572
Wood, wood products, and paper....	166,001	91,810
Iron and its products.....	1,322,497	773,682
Nonferrous metals and their products	357,185	176,724
Nonmetallic minerals and products..	599,216	286,005
Chemicals and allied products.....	220,406	121,462
Miscellaneous commodities.....	468,866	247,907
Total.....	\$4,093,196	\$2,209,400

¹ Excluding gold. ² Excluding transfers of defense equipment and supplies to North Atlantic Treaty countries under the Defense Appropriation Act. ³ The change in the import coding month in June 1954 increased the value of imports recorded in the year by an amount estimated at not less than \$40 million. (Source: Dominion Bureau of Statistics.)

Balance of Payments.—Canada had a deficit on current account of \$431 million in 1954 (prelim.), slightly less than the \$443 million deficit of 1953. The small surplus of \$13 million on commodity account, plus the \$155 million in gold available for export, was more than offset by negative balances on travel, interest and dividends, freight and shipping charges, and other invisibles. The current account deficit with the United States fell from \$904 million in 1953, to \$812 million in 1954. The chief development on capital account was a decline in net inflow of capital for direct investment to \$376 million in 1954, as compared with \$428 million in 1953. Short-term transactions were virtually in balance

in 1954, as compared with a net outflow of about \$248 million in 1953. Official reserves of gold and United States dollars reached a new high of U.S. \$1,942.6 million at the end of 1954, falling to U.S.\$1,936.7 million as of Sept. 30, 1955.

Transportation and Communications.—At the end of 1953, Canada had 517,809 miles of roads, of which 190,997 was surfaced (as of March 31, 1954). Registered motor vehicles in 1954 totaled 3,644,589, including 2,688,465 passenger cars. Expenditures by all authorities on roads and highways outside urban areas totaled \$397,068, 159 in 1953, 1.8% below the record total spent in 1952.

Railroads.—Canada ranks third behind the United States and Soviet Russia in total railroad mileage. Track mileage of Canadian railways at the end of 1953 totaled 58,694.7 route miles, with main, or single-track mileage amounting to 43,162.8. The two major systems, both transcontinental, are the government-owned Canadian National Railways (24,155 miles operated in 1954) and the privately owned Canadian Pacific Railway (17,003). Operating revenues of the 17 largest systems totaled \$1,087.1 million in 1954 (down 9% from 1953); operating expenses, \$1,013.9 million (down 7%); and net operating revenue, \$73.1 million (down 29%). Railroad employees numbered 196,307 in 1954.

Commercial Aviation.—The chief scheduled operators are the Trans-Canada Air Lines (owned by the Canadian National Railways) with 19,331 miles of domestic and international routes in 1954; and the Canadian Pacific Air Lines, Ltd. (owned by the Canadian Pacific Railway) with 10,723 miles of domestic and 20,676 miles of international routes. There are also several smaller scheduled and nonscheduled lines. Canada in 1955 had 84 airports of national or international importance. (See also AERONAUTICS.)

Shipping.—Vessels on the Canadian shipping registry (including vessels for inland navigation) numbered 16,181 with a net tonnage of 1,694,715 at the end of 1953. Canada's network of canals provides navigation for about 1,900 miles inland from salt water. The greatest share of traffic is carried by the Welland Ship Canal, the St. Lawrence River canals, and the Canadian Sault Ste. Marie Canal. Freight transported through Canadian canals in the 1954 navigation season totaled 30.1 million tons, down 9.9% from 1953.

Communications.—Canada's 7 telegraph systems in 1953 operated 445,532 miles of telegraph wire in Canada. Telephones in use at the end of 1953 numbered 3,606,407, a record 254,041 having been installed during that year. In 1954, Canada had 171 AM broadcasting stations, 33 FM stations, and 37 short-wave stations. Radio sets numbered 4.1 million in 1953. Canada had 28 TV stations in 1955, with 8 more under construction. Over 40% of Canadian families had TV sets in 1955, and over 75% of the population had access to TV broadcasting. Over 1.4 million TV sets were in use as of March 1955. Canada had 92 daily newspapers in the English and French languages in 1954, with a total circulation of 3,629,000. Post offices numbered 12,202 on March 31, 1954. (See also MAGAZINE PUBLISHING.)

M. J. G.

THE YEAR 1955 IN CANADA

In 1955 Canada resumed the march of prosperity and expansion which had been temporarily interrupted by the slight recession of 1954. But



WIDE WORLD

Canadian Parliament is televised for the first time at opening session, Jan. 17, 1955 (camera at upper right).

the failure of agriculture to share fully in this prosperity was producing a growing unrest among the farmers, especially in the wheat-growing areas on the prairies. Several unsettled strikes and the threat of trouble between the railways and their employees indicated that high employment did not remove all labor difficulties. In external relations several unsolved difficulties with the United States loomed up; while internally the working of the federal system produced a renewal of differences between federal and provincial governments.

Domestic Politics.—The long session of Parliament in Ottawa, which did not close until July 27, was generally agreed to have been unusually dull; but it was marked by some developments of importance. Changes in the rules were made to limit future debates on the address and on the budget (the two which ordinarily waste most time in the session) to ten days and eight days, respectively. It is in these debates that every private member has, in the past, felt it desirable to speak in order to prove his energy to his constituents. An estimates committee was also set up to examine the financial estimates of government departments for the forthcoming year, and it accomplished useful work. One of the stock criticisms of the functioning of parliamentary government has been that the supposed parliamentary check on governmental expenditures has become largely a sham.

What made the session chiefly notable, however, was the recovery of the Conservative Party, the chief opposition. In recent years the party has been ineffective, and the leadership of George Drew, much criticized. In this session it found an issue and exploited it most successfully. In

1950, on the occasion of the Korean War, a Defense Production Act was passed giving the government special powers, over a 5-year period, in dealing with private industry and with the economy in general. The government now proposed to extend the act indefinitely. But the Conservative Party launched a vigorous attack on this aggrandizement of governmental power in peacetime, and staged a filibuster under Mr. Drew's personal leadership. In the end the government was forced to yield and to limit the extension of the act to three years, until July 31, 1959. This was a special defeat for Clarence D. Howe, the minister of defense production, who has been the dominating member of the cabinet next to the prime minister, Louis St. Laurent. The whole incident damaged the prestige of the Liberals, who have been in office continuously since 1935. The Conservatives were correspondingly encouraged.

Of the other two opposition parties, the Co-operative Commonwealth Federation (CCF) appeared to be in a state of continuous decline. It fared very badly in the two provincial elections, in Ontario and Alberta, during the summer; and early in the session at Ottawa, on the question of approving the rearming of West Germany and its admission into the North Atlantic Treaty Organization (NATO), the party was split wide open. M. J. Coldwell, its leader, supported the government's Western policy, but he was deserted in the debate and the division by most of his followers, who manifested a mixture of pacifism and Communist sympathy.

The Social Credit Party remained undistinguished and doctrinaire in its contributions to parliamentary debate. In Alberta, the original

center of the party's strength, the provincial Social Credit government suffered a setback in the election which was called in June. For the first time since the late William Aberhart swept the province in 1935 with his new Social Credit gospel, an opposition of some strength was elected. The Alberta election was brought on by charges made by the provincial Liberal Party leader of improper dealings between Social Credit members of the legislature and government treasury branches. On June 29 the government was returned, but with only 38 (compared with 52 before dissolution) of a total of 61 seats. Its popular vote fell by 9%, and there was now a Liberal opposition of 15 members. Rural constituencies accounted for most of the government's losses.

In Ontario the Conservative government of Leslie Frost appealed to the people on June 9, and was triumphantly returned, winning 83 seats against 10 to the Liberals and 3 to the CCF.

Four by-elections for vacant seats in the federal Parliament took place on September 26. Three of these, in Quebec Province, returned Liberal candidates to replace old Liberal members. The fourth, Restigouche-Madawaska, in New Brunswick, a constituency that had been Liberal for over 20 years, returned a Conservative.

The Budget.—On April 5 the federal minister of finance, Walter Harris, introduced his annual budget. He was able to announce some remarkably large tax reductions, considering that they came in a year with no general election in the offing. But the notable feature of the budget was the formula propounded by the minister as the basis on which taxation should be calculated. He estimated that business recovery since the recession of 1954 would continue through 1955, and would result in a gross national production for the year of over \$26 billion. In 1953 production had reached \$24.4 billion, and in 1954 it had decreased to \$24 billion. On this basis he arranged his taxes so as to bring in a revenue which he calculated would fall short of expenditures during the fiscal year by \$160 million. At the time, this estimate of rising prosperity was rather bold, but the figures for the later months of 1955 seem to have justified it. Rising production will presumably make possible still further reductions in taxation in 1956.

For the current year personal income taxes were reduced by an average of 10%, beginning July 1. Corporation taxes on companies with incomes of more than \$20,000 were reduced from 47% to 45%. The 15% excise tax on new cars was reduced to 10%, and the tax on tires and tubes was repealed completely. The current sales tax of 10% was left unchanged, as was the 15% excise tax on television and radio sets (used to finance the Canadian Broadcasting Corporation), and the taxes on liquor, beer, wines, tobacco, soft drinks, and candies. Except for a new tariff of 7.5% on antifreeze, no tariff changes were made. The government resisted the drive of the textile interests for tariff increases. It announced that the Tariff Board would inquire into the iron and steel duties.

Mr. Harris also announced the establishment of a royal commission, headed by Walter Gordon of Toronto, to investigate Canada's economic prospects. The commissioners have been travelling across Canada receiving evidence from interested parties; a strong secretariat has been working in Ottawa doing independent research for the group.

Canadian-United States Relations.—Several matters of importance came up during the year that affected the relations of the two North American neighbors.

Early in the year the crisis in Formosa appeared to be placing a rather severe strain on good relations between the U.S. Department of State and the Canadian Department of External Relations. Lester B. Pearson, secretary of state for external affairs, created some excited discussion inside Canada by a remark in a speech in Toronto on March 24 that Canada would be bound to join the United States in any major war in which the latter became involved. But he very explicitly announced Canada's noninvolvement in any local fighting over Quemoy and Matsu islands. The general tone of Canadian discussion of the Formosan issue was very critical of American policy. Canada withdrew the last of its troops from Korea during the year, and had already refused to participate in the South-east Asia Treaty Organization (SEATO), although Britain, Australia, New Zealand, and Pakistan, all members of the Commonwealth, had joined.

The temporary easing of international strains produced by the Geneva Conference (q.v.) of the heads of government in July was very welcome in Canada. One result of the Geneva thaw was the official visit to the USSR, in October, of Mr. Pearson, accompanied not merely by a staff of officials from the Department of External Affairs, but also by a group of Canadian newspapermen, whose reports about the Soviet Union were unexpectedly enthusiastic. The party went on to Singapore, where Mr. Pearson took part in a conference of the Colombo powers, and then to India and Pakistan.

At the U.N. General Assembly meetings, the Canadian delegation played a leading part by sponsoring, on November 16, a package deal for the admission of 18 new members to the United Nations (16 were admitted on December 14). This policy also produced differences with the United States, which opposed the admission of the Mongolian People's Republic, a Soviet satellite.

In local North American affairs the main cause of friction between the two neighbors was wheat. The Canadian government and Canadian wheat farmers both felt strongly that the U.S. Department of Agriculture, in giving away stocks of wheat from its accumulated surplus to needy countries, or selling them for local currencies, was limiting Canada's opportunities for selling its surplus wheat. At meetings of representatives of the two governments in Ottawa and Washington, very frank discussions took place, but the only concession to Canadian arguments seemed to be a promise by the United States that it would keep the Canadian government informed of the monthly amounts of wheat disposed of under its program. Canadian concern was the greater because the huge Canadian surplus had filled all the elevators, thus causing most of the current wheat crop to be retained by the farmer on his own farm, which meant that he received no revenue from it. The government's plan of guaranteeing a bank loan at 5%, up to a maximum of \$1,500, to each farmer was being denounced in western Canada as wholly inadequate to meet the prairie crisis.

Natural gas provided another issue with possibilities of clash between the policies of the two governments. On the Pacific coast the U.S. Federal Power Commission announced in November

its authorization to import 300 million cubic feet of gas per day from Canada. Inside Canada the main interest was centered on the trans-Canada gas pipeline project from Alberta to Ontario. The private company (United States controlled) which was undertaking this project failed to raise sufficient capital, and requested the Canadian government to guarantee its bonds. Over this there was a dispute, apparently, in the cabinet between Mr. Howe, the chief supporter of the all-Canadian line, and the same group of ministers who had opposed him on the Defense Production Act. After long negotiations, imperfectly reported in the press, it was finally announced in the fall that the federal and Ontario governments had agreed to build the 700-mile pipeline across the unprofitable area of northern Ontario and to lease it to the private company, Trans-Canada Pipe Lines Ltd., with the option of purchase by the company later on. The whole scheme still depended on the ability of the company to persuade the U.S. Federal Power Commission to permit the export of Canadian gas from a branch line reaching the border at Emerson, Manitoba. Without this immediate United States market the prospects of the line, during the years in which it was building up a market in the Toronto and Montreal areas, seemed fairly bleak.

Dominion-Provincial Relations.—The federal government has agreements with all the provinces, except Quebec, by which it "rents" from the provinces the exclusive use of personal income taxes, corporation income taxes, and succession duties, and in return pays them an annual sum in compensation. Quebec has obstinately insisted in raising its own income taxes, even though it might have benefited financially by an arrangement with Ottawa; its isolation has encouraged extreme antifederal sentiment in the province, which the federal government, headed by a Quebec citizen, is anxious to allay. The cold war between Ottawa and Quebec was eased slightly in 1954, and in 1955 the federal government attempted to make a new tax arrangement with the province to take the place of the rental agreements due to expire in 1957.

In October, at a conference of governments, the federal government proposed what became known as Plan C, by which any province might resume the collection of income taxes and succession duties up to a certain standard level. A calculation would be made of how much these taxes produced per capita in Ontario and British Columbia, where they are most lucrative; and a grant would be paid to each province equivalent to the amount by which its taxes fell short of the Ontario-British Columbia standard. Whether the provinces would accept this scheme or some modification of it was not clear at the end of the year.

Late in 1955 another troublesome issue was assigned to investigation by a royal commission. The division of functions in radio and television broadcasting between the public Canadian Broadcasting Corporation (CBC) and private stations is to be studied by a commission headed by Robert Fowler of Montreal. Under present arrangements the CBC not only produces programs itself, but also has a regulatory authority over private broadcasters, and enjoys a monopoly of television stations in the large cities. The private interests, supported by most of the newspapers and the Conservatives in general, have been conducting a campaign against this situation. The Co-operative Commonwealth Federa-



CAPITAL PRESS, OTTAWA

Canada's Governor General Massey (at left), with U.S. Secretary of State Dulles in Ottawa, March 17, 1955.

tion has favored CBC, and the government Liberal Party has been divided in its opinions.

FRANK H. UNDERHILL,
Former Professor of History, University of
Toronto; and Curator of Laurier House,
Ottawa.

CANADIAN LITERATURE. Novels.—The 1955 crop of novels was disappointing in quantity, mystifying in content, and only faintly reassuring in quality. Strangely enough, veteran novelists were thoroughly overshadowed by tyros. William R. Bird, the Nova Scotian, was one veteran who remained true to his form. His curiously titled *The Shy Yorkshireman* was nevertheless a novel largely about Nova Scotia, and its best chapters captured the savor of Nova Scotian country life just before and after World War I.

It was certainly typical that the novelists of 1955 drew, rather obviously, upon personal experiences. This characteristic featured nearly all of the work of the year's first-novelists. Best of the group was Magdalena Eggleston, who went back to her childhood experiences in the coal mining areas of Alberta for the background of *Mountain Shadows*, a novel with the Canadian racial melting-pot theme, which she handled with considerable sympathy. Gale Taylor's account of Doukhobor conflicts, forthrightly described in *Anastasia's Daughter*, was based on an early contact with Doukhobor life in Canada following the arrival of that group in 1899. Hubert Evans' angry criticism of Indian racial discrimination in British Columbia, in *Mist on the River*, also arose from his personal contact with life in the coastal canneries.

Because of their extensive use of personal material, it was difficult to know whether Evelyn Weller's spirited *Cardinal Road*, which neatly dramatized the evolution across a generation of her Toronto home-street, and Mary Hiemstra's

Gully Farm, which just as neatly dramatized pioneering with the Barr colony in Saskatchewan, were novels or autobiographies.

The neglect of historical themes in 1955 was mystifying, but two good historical novels did appear. One was Jan Hilliard's humorous treatment of Nova Scotia's Inverness, called *A View of the Town*, as it took root back in 1781; the other was E. M. Granger Bennett's broader-scaped study of French Canada in 1617, in the persons of the Louis Hebert family, called *Land for their Inheritance*.

The two novels of 1955 which tinged personal experiences with the universal, and which therefore created the most stir, were written by Canadians not resident in their native country. Mordecai Richler, of London, England, plunged into a Jewish area of Montreal for the material for his *Son of a Smaller Hero*, an arresting study of rebellion against the traditions of Judaism. Lionel Shapiro, of New York City, erected, upon the superstructure of his experiences as a newspaper correspondent during World War II, a timeless façade of personal tensions from war-shattered personal loyalties, entitled *The Sixth of June*.

Poetry.—Verse continued in 1955 to be literature's poor cousin in Canada, but there was considerable historic interest in *Poems of John Galt*, selected by George H. Needler, and *The Selected Poems of Bliss Carman*, edited with an introduction by Lorne Pierce.

Biography and Memoirs.—The annual output of biography is normally considerable in Canada. The 1955 production ranged from Captain Vancouver's *Adventures in Two Hemispheres*, by James S. Marshall, to Marilyn Bell's *Swim to Glory*, by Ron McAllister. There were also Donald G. G. Kerr's scholarly study of a lieutenant governor, *Sir Edmund Head*; W. S. MacNutt's human-interest study of a governor general, *Days of Lorne*; and Donald Creighton's monumental study of a prime minister, *John A. Macdonald: The Old Chieftain*. Biographies of current figures included Elsie MacGill's lively recreation of Judge Helen MacGill in *My Mother, the Judge*; Irene McElheran's inspiring description of her archdeacon husband's life in *That's What I'm Here For*; Roland Wild's memorable account of Captain Smellie's Arctic voyages in *Arctic Command*; and Nan Shipley's triumphant life of a Canadian missionary in *Anna and the Indians*. One of the best biographical books of 1955 was a study of six western Canadian leaders, by Roy St. George Stubbs, who drew, with gifted gusto, lifelike *Prairie Portraits* of editors, lawyers, judges, and politicians.

Memoirs were in short supply in 1955, but three of unusual merit did appear. Their diversity was striking. Will Dawson, journalist sailing in British Columbia waters, published *Ahoy There!*; Lex Schrag, a journalist, described gentleman farming in *Mortgage Manor*; and E. M. Ashworth, engineer who pioneered in electricity, wrote of his *Toronto Hydro Recollections*.

Outdoors and Travel.—A modest collection of these books appeared, generally of good quality. Among the best were: *Skin Diving and Exploring Underwater*, by John Sweeney; *Last of the Curlews*, by Fred Bodsworth; *Upland Trails*, by Dan McCowan; and *Silken Lines and Silver Hooks* (fishing lore and reminiscences), by W. Sherwood Fox. A variety of workmanlike travel books appeared. They included: *Highway to the North* (Alaska), by Frank Illingworth; *Regina: The Queen City*, by Earl Drake; *Ottawa:*

Portrait of a Capital, by Blodwen Davies; and *The Mont Tremblant Story* (ski resort), by John and Frankie O'Rear.

History.—Canadian history continued to attract writers. Some authors preferred the traditional large canvas, but more and more books were appearing, by 1955, on segments and corners of Canadian history. Bruce Hutchison's *The Struggle for the Border* and Chester Martin's *Foundations of Canadian Nationhood* were extensive in scope, and their appeal was mainly academic. The more restricted historical works, especially when splashed with bold colors, had wider appeal. Illustrative of these were Farley Mowat's *The Regiment* (the "Hasty P's"), Philip Godsell's *Pilots of the Purple Twilight* (bush flying), Anna Montreuil's *Three Came with Gifts* (first school, first hospital, and first cloister in Canada), and James F. C. Wright's *Saskatchewan: The History of a Province*.

Varied Nonfiction.—As usual the output of varied nonfiction dwarfed fiction and all the other categories of nonfiction put together. Such nonfiction ranged from Eric Nicol's rib-tickling *Shall We Join the Ladies?* to Karl Stern's sober *The Third Revolution* (which was that prompted by Sigmund Freud).

Children's Books.—It was mystifying that juvenilia, which for two previous years had been riding a crest, should dip into a production trough in 1955. The relatively few works published included Marianna MacDonald's second novel, *Smugglers' Cove*, which was set in New Brunswick; John Craig's first novel, *Wagons West*, with prairie pioneering action; Edward McCourt's *Buckskin Brigadier*, who was Gen. Thomas B. Strange of Riel's Rebellion; and Eva-Lis Wuorio's *Return of the Viking*, which mixed fantasy and history in equal proportions. (See also PRIZES AND AWARDS—Literature; THEATER.)

CHARLES CLAY,
Former National Secretary, Canadian
Authors Association.

CANAL ZONE. See PANAMA CANAL.

CANALS. St. Lawrence Seaway.—In 1955 the first full year of construction proceeded on the International Rapids section of the St. Lawrence Seaway. Other work done over the years along other sections of the river will all go into the 27-foot canalization of the entire river from Lake Ontario to Montreal. But until ground was finally broken on Aug. 10, 1954, the picturesque International Rapids between Cornwall, Ont., and Massena, N.Y., had not been touched since the 14-foot Cornwall Canal was built to bypass them many years ago. With deep-draft (27-foot) canalization of the St. Lawrence begun at these rapids, the work proceeded at a fast pace in 1955.

As ultimately evolved, the seaway work is being handled separately and distinctly from hydroelectric power development of International Rapids. Yet it is important to understand that the seaway development is totally dependent on the power project. Actually, there is a \$660 million power project being built jointly by the New York State Power Authority and the Hydro-Electric Power Commission of Ontario (see also DAMS). The pools to be created behind the dams and powerhouse of this project make it feasible at last to go ahead with navigation locks, channel improvements, and a 10-mile cross-country canal. This all adds up to a \$100 million portion of the St. Lawrence Seaway as it will exist by 1958

through the Ogdensburg-to-Cornwall stretch of the river.

Hardly had ground been broken for the power project when seaway work on the United States side began. The St. Lawrence Seaway Development Corporation is the government agency involved, with the U.S. Army Corps of Engineers designated as construction agent. On the Canadian side of International Rapids, Canada's St. Lawrence Seaway Authority is the administrative agency. This Canadian organization has a lock at Iroquois—near the head of the rapids—well under way. It will bypass Iroquois Dam, a control structure in the power development project.

The 10-mile canal being cut across country near Massena, N.Y., will bypass both Long Sault Dam, major control structure, and Barnhart Island Powerhouse. It is called Long Sault Canal, and its two locks are Robinson Bay Lock and Grass River Lock. These two structures will provide a total lift to account for the 81-foot rise in river level behind the power structures. Both locks will be 80 feet wide and 860 feet long between upstream and downstream gates.

At the end of 1955, excavations for these locks were nearing completion, and excavation on the 10-mile canal connecting them was well started. Construction is on a very tight schedule, timed as it is to the abandonment of existing Cornwall Canal in 1958, when the new power pool is expected to be let rise behind Long Sault Dam and the Barnhart Island Powerhouse. In the meantime, no construction along this busy length of the river must be allowed to affect appreciably either the 14-foot depth in Cornwall Canal or the level of Lake Ontario. Close coordination is demanded of the engineering involved.

Upstream, from the International Rapids to Lake Ontario, there is only relatively minor dredging to be done in the Thousand Islands section of the St. Lawrence. Downstream, totally within Canada, there remains much to be done to create the seaway past both Soulanges and Lachine rapids. To connect the river's Lake St. Francis, at Cornwall, with Lake St. Louis, above Montreal, there is Quebec's big Beauharnois power canal, now feeding a 1½-million-horsepower hydroelectric plant. This canal is constantly being enlarged to produce more power, and eventually it is intended to have a lock alongside Beauharnois powerhouse to drop deep-draft shipping the 83 feet down to Lake St. Louis. At present Soulanges Canal carries 14-foot navigation along the north shore of the river at this point.

From Lake St. Louis to Montreal harbor, a seaway replacement for the present Lachine Canal will be constructed. This, together with deepening from 25 to 27 feet of the Welland Canal between Lake Ontario and Lake Erie, will complete Canada's major portions of the seaway. Beyond the Welland Canal, in the Great Lakes and their connecting bodies of water, the problem is one of channel and harbor deepening—not of further canal construction. (See also CITY PLANNING.)

Ohio River Development.—The Ohio River, from Pittsburgh to Cairo, is 981 miles of artificially developed 9-foot waterway. As a completely canalized river it carries more commerce than the famed Panama Canal. Proponents of further development of the river are strongly advocating a greater year-round navigable depth. The 46 existing locks and dams date back at least to 1929, when the present system was completed. Several of these have been called dangerously in

need of replacement, and planned replacements would improve the river to a minimum depth of 12 feet. During 1955, work began on replacement of three outmoded and deteriorating Ohio River dams near Wellesville, Ohio. All three are to be replaced by a single \$50 million project known as New Cumberland locks and dams.

The entire Ohio River improvement project has been envisioned as a 10- to 20-year undertaking, depending on how readily federal funds are forthcoming. The situation was further complicated by a fight which was brewing over whether the fully canalized river should remain toll-free.

Tributaries of the Ohio River account for another 1,000 miles of navigable inland waterways. On the Cumberland River, Old Hickory and Cheatham locks and dams were both near completion in 1955, having cost, respectively, \$50 million and \$32 million. On the canalized Tennessee River, according to announcement by the Tennessee Valley Authority late in 1955, Wilson Dam will have a new lock with a 100-foot lift—highest in the world. Its 110-foot wide, 600-foot long chamber would handle in 50 minutes tows now taking 5¼ hours to pass through three existing, obsolete locks at the dam.

Calumet-Sag Channel.—This connecting link between Lake Michigan and the Illinois inland waterway system is slated for a \$188 million widening project, involving the lengthening and raising of many bridges that cross it. The first contracts for widening three miles of the 16.2 mile channel were awarded late in 1955. The present width of 60 feet will be increased to 225 feet. The entire project is expected to take six years to complete.

Panama Canal.—This great canal (see PANAMA CANAL) figured in the news in 1955 as its overhanging Contractor's Hill was cut back with great care to erase a threat of landslide that had endangered shipping. A crack in the high hill alongside the 41-year-old canal had been under observation since 1938. By 1954 this crack had grown to be 600 feet deep, and a slide threatened at this, the narrowest spot in the canal. Solution to the serious problem, achieved during 1955, involved shaving away the hillside into a series of benches sloped back from the shoreline. Also involved was a 5- by 7-foot tunnel into the hill at near canal level to drain out any water which might have entered the crack and caused dangerous pressures.

German Canals.—West Germany has presented a plan for widening and deepening its vital waterway network, which handles about one third of its total traffic. Work was already under way in 1955 on some of the projects involved. The Main River Canal and the Danube canalization

Bulldozers clear ground for new St. Lawrence Seaway canal, alongside present canal, near Iroquois, Ont.

MALAK, OTTAWA



are to be completed in preparation for final connection with the Rhine River. Also the Neckar Canal will be completed to the Stuttgart area as part of an eventual second linking of the Danube and Rhine rivers.

(For further references, see the Index entry, *Canals*.)

ARTHUR J. FOX, JR.,
Associate Editor, "Engineering News-Record."

CANARY ISLANDS. A group of mountainous islands in the Atlantic off the northwest coast of Africa, comprising two Spanish provinces—Las Palmas and Santa Cruz de Tenerife. Area, 2,807 square miles; pop. (1952), 809,952. The seaport cities of Las Palmas (158,313) and Santa Cruz de Tenerife (104,669) are the provincial capitals. Agriculture, fishing, oil refining, and bunkering are the main industries. Tomatoes and bananas are exported. An interisland air transport service by Iberia Airlines was authorized by the Spanish government in 1955.

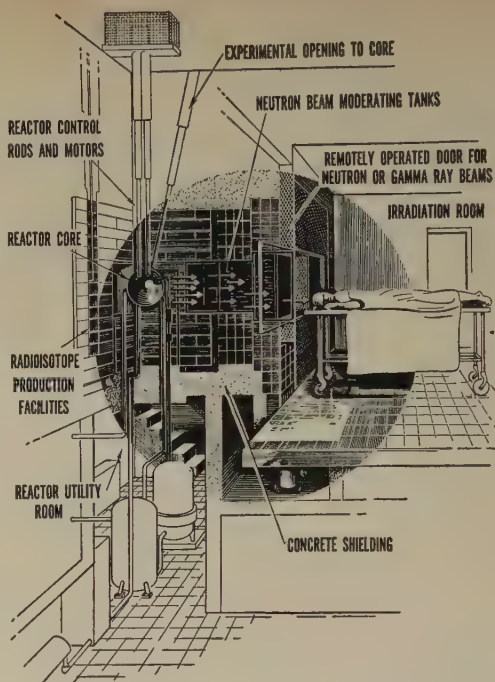
CANCER. Public and governmental support of cancer work has continued unabated during 1955. A total of more than \$24,000,000 was contributed to the American Cancer Society during 1955, and the National Institutes of Health has received an appropriation of \$24,828,000 from Congress for the fiscal year 1956. A portion of these funds, in addition to private support, has made available a total of more than \$25,000,000 for cancer research during 1955.*

The controversy over krebiozen, a secret remedy for cancer, has erupted in the publication of two books. *Krebiozen—Key to Cancer?* written by Herbert Bailey, is a superficial defense of a disturbing episode in American science. A restrained and carefully documented book, entitled *Krebiozen—the Great Cancer Mystery*, by Dr. George D. Stoddard, served as a reply.

The association between cigarette smoking and lung cancer in man is reaffirmed by the continuing study by the American Cancer Society on 188,000 men between the ages of 50 and 70. Smokers have about seven times the lung cancer death rate of men who never smoked, and two-pack-a-day smokers have ninety times the lung cancer death rate of nonsmokers. Ex-smokers show a decreased death rate from lung cancer, as compared with those who continue smoking. Wynder, Bross, and Day have evidence that the consumption of more than six ounces of whiskey daily in association with tobacco smoking was correlated with an increased incidence of carcinoma of the larynx. The inferences concerning the carcinogenic effects of tobacco are not universally accepted, and numerous research projects to clarify the situation have been initiated, in part by the Tobacco Industry Research Committee.

Cancer Research.—There is increasing interest in the production of various types of transplantable human cancers which can grow regularly and by repeated transfer in cortisone- and X-ray-treated rats and hamsters. Some of these tumors also grow regularly in the untreated chick embryo and chicken. Ascites tumors are being more widely used in cancer research. Ascites tumors as isolated cells grow on intraperitoneal injection, and they produce a much more uniform tumor preparation for experimental use. Many transplantable solid tumors have been converted into an ascitic form.

* Information provided by the National Health Education Committee, Inc.



NORTH AMERICAN AVIATION, INC.

Artist's sketch of first atomic energy reactor designed for medical research and therapy. Gamma rays and neutrons, produced through atomic fission within the reactor, can be used directly in treating cancer patients.

No satisfactory serological tests for cancer have been described, but there is considerable interest in enzymes, associated with carbohydrate metabolism, which increase in concentration in the blood of some cancer patients; these enzymes include aldolase, lactic acid dehydrogenase, and phosphohexose isomerase. There has been no important advance in the search for chemicals which will inhibit tumor growth in animals. A number of effective compounds, such as the folic acid antagonists, 6-mercaptopurine, nitrogen mustard and related compounds, and azaserine are available, and combinations of these agents—together and with other drugs—are being studied with the object of enhancing therapeutic activity.

Clinical Results.—It is estimated that in the United States almost 500,000 cases of cancer were diagnosed, and 250,000 people died from cancer during 1955. Improvement in surgery and radiotherapy and earlier diagnosis are steadily increasing the number of patients with arrested cancer. Several new types of irradiation equipment are in use. High-energy sources, such as the betatron and electron beam, are used to treat deep-seated tumors. In the treatment of brain tumors, the neutron beam is being investigated in combination with administration of sodium borate to the patient, since boron will enhance the local effects of the neutron beam. Tumors are also being attacked by the local implantation of wires containing radioactive tantalum or iridium.

Two new compounds with actions similar to nitrogen mustard have been developed; they are p-carboxypropylphenyl bis (β chloroethyl) amine (CB1348) and triethylenethiophosphoramide (ThioTEPA). These drugs are used in Hodgkin's disease, chronic leukemia, and various types of cancer. Myleran has become an established agent in the treatment of chronic myelocytic leukemia. Two purine analogues, 6-thioguanine and 6-

chloropurine, have joined 6-mercaptopurine in the treatment of acute leukemia and chronic myelocytic leukemia. Azaserine, an antimetabolite of weak therapeutic activity, appears to enhance the beneficial effects of 6-mercaptopurine in leukemia in children. A number of new steroids with adrenocortical activity are now available. The most promising are prednisone (Meticorten) and prednisolone (Meticortelone). The drugs are more active by weight and cause less fluid retention than cortisone. They are useful in acute and chronic lymphatic leukemia, in breast cancer, and are widely prescribed as supportive agents.

The removal of the adrenal glands or the hypophysis is becoming recognized procedure in far-advanced breast cancer; it is estimated that almost 50 per cent of patients with disseminated breast cancer will respond to one of these operations.

(For further references, see the Index entry, *Cancer*.)

DAVID A. KARNOFSKY,
Memorial Center for Cancer and Allied Diseases, New York City.

CANDY. See CONFECTIONERY.

CANNING INDUSTRY. Cold Sterilization.—Considerable attention was given in 1955 to the sterilization of foods by the use of ionizing radiations. The U.S. Atomic Energy Commission, stressing this possible use of radioactive waste from atomic fission, has launched a number of projects related to its application; and the Quartermaster Food and Container Institute for the armed forces has also made a considerable study along these lines. In addition to acting as an observer of these projects, the National Cannery Association has similarly studied the possibility of using ionizing radiations to destroy spoilage-causing bacteria and their spores, with particular emphasis on *Clostridium botulinum*, producer of a deadly toxin. So zealous in the past has been the NCA's concern with this organism that no case of botulism has resulted from commercially canned foods for about three decades, although such cases are reported yearly from home-canned foods.

Ionizing radiations are effective in killing bacteria, but their ability to inactivate undesirable enzymes, present in all foods and easily inactivated by heat, is less pronounced. In addition, ionizing radiations produce off-flavors and destroy certain vitamins. (See also *FOOD RESEARCH*.)

Effects of Atomic Blasts and Fallout.—Technologists of the NCA, the Can Manufacturers Institute, the Glass Container Manufacturers Institute, and the American Meat Institute, in cooperation with the AEC and the Federal Civil Defense Administration, participated in experiments related to the 35-kiloton nuclear explosion at Yucca Flats, Nev., on May 5, 1955. In 15 localities, ranging from one fourth to 3 miles from the center of the explosion, 25,000 tin and glass containers were strewn on the desert floor or placed on shelves or in basements of test-area houses. Both single and cased containers were used, and a variety of foods was selected to represent a wide pattern of consumption. These foods will be tested in animal feeding experiments, to be made over a probable two-year period, by the Federal Food and Drug Administration. The AEC and the FCDA must verify all reports and claims resulting from these tests.

Pure Food and Drug Act.—The 1956 convention

of the NCA will observe the semicentennial of the Pure Food and Drug Act of 1906. The organization of the NCA a year later pointed toward the canning industry's understanding of, and compliance with, the act's provisions.

U.S. Consumption and Production.—Preliminary figures indicate that per capita civilian consumption (in pounds) of canned goods in the United States in 1954 was as follows: vegetables, 35.9; fruits, 19.2; juices, 18.4; soups, 11.2; meats, 9.6; fish, 4.4; and baby foods (estimated on the basis of the total population), 4.0. In 1952 each child under 3 years of age consumed 52 pounds of canned baby food.

Data relating to the United States output of canned fruits and vegetables in 1953 and 1954 are shown in the accompanying table.

UNITED STATES PRODUCTION OF CANNED
FRUITS AND VEGETABLES

Product	1953 (number of cases)	1954
FRUITS AND FRUIT JUICES:		
Apple juice.....	3,080,844	4,219,890
Apples (6 #10 cans).....	2,941,823	4,709,392
Applesauce.....	11,204,975	15,294,224
Apricots.....	5,827,380	3,411,660
Blackberries.....	501,054	413,483
Boysenberries.....	269,747	323,786
Raspberries.....	267,689	160,023
Cherries, red pitted.....	3,848,629	3,086,342
Cherries, sweet.....	1,539,985	1,481,952
Cranberry sauce ¹	5,422,134	5,514,848
Fruit cocktail.....	10,760,213	11,907,455
Fruits for salad ¹	1,167,277	998,968
Grapefruit and orange juices, blended.....	5,263,326	5,577,000
Grapefruit juice ²	10,515,076	14,837,732
Grapefruit sections ²	4,407,350	5,070,245
Lemon juice ²	960,413	459,421
Orange juice ²	17,822,320	17,491,486
Olives, ripe ¹	1,278,970	2,056,000
Peaches.....	24,212,709	20,941,303
Pears.....	7,210,004	9,765,802
Plums, purple.....	1,412,606	1,785,440
Pineapple ¹	18,194,569	17,976,739
Pineapple juice ¹	14,654,428	14,291,984
Strawberries.....	174,521	132,071
VEGETABLES AND VEGETABLE PREPARATIONS:		
Asparagus, green.....	3,143,801	4,256,150
Asparagus, white.....	1,345,466	1,355,720
Beans, green.....	20,548,517	25,230,685
Beans, lima.....	3,377,230	3,951,576
Beans, wax.....	3,348,299	3,542,642
Beets.....	9,137,054	7,737,717
Carrots.....	2,628,842	2,209,720
Carrots and peas, mixed.....	1,738,461	1,226,453
Chili sauce.....	2,562,450	1,979,213
Corn.....	36,244,595	36,761,013
Okra.....	482,649	401,047
Okra and tomatoes, mixed.....	621,793	185,481
Peas.....	31,365,940	27,245,133
Pimientos.....	2,132,660	1,485,343
Potatoes, sweet.....	4,185,911	3,503,681
Potatoes, white.....	3,096,186	1,935,681
Pumpkin and squash.....	2,546,443	1,786,281
Sauerkraut ²	6,126,780	7,137,425
Spinach.....	5,158,927	3,871,023
Succotash (corn and lima beans).....	488,362	307,307
Tomato catsup.....	19,115,503	18,564,663
Tomato juice.....	27,061,726	37,754,370
Tomato pulp (6 #10 cans).....	2,828,918	2,498,801
Tomatoes.....	20,841,255	20,964,291
Vegetables, mixed.....	1,991,224	1,914,098

¹ Data are for the 1953-54 and 1954-55 seasons. ² Data are for the 1952-53 and 1953-54 seasons.

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CANOEING. See SPORTS, GAMES, AND SHOWS.

CAPE VERDE ISLANDS. See PORTUGUESE TERRITORIES.

CARIBBEAN COMMISSION. This international body (constituted in 1946, when it superseded the earlier Anglo-American Caribbean Commission and was enlarged to include France and the Netherlands) is concerned in an advisory role

with matters of common interest to 4 member governments and the associated local governments of 14 Caribbean countries, with an aggregate population exceeding 6 million.*

The commission's activities are currently concentrated on agricultural and industrial development, housing, and community education, in which fields experts, loaned by the U.S. International Cooperation Administration and by the U.N. Food and Agriculture Organization, participated in 1955. The West Indian Conference, an auxiliary body of the commission, meets biennially to advise the commission on regional economic and social problems. The sixth such conference, dealing with education and small-scale farming, was held at San Juan, Puerto Rico, May 10-19, 1955. In view of the increasing political and economic autonomy of the area, the conference recorded its firm conviction that a revision of the agreement establishing the commission is urgently needed.

CARNEGIE, Dale, American lecturer and author: b. Maryville, Mo., Nov. 24, 1888; d. Forest Hills, Queens, N.Y., Nov. 1, 1955. The author of *How to Win Friends and Influence People*, he was widely known for his optimistic precepts for successful living.

Educated at the Warrensburg (Mo.) State Teachers College (1904-08), Carnegie went in 1911 to New York City where, after a false start as an actor, he began his career as a teacher of public speaking with the Young Men's Christian Association in 1912. Not long afterward he established his own office to capitalize on his discovery that the modern American's intense desire for success was a valuable commodity.

In 1919, he became business manager for Lowell Thomas, who was about to embark on a lecture tour of Great Britain. After several subsequent years of lecturing and traveling in Europe, Africa, and the Arctic, he returned to New York to resume his teaching. His first book, *Public Speaking; a Practical Course for Business Men* (1926; published in 1932 as *Public Speaking and Influencing Men in Business*), was successful and became the standard text for his courses. Subsequently he increased his audience through a column syndicated in 71 newspapers and through radio programs (inaugurated in 1933), in which his formulas for success were broadened to include the whole scope of human relations. To unify his varied activities he established the Carnegie Institute for Effective Speech and Human Relations, which in 1955 was conducting classes in 750 cities in the United States and 15 foreign countries.

Carnegie's most famous book, *How to Win Friends and Influence People*, was published in 1937. Permeated by an easy optimism which appeals simultaneously to the desire for fulfillment and escape ("Believe that you will succeed, and you will."), it has in recent times, according to his publisher, ranked second to the Bible in nonfiction sales, having been translated into 29 languages and having sold 4,800,000 copies.

Other Carnegie works, all related to the theme of success, include *Lincoln the Unknown* (1932); *Little Known Facts About Well Known People* (1934); *Five Minute Biographies* (1937); and *How to Stop Worrying and Start Living* (1948).

* Member governments (and their contributions to the total assessment budget of \$343,275 for 1955) are: United States (\$131,817), United Kingdom (\$117,743), France (\$54,924), and the Netherlands (\$38,790). Each member nation appoints 4 commissioners. The secretariat is at Port of Spain, Trinidad. The secretary general is E. F. H. de Vriendt.

CARROTS. See **VEGETABLES.**

CARTOGRAPHY. The technical and professional scope of cartographic practices was broadened further in 1955. The solution of pertinent problems involving ethics, professional recognition and registration, qualifications, and classifications of surveying and mapping personnel received special attention.

Domestic Mapping.—The topographic mapping program in the United States reached a new level with over 1,600 new quadrangles being published by the Geological Survey (q.v.). Nearly 2½ million copies of quadrangles were distributed in 1955. Approximately 40,000 square miles of geologic mapping was completed.

The Coast and Geodetic Survey (q.v.) made full use of new aerial photography in compiling and revising large-scale maps of coastal areas in support of nautical and aeronautical charting programs. The Mississippi River Commission was active in mapping the alluvial valley of the Mississippi River. Mapping in the Tennessee River watershed was continued. The Soil Conservation Service published soil maps for over 2,600 soil conservation districts and provided essential cartographic assistance for watershed protection, flood prevention, irrigation, and drainage work. (See also **SOIL CONSERVATION.**)

New Accomplishments.—The American Geographical Society has made substantial progress in developing an *Atlas of Diseases* which is a graphical portrayal of the relationship between some 25 diseases and the geography of the earth.

Higher than a two-story building, the world's largest map globe was dedicated in June 1955 on the campus of the Babson Institute of Business Administration, Wellesley, Mass. The giant globe is faced on a great steel ball, 28 feet in diameter, and shows the earth at 24 miles to the inch.

After 7 years of intensive work, a monumental *Sky Atlas* was completed during the latter part of 1955. The 1,758-plate atlas of the universe contains the results of the National Geographic Society—Palomar Observatory Sky Survey. (See also **NATIONAL GEOGRAPHIC SOCIETY.**)

In October 1955 the first volume (covering northern Europe) of the *Times Atlas of the World* was published. Actually this is Volume 3 of a five-volume set, the remaining four volumes to be published one each year until 1959. The work is being edited by John Bartholomew, head of a long-established map-making firm in Edinburgh, for the London *Times*, and is reported to contain some 200,000 place names on 120 new maps reproduced in from five to eight colors.

World Mapping.—The Army Map Service closed the final link in one of the longest measurable arcs of meridian in central Africa along the 30th meridian. Simultaneous adjustment of the entire arc is basic to future mapping throughout Africa.

At the Seventh Consultation on Cartography of the Pan American Institute of Geography and History, held in Mexico City in the summer of 1955, important resolutions were adopted for close coordination and extension of national mapping programs in the Americas.

The United Nations sponsored the first regional cartographic conference for Asia, held in India in February 1955, pursuant to a resolution of the U.N. Economic and Social Council. Regional technical problems having worldwide implications were discussed.

Nautical Charting.—Source material for charting has increased enormously since World War II

due to electronic developments in surveying. This new aid has also necessitated extensive modification of charting techniques and chart format.

The Hydrographic Office has introduced a new method of multitone relief shading in one press run, giving the same effect as multiple color printings. Achievement of a wide range of color values from one printing plate has increased the effectiveness of cartographic presentation.

The Lake Survey revised a substantial number of the Great Lakes charts during 1955 to reflect constantly changing conditions in the harbors and other critical waters.

Aeronautical Charts.—The Coast and Geodetic Survey published a new series of 9 route charts covering the main air routes of the United States. An aircraft position chart was published to afford coverage of the air routes from the Pacific Northwest to the Orient.

The U.S. Air Force charting program carried out by the Aeronautical Chart and Information Center was concentrated on target charts, mosaics, and charts for low-level, high-speed air navigation. The initial series of 44 jet navigation charts covering the Northern Hemisphere was nearing completion at the end of the year. Coverage of the Southern Hemisphere by this series is being planned.

The program of indexing the tremendous holdings of aerial photography on the U.S. Air Force common indexing system, contributing greatly to a better mapped world, was accelerated during the year. The unique indexing system devised by the U.S. Air Force insures maximum utilization of available photography.

New Techniques.—Long and tedious hours of hand-shading around or within a given map outline has been eliminated by a new mechanical method of producing a vignette tone around an irregular line. Revisions on acetate drawings are simplified through use of a special transfer ink.

The U.S. Air Force is developing a video mapping plate consisting of a film negative mounted on a round glass disk. The disk is designed to cover a 200-mile radius, and will be integrated with ground-based radar equipment used for spotting and tracking aircraft.

The Army Map Service has adopted a mechanical system of names placement called Nomafot which drastically reduces time and expense of an important phase of map preparation. The inking mechanism of printing presses has been modified to improve the process of printing on vinyl plastic material used in the production of plastic relief models. (See also ARCTIC EXPLORATION.)

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CATHOLIC CHURCH. See RELIGION—*Catholicism*; ROMAN CATHOLIC CHURCH.

CAULIFLOWER. See VEGETABLES.

CELERY. See VEGETABLES.

CEMENT. The production of portland cement in the United States increased from 264,023,000 barrels (of 376 pounds) in 1953 to 271,277,000 barrels in 1954, while shipments advanced from 260,888,000 to 274,096,000 barrels according to records of the U.S. Bureau of Mines. Mills operated at 92% of capacity in 1954 (93% in 1953). Production through July 1955 reached 166,117,000 barrels, an increase of 12% over the same period of 1954. (See MINERAL PRODUCTION for output of major producing countries.)

CENSORSHIP. The problem of censorship at the source of information continued to claim the attention of news media throughout 1955. Dissatisfaction was expressed over the operation of Executive Order 10,501, which imposes restrictions on the release of certain types of information by government agencies.

Congressional Investigations.—A subcommittee of the Senate Committee on Constitutional Rights and a subcommittee of the House Committee on Government Operations were established during the year to investigate the problem of government information. The Senate subcommittee held hearings on Oct. 17, 1955, and the House subcommittee held its first session on Nov. 7, 1955.

The following areas of censorship, as indicated in *Editor and Publisher* (Sept. 24, 1955, p. 16), are under investigation by both subcommittees:

(1) Denial to the public of free access to information concerning government operations not classified for military purposes and not involving a personal privilege.

(2) Requiring registration of printing presses or duplicating equipment in which any member of any Communist front or action group has an interest.

(3) Licensing the export of technical information not classified for military purposes.

(4) Censorship of foreign political propaganda by means of post office and customs regulation.

Five categories of government restrictions were outlined for the Senate group by J. Russell Wiggins, chairman of the Freedom of Information Committee of the American Society of Newspaper Editors:

(1) The government has obstructed general discussion of public matters by withholding information.

(2) The government has resorted to prior restraint and censorship, particularly through the Federal Communications Commission's regulations on political broadcasting.

(3) The government has on occasion attempted to punish by contempt the publication of material hostile to it.

(4) The government has restricted access to materials through the registration requirement for printing equipment utilized by Communist organizations.

(5) The Post Office Department has interfered with the distribution of printed publications, and the Treasury Department has restricted entry of material at the borders.

A subcommittee of the Senate Committee on the Judiciary, under the chairmanship of Sen. Estes Kefauver, released a report in August 1955 on the subject of *Television and Juvenile Delinquency*, which recommended legislation providing for a presidential commission to investigate all media of mass communication and their effects on children.

Newspapers.—Few changes in censorship on the world news front were reported during 1955. According to the Inter-American Press Association, freedom of the press either does not exist or is severely limited in Bolivia, Colombia, the Dominican Republic, Paraguay, Peru, and Venezuela. Undoubtedly there are also constraints on the press through the control of paper and/or administrative pressures in Mexico, Costa Rica, Honduras, and Guatemala. In Ecuador the press law provides for imprisonment for up to 12 years for the publication of "slandorous, immoral or subversive matter." The situation in Argentina was still in a flux during 1955 following the ousting of Juan Perón, but expectations were that a wider freedom of the press would be established under the new government.

The following summary of the world situation was reported by the secretariat of the International Press Institute (Zurich):

(1) Examples of countries where press control was complete: the Soviet Union and its satellites, and Com-

CENSUS DATA, U.S.

munist China, Yugoslavia, Portugal, and Spain.

(2) Examples of countries where political criticism by the press was formally possible but where censorship operated: Egypt, Syria, and Colombia.

(3) Examples of countries where special press laws or other discriminatory legislation exposed editors to arrest and persecution: Union of South Africa, Iran, Pakistan, India, Iraq, and Lebanon.

(4) Examples of countries where unofficial methods discouraged press opposition: Turkey and Indonesia.

Newsstand Publications.—Considerable concern has been expressed in the past over the distribution of "comic" and "horror" publications. In several communities the public reacted by banning or burning the objectionable books and magazines. The Comics Magazine Association of America, Inc., was formed in 1954 to attempt to improve the content of this type of publication. Charles F. Murphy, a New York City magistrate, was named to administer a voluntary self-censorship code, signed by 26 publishers. Acceptable content is given a code seal of approval. (See also CRIME—*Crime Prevention*; MAGAZINE PUBLISHING.)

Motion Pictures.—The Illinois Supreme Court in 1955 upheld as constitutional a Chicago ordinance which requires a written permit from the commissioner of police before any motion picture can be shown in the city. The commissioner is authorized by the ordinance to refuse a permit to any motion picture which, in his opinion, is obscene or immoral. According to the court, censorship of motion pictures is permissible on grounds of "immorality" and "obscenity," because such terms as defined in the ordinance are sufficiently definite and because immorality and obscenity are sufficiently detrimental to the public welfare to meet federal constitutional standards. (*American Civil Liberties Union v. City of Chicago*, 3 Ill. 2d 334, 1954.)

After Gov. Fred Hall of Kansas had announced (April 7) that the Kansas Board of Review was to be abolished (June 30), the U.S. Supreme Court (October 24) struck down the very law under which the board had been operating. The repeal of the Kansas statute reduced to five the number of states with active full-time censor boards. (See also MOTION PICTURES.)

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CENSUS DATA, U.S. Population.—During 1955 the population of the United States, including the armed forces overseas, passed the 165 million mark. In recent years the population has been increasing at an average of about 2.7 million each year.

Late in 1955 the Bureau of the Census published projections of the United States population, based on various assumed fertility and mortality rates. For 1960 the projections of the total population ranged from a low of 176.5 million to a high of 179.4 million. For 1975, the projections ranged from a low of 206.9 million to a high of 228.5 million.

There were more than 28 million children of elementary school age (5 to 13 years) and another 18-plus million children under 5 years of age in the population of the United States, according to estimates for July 1, 1955. These estimates represent an increase in the last 5 years of about 6 million in the number of children in the elementary school age group, and of more than 2 million in the preschool age group.

At the other end of the age scale, 65 years and over, the number exceeds 14 million, an increase of about 2 million since 1950.

The effect of the slowing-up in number of

births during the depression years of the 1930's is shown in the estimate of 15 million for the group 18 to 24 years of age, a decrease of about 1 million from 5 years ago. All other age groups showed increases.

TABLE 1—DISTRIBUTION OF U.S. POPULATION BY BROAD AGE GROUPS

Age (years)	Population, including armed forces overseas		Change, April 1950 to July 1955	
	July 1955 (million)	April 1950 (million)	Number (million)	Per cent
All ages.....	165,248	151,132	+14,116	+9.3
Under 5.....	18,305	16,164	+2,141	+13.2
5 to 13.....	28,096	22,154	+5,942	+26.8
14 to 17.....	9,238	8,435	+803	+9.5
18 to 24.....	15,106	16,081	-976	-6.1
25 to 44.....	46,946	45,385	+1,561	+3.4
45 to 64.....	33,429	30,720	+2,709	+8.8
65 and over.....	14,128	12,195	+1,933	+15.9

(Source: U.S. Bureau of the Census.)

The civilian population of the states, last estimated for July 1, 1955, has shown widely different rates of growth since 1950. Estimates for seven states—Alabama, Arkansas, Maine, Missis-

TABLE 2—ESTIMATED CIVILIAN POPULATION OF STATES, 1950 AND 1955 (In thousands)

Area	April 1950	July 1955	Increase
United States.....	149,634	162,284	12,650
Alabama.....	3,053	2,996	-57*
Arizona.....	742	961	219
Arkansas.....	1,908	1,751	-157*
California.....	10,413	12,653	2,240
Colorado.....	1,307	1,516	209
Connecticut.....	2,001	2,229	228
Delaware.....	318	379	61
Dist. of Columbia.....	787	831	44
Florida.....	2,729	3,352	623
Georgia.....	3,402	3,533	131
Idaho.....	588	604	16
Illinois.....	8,672	9,293	621
Indiana.....	3,932	4,327	395
Iowa.....	2,621	2,687	66
Kansas.....	1,887	2,021	134
Kentucky.....	2,913	2,941	28
Louisiana.....	2,670	2,900	230
Maine.....	912	888	-24*
Maryland.....	2,301	2,590	289
Massachusetts.....	4,665	4,970	305
Michigan.....	6,361	7,213	852
Minnesota.....	2,981	3,168	187
Mississippi.....	2,164	2,076	-88*
Missouri.....	3,952	4,092	140
Montana.....	589	628	39
Nebraska.....	1,322	1,367	45
Nevada.....	157	215	58
New Hampshire.....	531	553	22
New Jersey.....	4,802	5,361	559
New Mexico.....	668	769	101
New York.....	14,801	16,112	1,311
North Carolina.....	4,014	4,183	169
North Dakota.....	620	640	20
Ohio.....	7,938	8,934	996
Oklahoma.....	2,218	2,109	-109*
Oregon.....	1,519	1,663	144
Pennsylvania.....	10,480	11,279	799
Rhode Island.....	774	814	40
South Carolina.....	2,096	2,223	127
South Dakota.....	650	671	21
Tennessee.....	3,281	3,395	114
Texas.....	7,584	8,349	765
Utah.....	687	776	89
Vermont.....	378	376	-2*
Virginia.....	3,208	3,419	211
Washington.....	2,317	2,496	179
West Virginia.....	2,005	1,996	-9*
Wisconsin.....	3,433	3,691	258
Wyoming.....	282	294	12

* Decrease. (Source: U.S. Bureau of the Census.)

issippi, Oklahoma, Vermont, and West Virginia—showed losses. Greatest numerical gains were shown for California, New York, Ohio, Michigan, Pennsylvania, and Texas.

Of the total civilian population of continental United States, estimated at 161.5 million in April 1955, those living in territory classified as urban numbered 103.5 million, whereas those living in rural territory numbered 58.0 million. The increases of 7.6 million in the urban and 4.3 million in the rural civilian population over the 5-year period were each at the rate of 7.9%.

The population living on farms in the United States numbered about 22,158,000 in April 1955. This figure is not significantly different from the corresponding estimate for 1954, but represents a drop of approximately 3,000,000 from 1950, when an estimated 25,058,000 were living on farms. The drop in farm population represents a continuation of the longtime downward trend, which has reduced the number of farm residents to 13.5% of the total population by 1955. Changes have been particularly marked since the beginning of World War II. Between 1940 and 1945, the number of persons living on farms decreased by over 5 million. Some return to farms occurred following the end of the war. After 1948, the downward trend was resumed; and, since 1950, farm population has decreased about 600,000 persons per year on the average.

Households.—There were an estimated 47.8 million households in the United States in April 1955. This was an increase of 4.2 million, or about 850,000 a year, since 1950. In 1955, there were about 42.2 million urban and rural nonfarm households and 5.5 million farm households, as compared with 37.3 million nonfarm and 6.3 million farm households five years earlier. Thus the increase for the five-year period was entirely in nonfarm areas. Farm households in the United States have been decreasing in number at an average annual rate of about 150,000 during the last five years. Nonfarm households have been increasing at a rate of about 1,000,000 yearly during the same period. The number of married couples living "doubled up" in households with others reached a postwar low of about 1.3 million, while in 1950 about 2.0 million and in 1947 about 2.9 million did not maintain their own households.

A survey covering the second quarter of 1955 revealed that available vacant dwelling units amounted to 2.3% of the nation's housing, compared with a rate of 1.6% in April 1950. Another survey revealed that about 32 million, or two thirds, of the country's 48 million households had television sets, compared with one in eight in 1950 when about 5 million had television sets.

School Enrollment.—Enrollment in schools at the beginning of the 1954-55 school year was at a record high of 36.1 million, according to a survey made in October 1954. Elementary school enrollment (first 8 grades) was 24.4 million, high school enrollment (grades 9 to 12) was 7.7 million, and college enrollment was 2.4 million. In addition, about 1.5 million children were enrolled in kindergarten.

Thirty million persons were enrolled in public schools below the college level, and 4 million were enrolled in private schools, including parochial schools. Growth in private elementary and high school enrollment has taken place twice as fast, percentagewise, as in similar levels of public schools since 1948, the first year for which such census data are available. During these six years the number of public school pupils increased by

4.8 million, or 20%, whereas the number of private school pupils increased by 1.2 million, or 49%.

The October 1954 survey showed a total of 856,000 persons 14 to 34 years old enrolled in "special" schools providing instruction in trade or business, outside the regular school system.

Labor Force, Employment, and Unemployment.—In August 1955 the civilian labor force had reached a record high of 67.7 million, and total civilian employment was at a peak of 65.5 million. At the same time, the total of 2.2 million unemployed was the lowest since the fall of 1953. In July a new peak of employment for women was reached with 20.2 million.

The latest available annual data (1954) show that total civilian employment averaged 61.2 million, about 1 million under the all-time high level of 1953. By the end of 1954, however, employment was back to the level of a year earlier, and the upward trend was continuing in 1955.

Unemployment averaged 3.2 million, or 5% of the civilian labor force, in 1954—about double the record postwar low of 1953. At its 1954 peak of 3.7 million, unemployment never approached the postwar high of 4.7 million in 1950, and there was a definite improvement during the latter part of 1954 and throughout the first three quarters of 1955.

Income.—The median income of individual Americans with money income in 1954 was \$2,300, about the same as in 1953, according to a survey made in April 1955, providing estimates for all persons 14 years old and over who received any money income during 1954. The median income of men was estimated at \$3,200 a year for both 1953 and 1954, after having risen steadily since 1945 when the estimated figure was a little over \$1,800. The median for women in 1954 was \$1,200, as compared with \$900 in 1945. The median income of families in 1954 was about \$4,200.

Manufacturing.—The growth of manufacturing industries in the United States since World War II has been steady. Based on *Annual Survey of Manufactures* data, total value added by manufacture has increased from \$74.4 billion in 1947 to \$121.7 billion in 1953, while total manufacturing employment has increased from 14.3 million in 1947 to 17.1 million in 1953.

Public Expenditures.—Public expenditure in the United States was at the same level in 1954 (\$110 billion) as in the preceding year. A decrease of 4% in federal government expenditure, resulting from a drop in national defense spending, almost exactly counterbalanced an 11% rise in state and local government spending. National defense expenditure dropped from \$50.5 billion in 1953 to \$46.8 billion in 1954. Nondefense spending—federal, state, and local—rose from \$59.4 billion in 1953 to \$63.7 billion in 1954. The federal government's direct expenditure for purposes other than national defense was \$27.1 billion in 1954; state and local governments spent \$36.6 billion. In per capita terms, total 1954 expenditure of all governments was \$680, with national defense accounting for \$288 per capita, and all other public functions, for \$392 per capita.

Retail Sales.—Retail sales during 1954 reached a figure of about \$170,674,000,000, slightly under 1953, but for the first nine months of 1955 had reached a record high figure of about \$134,477,000,000 (preliminary), compared with \$123,604,000,000 for the like period in 1954.

Foreign Trade.—Imports for consumption to-

taled \$10,234,500,000 in 1954 and \$6,363,600,000 in the first half of 1955. Domestic exports totaled \$14,966,400,000 in 1954 and \$8,822,600,000 in the first half of 1955.

Publications.—In addition to the compilation of the data summarized above, the Bureau of the Census published a number of studies based on 1950 Census of Population data. The 1955 edition of the *Statistical Abstract of the United States*, and the biennial publication, *County Business Patterns 1953*, also were published.

ROBERT W. BURGESS,
Director, Bureau of the Census.

CENTRAL AFRICAN FEDERATION. See RHODESIA AND NYASALAND, FEDERATION OF.

CENTRAL AMERICA. The southern end of North America, from the Isthmus of Tehuantepec (Mexico) to the Isthmus of Panama. The term Central American States usually denotes the five republics of Costa Rica, Guatemala, Honduras, Nicaragua, and El Salvador, but may also include British Honduras, Panama, and the Canal Zone (qq.v.). (See also INTER-AMERICAN AFFAIRS.)

CERAMICS. In 1955 ceramic production experienced a gratifying increase above that of the previous three years, and indications were that the rise would continue during 1956. The increase was largely due to new construction, remodeling, and suburban development.

Structural Ceramics and Allied Groups.—In these groups the increase in the production of building brick is typical of the entire field. The monthly production of 500 million standard units is considered good, but brick production was well above 600 million units during the first half of 1955 and was expected to continue as such for the remainder of the year. Lightweight aggregates from clay and shale, as well as sewer pipe, drain tile, floor and wall tile, and refractories (which are directly affected by steel construction) all showed similar increases. Foreign imports prevented even greater increases.

Whitewares.—Sanitary ware, tiling, and electrical porcelains were in increased production because of construction trends—remodeling in particular being responsible. However, dinnerware and hotelware production, which had declined through the period of 1952 to 1954, remained at the 1954 level through 1955. This was the only major group not showing increases, and prospects for 1956 were not good. Heavy imports, the competition of plastics, and labor costs accounted for the losses.

Enameled Wares.—Utensil production continued at the 1954 level. The production of enamels for construction, for the appliance trade, and for air conditioners, however, showed a sizable increase.

Craftwares.—In 1955, as in 1953 and 1954, business continued to be good, but there was no decided increase. Imports continued to remain an inhibiting factor.

Glasswares.—Imports also caused a decline in the production of tableware, a minor part of the glass trade. The production of flat glass, plate glass, structural glass, and glass fibers, however, showed a steady upward swing in 1955 because of high construction levels and increased automobile production. In 1955 the output of glass containers remained about the same as that of 1954.

In all departments of the ceramic industry, greater stress was being laid on the use of automation processes to reduce costs. No radical or

basic changes in raw materials or formulas were noted. Considerable experimenting and great interest were current in such specialized fields as superrefractories, electronic devices, and cermets (heat-resistant ceramic-metal combinations). New or hitherto unused raw materials, synthetics, and processes were being tried in these fields. (See also CHEMISTRY.)

T. A. KLINEFELTER,
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CEREAL GRAINS. See AGRICULTURE; GRAINS.

CEYLON. Lying directly south of India in the Indian Ocean, the island of Ceylon is a sovereign state of the British Commonwealth, with dominion status. Its area, with outlying islands, is 25,332 square miles; the population totaled 8,103,648 in March 1953. Two thirds of the Ceylonese are Sinhalese; about one eighth are Tamils. Most Sinhalese are Buddhists, and the Tamils are Hindus. Colombo (pop., 424,816) is the capital and chief port.

Government.—Parliament is composed of a 30-member Senate (15 nominated and 15 elected) and a House of Representatives (6 nominated and 95 elected), which chooses the 15 elected members of the Senate. The government coalition is headed by the United National Party. Sir Oliver Goonetilleke became governor general on July 17, 1954, succeeding Viscount Soulbury. The prime minister is Sir John Kotelawala (assumed office Oct. 12, 1953). Colonel Anton Muttukumara (appointed Jan. 31, 1955) heads the Ceylon Army.

Education.—There were 6,894 government and assisted schools, with an aggregate enrollment of 1,625,742 pupils in May 1954; in 1953-54 expenditure on government education was Rs.135,247,055 (the Ceylon rupee equals approximately 21 U.S. cents). The University of Ceylon, established in 1942, has faculties of Oriental studies, art, science, medicine, law, agriculture, engineering, and veterinary science. Under the Ministry of Education a special department was established in 1955 for translating all secondary school textbooks into Sinhalese and Tamil, and to create a technical vocabulary in those languages.

Finance and Economic Development.—Estimated revenue in 1954-55 was Rs.1,065,151,402; expenditures, Rs.815,807,303. The budget for 1955-56 estimated total revenue at Rs.1,052,859,941, and expenditures at Rs.946,306,483.

A second 6-year program of government investment envisages a total expenditure during 1954-60 of Rs.2,529 million, out of which Rs.1,942 million (representing 76.79% of the total cost) will be spent on economic projects, and Rs.403 million (16%) on social services. Of the allocations to economic projects, public utilities account for 33.1%, and agriculture, irrigation, and fisheries for 36.5%. Development work was to include improvements of the ports of Galle, Kankasanturai, and Trincomalee; completion in 1956-57 of the bridge over the Kelani Ganga River; construction of a new power station in Jaffna; expansion of the Ratmalana airport; completion in 1957-58 of stage 2A of the Laxapana hydroelectric project, and the starting of five major projects to provide irrigation for over 120,000 acres and to settle 140,000 families on irrigated land or on crown land to be assigned to commercial crop production.

Production.—Of 3.25 million acres under cultivation in 1954, about two thirds were utilized by three basic crops: coconuts (920,000 acres), rubber (659,000), and tea (575,000). In addition rice was cultivated on 1,270,000 acres, yielding 31.5 million bushels.

Industrial production included cigarettes, cigars, soap, textiles, plywood, cement, acetic acid, leather, ceramics, and coir goods. Development plans in 1955 included the construction of plants for the manufacture of paper, vegetable oil, and caustic soda, for sugar refining, and for the exploitation of ilmenite sands.

Under the government investment program, Rs.105 million is to be devoted to the rehabilitation of the rubber industry; Rs.15 million to development of coconut production; and Rs.4 million to assistance to tea-producing small holders. Following completion of the dam and irriga-

tion projects in the Gal Oya Valley, more than 200,000 acres of jungle land were being brought under cultivation in 1955.

Foreign Trade.—During 1954, Ceylon exported 920,498 hundredweight of copra, and 122,318 of coconut oil. Rubber exports amounted to 209,138,815 pounds, valued at Rs.285,282,007, and tea exports aggregated 361,262,330 pounds, valued at Rs.1,122,798,116. The value of exports in 1954 (principally tea, rubber, and coconut products) was Rs.1,714,675,651, compared with Rs.1,485,535,579 in 1953. Principal buyers were the United Kingdom (Rs.495 million), Australia (Rs.172 million), Communist China (Rs.222 million), and the United States (Rs.117 million). Imports in 1954 (chiefly foodstuffs and textiles) amounted to Rs.1,397,255,629, compared with Rs.1,607,837,636 in 1953; principal sources were the United Kingdom (Rs.293 million), Australia (Rs.106 million), India (Rs.191 million), Burma (Rs.125 million), and Communist China (Rs.158 million). There was a favorable trade balance of Rs.412 million at the end of 1954, as compared with an adverse balance of Rs.39 million in 1953.

Communications.—In 1955, Ceylon had 17,500 miles of highways and 896 miles of state-owned railways. Airlines operating through Ceylon are Air India, British Overseas Airways, Qantas Empire Airways, Trans-World Airlines, and KLM Royal Dutch Airlines. A daily service is operated by Air Ceylon to Trichinopoly in South India, via Kankasanturai, northernmost point in Ceylon.

Principal Events, 1955.—Sir John Kotelawala represented Ceylon at the conference of prime ministers of the Commonwealth countries held in London, Jan. 31–Feb. 8, 1955, and at the Asian-African Conference (q.v.), where his speech of April 21, strongly attacking "Soviet colonialism," won international attention. Supporting the initiative of the United States government in proposals for achieving an Arab-Israeli settlement in the Middle East, Sir John tendered the services of his government in this connection on August 7.

Harold E. Stassen, then director of the U.S. Foreign Operations Administration, arrived in Colombo on March 3, 1955, where he was received by the governor general and also had talks with the prime minister and other members of the cabinet. (Ceylon has been barred from receiving United States economic aid because of her exports of rubber to Communist countries.) Other visitors during 1955 included the prime minister of Australia, R. G. Menzies (January 18–25), and Field Marshal Pibul Songgram, prime minister of Thailand (June 17).

In February 1955, Dr. Frank Godwin, a technical specialist of the International Bank for Reconstruction and Development, arrived at Colombo to help establish and become first director of the Ceylon Institute of Scientific and Industrial Research.

Teams of scientists representing Great Britain, the United States, Japan, Switzerland, India, and Germany were among those who on June 20 studied the total eclipse of the sun from various parts of the island (see also ASTRONOMY.)

On December 14, along with 15 other nations, Ceylon was elected to membership in the United Nations.

DONOVAN ROWSE,
Author and Publicist.

CHANNEL ISLANDS. This United Kingdom dependency, situated off the northwest coast of France, comprises Jersey, Guernsey, Alderney and Sark (dependencies of Guernsey), and

smaller islands, aggregating 48,083 acres with a population (1951 census) of 102,770 (Jersey, 55,288 in 1954; in 1953, Guernsey, 44,158; Alderney, 1,319; and Sark, 492). Chief towns are St. Helier in Jersey and St. Peter Port in Guernsey. The main islands have separate governments, each with a lieutenant governor (Jersey: Admiral Sir Gresham Nicholson, appointed Oct. 16, 1953; Guernsey: Air Marshal Sir Thomas W. Elmhirst, assumed office Oct. 16, 1953), a royal court of unpaid lay justices, and an elected Assembly of the States.

Revenue of Jersey in 1953–54 was £2,650,842; expenditure, £2,606,115; Guernsey's revenue totaled £1,948,105; expenditure, £1,939,964, in 1953. Primary and secondary education is provided. Trade is principally with the United Kingdom, to which flowers, fruit, vegetables, and cattle, valued at £14,706,762, were sent in 1954. Imports of fuel, foodstuffs, and timber were valued at £22,853,763. During an official visit in September 1955, the British home secretary, Gwilym Lloyd-George, inspected the Minquiers and Les Ecréhous island groups, sovereignty of which was awarded to Great Britain by the International Court at The Hague in 1953.

CHASE, Harry Woodburn, American educator: b. Groveland, Mass., April 11, 1883; d. Sarasota, Fla., April 20, 1955. A staunch advocate of academic freedom and of the liberal tradition in education, he was chancellor of New York University from 1933 until 1951.

Harry W. Chase was educated at Dartmouth College (B.A. 1904; M.A. 1908) and Clark University (Ph.D. 1910). On completing his graduate work, he was appointed to the faculty of the University of North Carolina, where he taught the philosophy of education and psychology and was named president of the university in 1919. During his 11-year administration he succeeded in developing the university into one of the most progressive educational institutions in the South. In 1930 he became president of the University of Illinois, a post he held until 1933. During these three years he was instrumental in reorganizing the administrative structure of the university and establishing the schools of Physical Welfare and of Fine and Applied Arts.

On July 1, 1933, Dr. Chase, succeeding Elmer Bosworth Brown, became the eighth chancellor of New York University. Under his energetic direction, the university established the New York University-Bellevue Hospital Medical Center, the Washington Square Law Center, and the Alumni Gymnasium on the University Heights campus. When he retired in July 1951, the university had become one of the largest in the United States.

CHECKERS. See SPORTS, GAMES, AND SHOWS.

CHEESE. See Index entry.

CHEMISTRY. Nuclear Chemistry.—The production of elements 99 and 100 by means of a cyclotron was announced in 1954. In 1955 the codiscoverers proposed the names einsteinium (symbol E) for element 99 and fermium (symbol Fm) for element 100, in honor of the two great nuclear scientists, the late Albert Einstein (q.v.) and the late Enrico Fermi. It was further revealed in 1955 that both elements were found in radioactive debris from tests made in the Pacific in 1952.

Seventeen atoms of element 101 (mass number, 256) have been produced and identified by bombardment of element 99 in a cyclotron at the University of California at Berkeley, and the

name mendelevium (symbol Mv) has been given the substance. Extremely radioactive, this heaviest of all known forms of matter has a half-life of between one-half hour and three hours, and decays by spontaneous fission.

The most radioactive piece of material for peacetime use is a 13-inch pipe, 2 inches in diameter, composed partly of radioactive cobalt. Its radioactive strength is estimated at 3,500 curies, while the corresponding value of the world's refined radium is about 2,400 curies. The pipe, which is to be used in petroleum research, remained in a "swimming pool" reactor for two and one-half years, and was transferred to its present location in a three-ton lead container.

Radioactive isotopes in rapidly increasing amounts are finding a still greater variety of uses in research and engineering applications. They serve to trace reaction paths, catalytic action, flow of fluids, position of materials, and distribution patterns. They measure chemical compositions, thickness, density, viscosity, extent of corrosion, and wearing rates. Other uses include catalyzing chemical reactions, sterilization without heat, radiography, elimination of static hazards, and production of luminescence. Instances are cited of savings of \$100 million annually through the industrial use of isotopes.

Radiological sterilization has made great progress in eliminating bacteria in packaged pharmaceuticals, and shows phenomenal promise in preventing deterioration of fresh foods for long periods of time. The foods are sealed, preceded in some cases by blanching or short heating, but often entirely in the cold state, and are subjected to highly penetrating radiations. Potatoes so treated, even when unsealed, do not sprout for as much as a year. (See also CANNING INDUSTRY; FOOD RESEARCH.)

Radiated polymers are free from the action of residual catalysts, and are of special value in preventing corrosion of metals imbedded in insulating plastics. Radiation also improves the properties of such polymers as polyethylene. Gamma rays and fast neutrons accelerate reactions, some of which are otherwise thermodynamically impossible. Tagged dirt permits the development of more efficient detergents. A very small amount of radioactive material, which makes possible the detection of differences in the conductivity of an ionized gas, is the basis of a fire alarm that warns of the presence of combustion products long before smoldering material bursts into flame.

Inorganic Chemicals.—The inert gas, argon, until 1894 an undiscovered component of air and hidden in nitrogen, is now separated by distillation of liquid air and employed to the extent of nearly one-half billion cubic feet per year. Its chief uses are in shielding the electric arcs in the welding of stainless steel, nickel, and the light metals, magnesium and aluminum.

Prospects are that in another 20 years Mexico will have become the world's major producer of native sulfur. Several plants with good port facilities are in operation. Probable and proved resources are now over 50 million tons. By 1956, yearly production from three plants will reach 1 million tons.

Chlorine trifluoride is being employed in perforating oil well tubes and casings as much as two miles below ground level. The chemical's container is positioned and fired by electricity, an igniting compound being injected into the fluoride chamber. Penetration is instant and complete without flare or burr in the pipe. Since the trifluoride reacts with silicon compounds, this

material may be used instead of diamond bits in drilling in very hard formations.

The original process for making the versatile chemical, hydrazine (NH_2NH_2), results in a 2% water solution. Hence water removal is a great problem. By ordinary distillation a constant-boiling mixture which still contains over 40% water is obtained. Addition of aniline and a series of distillations yield as much as 70% of the hydrazine free of water, and the remainder is recycled and recovered.

Metals.—The corrosion of steel has been divided into two types, the first being known as "protective corrosion," in which the rust forms a retarding coating with little more damage than discoloration, readily remedied by polishing, waxing, and touch-up painting. The second and much more serious type is "sheltered corrosion" which takes place in hidden and relatively inaccessible locations from which moisture cannot easily escape. Nonprotective rust continues to form in depth in the metal. Accelerated corrosion tests, which in 20 days duplicate the damage of three years of ocean-beach exposure, permit the selection of resistant over highly susceptible steels, and the development of new alloys with better properties.

The manufacture of stainless steel depends on chromium, which is introduced as ferrochromium. Carbon in such small amounts as 250 parts per million is rejected from the metal to grain boundaries, where corrosion takes place. The rejection is suppressed by annealing, but is set off by welding. Since 1922 it has been possible to reduce greatly an original 0.2% carbon content, and recently a high-temperature vacuum furnace brings the carbon down to less than 0.01%. The furnace is capable of removing carbon monoxide at the rate of 5 tons per hour.

A method of upgrading nonmagnetic iron ores has been developed in which coarsely ground taconite ores with only 30% iron content are suspended in a stream of hot reducing gas. The reduced ore is quenched with cracking of the particles so that further grinding is easy. Magnetic separation with grinding results in a product containing 63% iron. A high-silica waste is rejected, and the upgraded product is formed into pellets, which are sintered before going to the blast furnace.

A new copper-smelting process has recently completed its first year of full operation. Finely divided copper concentrate and flux pass with oxygen into a preheated smelting furnace. The products are a matte of copper and iron sulfide, a slag still rich in copper, and a gas containing up to 75% sulfur dioxide. The slag is showered with droplets of iron sulfide at the skimming end of the furnace, which serve to extract copper. Part of the sulfur dioxide is purified and sold as a liquid to paper industries, the remainder being made into sulfuric acid. The oxygen unit for this process produces 325 tons of a 95% gas per day. (See also METALLURGY.)

A modification of the process of zone-melting of metals to attain a very high degree of purity is to form the metal—titanium, for example—into a rectangular or ridged bar and to carry out the melting operation in an electrical coil producing high-frequency eddy currents in the bar. Impurities migrate to the unmelted edges, which form a cage confining the viscous melt. When the operation is complete and the bar is cooled, the edges containing the undesired substances are cut off. Melting is carried out in an inert atmosphere.

The first plant producing sodium on a large

scale, for reduction of titanium tetrachloride to the metal, is ready for operation. In order to produce sodium of 99.95% purity, the electrolytic cell is blanketed with argon. Either pure potassium or an alloy of sodium and potassium can be produced by passing molten potassium chloride down a tower packed with steel rings, while sodium vapors rise from a reboiler at the base of the tower. These metals are employed in organic syntheses and as heat-transfer media in nuclear reactors.

Ceramics.—Two very important fields in which ceramic materials are making great contributions are as coatings of metals to resist very high temperatures, and as electronic materials.

Metal coatings previously in use withstood temperatures of from 1400°F. to 2200°F., but research in jet and rocket propulsion requires 3000°F. and higher. Application of such a coating is accomplished by forming a high-melting oxide into a rod, which is baked and then fed through a metallizing gun in an oxygen-acetylene flame. Another technique for coating graphite with silicon carbide involves reacting the graphite with silica vapor to produce the carbide on the surface.

Cooperative efforts are now being made by industry and government to standardize the purity of barium titanate as an electronic material. Presently employed to the extent of 2.5 million pounds per year, this figure is expected to be doubled by 1960. Both source materials and fabricating processes are being examined and methods of tests perfected, resulting in a single set of standards. This material is employed in condensers for radio and television industries and also in piezoelectric elements of all types, underwater sound-detection instruments being typical.

Organic Chemicals.—After 20 years of research, nitroparaffins are now being produced on a large scale. Typical compounds are nitromethane, nitroethane, and both 1- and 2-nitropropanes. Something like 2,000 derivatives have been made from the nitroparaffins. Nitration is a vapor-phase operation. Applications of nitroparaffin derivatives include solvents, emulsifying, surface-active, reducing, and resin-curing agents, catalysts, and resin stabilizers.

Sorbic acid, an unsaturated straight-chain monobasic acid, was originally produced in quantity to upgrade drying oils during the period of tung oil shortage. It is now effectively used in inhibiting moulds in yeast and food products. The starting substance is hexadienal, a trimer made from acetaldehyde. It is nontoxic and may be used in a cheese wrap. It is metabolized in the body and has some slight food value.

Acrolein, a simple three-carbon unsaturated aldehyde, is now finding increasing applications. A century ago it was made by dehydrating glycerin, and is known to housewives as the substance produced when frying fats are overheated. In quantity it is not only irritating but toxic. It is now produced by the thermal cracking of diallyl ether to give propylene and acrolein. Propylene alone may be catalytically oxidized to acrolein. Acetaldehyde and formaldehyde condensation is a further source. Its derivatives include menthionine, folic acid, and formaldehyde-acrolein resins. Dialdehydes made from acrolein will cause cross-linking of hydroxy compounds, such as cotton and rayon, to improve shrink and crease resistance without loss of flexibility. The dialdehydes are also employed in increasing water resistance of paper. Hydrogenation of dialdehydes produces glycols, which are used in manufacturing isocya-

nate foams. Instead of glycerin as a source of acrolein, it is now proposed to make glycerin from acrolein and hydrogen peroxide.

The ethanolamines, mono-, di-, and tri-, are now being produced to the extent of 80 million pounds per year, and at the present rate of growth will soon reach the 100-million-pound figure. The relative positions of the three are continually shifting. The major function of monoethanolamine is the removal of hydrogen sulfide from natural and refinery gases. It is also a starting substance in detergent manufacture. Diethanolamine is decreasing as a gas absorbent, but holds an important position in the field of liquid and shampoo detergents, and in the textile industry. Triethanolamine finds its largest use in the making of toilet goods, and most of the remainder goes into textile specialties and into such miscellaneous fields as petroleum demulsification, rubber chemicals, and as an aid in the grinding of cement.

Colloids.—This field is essentially that of "surface chemistry" and includes emulsions, films, surface-active agents producing wetting and detergency, fine particles, adsorption, and ion-exchange reactions. Some of these materials might also be classified under other headings.

A commercial emulsifying agent is credited with protecting a city from a disastrous fire. Oil to a thickness of four inches had been spilled into a river flowing through the city. By damming the flow of oil with log barriers, and immediately applying the emulsifier, the oil layer was dispersed into the water and flowed harmlessly away in the river.

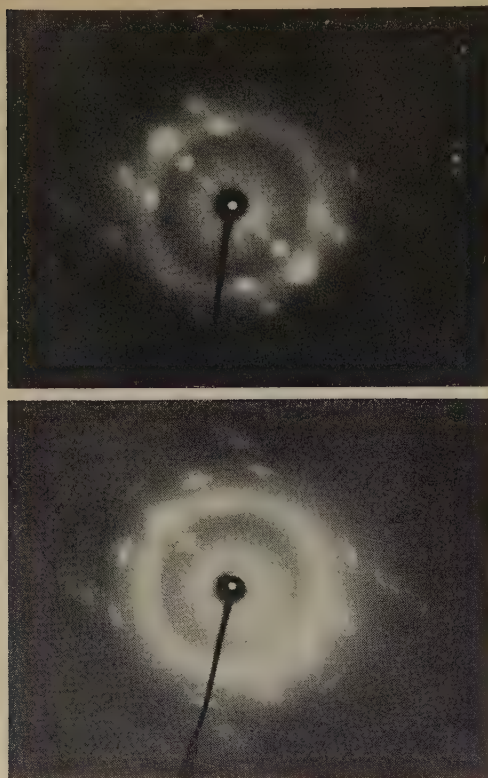
Cetyl alcohol, a solid substance sparingly soluble in water, has been used in Kenya, Africa, to reduce evaporation from reservoirs. The coating is of the value of one molecule thick, is harmless to humans and fish, and is helpful in mosquito control. Rainfall in Kenya is sporadic, and water exposed in shallow pans evaporates as much as 50% to 75% in a day.

Suds have been found to be objectionable in large-scale mechanical dishwashing machines, because the jet of hot water becomes retarded. Nonionic detergents of the alkyl-aryl ether type are said to reduce suds greatly. They are also good wetting agents for high wet-strength paper.

Silicones are being built into leather for shoe uppers during the tanning operation to produce permanent water resistance. Water is excluded under flexing conditions hundreds of times as long as is possible with ordinary chrome leather. Each fiber is surrounded by a water-repellent silicone film.

Colloidal silica particles less than one millionth of an inch in diameter in a liquid dispersion may be worked into the tiny crevices and interstices of rugs, upholstery, painted walls, and wallpaper. When the liquid evaporates, the fine particles remain and exclude dirt. Comparison of treated and untreated surfaces, dusted and subjected to the same extent of vacuum cleaning, shows marked differences in appearance, the untreated surfaces retaining appreciable amounts of soil. The same type of colloidal silica imparts slip resistance to emulsion-film waxes, and also serves as a stabilizer in foam-rubber production, and to give heat resistance to adhesive coatings and fibrous structures.

The action of zeolites is originally that of adsorption, which is commonly followed in commercial applications by ion exchange. A new use of alkali aluminum silicates is in gas purification, in which preferential adsorption is their sole



FIRESTONE NEWS SERVICE

X-ray patterns for natural rubber (above) and for Firestone's new synthetic polyisoprene rubber (below) show striking similarity, including crystalline reflections, which show up as bright spots in both pictures. The new synthetic rubber, which has been in pilot plant production, is expected to be particularly useful in large truck tires.

function. These materials, when dried, are made up of porous molecules with many microscopic cavities which function as sieves. Ethane is selectively adsorbed, while propane will not enter the pores of one type. Another will accept straight-chain hydrocarbons, while branched chains are not admitted. Selective adsorption of unsaturated hydrocarbons in preference to saturated has been reported. Polar molecules are picked up, while nonpolar molecules pass by. These zeolites have remarkably high ability to remove water from relatively dry gases. They are used in pellets in fixed beds and as a powder in fluidized beds, are easily reactivated by mild heating, and the captured materials may be recovered.

Plastics.—Isophthalic acid from metaxylene is produced to the extent of 50 million pounds per year. The location of the carboxyl groups in the 1:3 position permits the formation of resins of higher molecular weight and greater durability, which also have better drying times with high oil content. They are also quite heat stable and have good exposure records. Being without taste and odor, they may be used to line food containers.

New low-pressure processes for polyethylene are now in large-scale operation. One is described as operating at sufficient pressure to retain the low-boiling hydrocarbons in which the polymerization takes place at operating temperatures, and employing hexavalent chromium compounds as catalysts. The product of low-pressure polymerization is distinctly different from the polyethylene made at high pressures. It melts at about 255°

to 261°F., which permits steam sterilization. It is also more rigid and has high impact strength at low temperatures.

A plant for the large-scale production of polyester film, a product of polyethylene terephthalate, has been in operation since late in 1954. This material is already a well-known textile fiber. As a film it has extremely high tensile strength, as well as flexibility from -60°C. to 150°C. Metals may be deposited on the film by a vacuum process, and the laminate may be slit to form a metallized yarn. The polyester film may be spread on fabrics and leather, and may be embossed; it may also have grain effects painted on the underside and applied to plywood to give the effect of fine woods. In the chemical industry an important use is in lining containers to replace lacquer and tin plate.

A 15-story building has been weatherproofed by covering it with a plastic skin by spraying. Three or four treatments are said to be sufficient for the life of the building. Plastic films are also being employed in the construction industry as temporary walls in winter.

Artists' paints now contain a type of vinyl plastic which remains workable indefinitely on a metal or glass palette. Canvas is previously coated with a clear plastic film to prevent loss of plasticizer in the cloth. When the picture is complete, the plastic is set by gentle heat and may be rolled or folded without cracking. It is possible to apply several coats with baking after each application. (See also PLASTICS.)

Butadiene is the most important chemical in the synthetic rubber industry, but recently a liquid polybutadiene has entered the plastics field. Polymerization of butadiene in this case is carried on in a solvent with a sodium catalyst. Its principal uses are in protective coatings, in casting and laminating resins, and as a vulcanizing softener in the rubber industry. It has a molecular weight of 1300, and evidently cycloolefinic rings with conjugated unsaturation make it highly reactive. Heated in the absence of air to 500°F., it forms a highly cross-linked transparent resin.

Silicones are being applied to concrete soon after curing to prevent water from soaking into pavements, and also to halt chipping and cracking by alternate freezing and thawing. Pavements are not made slippery by this process. Another use of silicones is that of coating glass containers to increase strength and to cut down breakage loss. The surface is also lubricated so that impacts other than those at an angle of 90° become glancing blows.

Rubber.—Previous efforts to polymerize isoprene, the unit polymer of natural rubber, have been unsuccessful because the material had a random and unpredictable structure. A new rubber has been announced which is a cis-1,4 polyisoprene (all the methyl groups are on the same side of the hydrocarbon chain). Infrared and X-ray tests show this type of polyisoprene to be identical with natural rubber. The chief drawback of present tire rubbers is that they cannot be used in any quantity in large truck tires because of heat build-up. Both natural rubber and the new synthetic have only half the internal heat build-up of GR-S rubber. This is particularly important where trucks have to be run at high speeds under heavy loads in hot weather. The new rubber has been in pilot plant production for two years or more, and has been subjected to one half-million miles of truck tests. Present costs are slightly higher than GR-S rubber, but

are competitive with imported natural rubber. (See also RUBBER.)

Petroleum.—Although not generally regarded as a chemical-process industry, the annual production of crude oil, including exploration, drilling, lifting oil out of the ground, and transporting it to refinery and process plants, requires chemicals worth about \$1 billion. In 1953, United States production of crude oil amounted to 2.36 billion barrels from nearly 50,000 wells. At the end of 1954, nearly 3,000 drilling rigs were operating in the United States and Canada. Wells average over 4,000 feet in depth, and explosives required in their discovery cost over \$7 million. The unspectacular drilling muds constitute the largest chemical requirement. The operating of cooling and lubricating drilling bits, removing cuttings, preventing settling when circulation is stopped, and walling the hole require not only native earth minerals and water but also complex fluids containing special clays, heavy materials, colloids, and chemicals of various types. In order to obtain better yields, formations are subjected to acidizing with buffered acids and fracturing by injecting liquids of high viscosity under heavy pressure. Secondary recovery requires a variety of chemicals in the water which replaces oil. A number of other chemicals serve as solvents, scale and corrosion inhibitors, demulsifiers, gas dehydrators, and cleaning agents. Plastic pipe is also coming into greater use in petroleum production.

Most gasolines, except aviation fuels, are well below 100-octane number, but recently two processes have been developed by which 100-octane number gasoline is available at service stations. One process separates low-octane fractions from the catalyst zone and returns them until the desired value is reached. The other process involves catalytic reforming with conversion of 91% of naphtha feed stock to as high a 100-octane gasoline before addition of lead tetraethyl.

Pharmaceuticals.—Leading in sales value among the more recently developed pharmaceuticals are antibiotics, sales of which totaled \$266 million in 1954. Vitamin sales were of the order of \$76 million. The leading vitamins, in dollar value, were vitamin A, which is a required ingredient in margarine as well as a standard pharmaceutical; vitamin C (ascorbic acid), which is used only in human nutrition; and vitamin B₁₂ (pyridoxine). The last named is priced by the gram rather than by the pound, and is over 100 times as costly as gold. However, it is prescribed in very small quantities. Riboflavin (vitamin B₂) is an ingredient of animal and poultry foods to twice the extent of human consumption. The least expensive of all the vitamins is niacin, valued at \$3.56 per pound in 1954, whereas vitamin B₁₂, if priced by the pound, would cost around \$68,000. Fish-liver oils continue to be competitive with vitamin A.

An antibiotic added to water containing salts and a cellulose derivative to insure distribution, followed by freezing, produces blocked and flake ice in which fish caught off the shores of British Columbia are shipped to market in perfect condition. Any of the antibiotic absorbed by the fish is destroyed by cooking. The technique is also being applied to poultry.

Instead of conceding that natural hormones are superior to any derivatives or synthetics of similar physiological action, research has been actively stimulated on derivatives and partial synthesis from natural starting substances. Halogen derivatives of steroids are being made, and double bonds and hydrogen atoms for replace-

ment of hydroxyl groups are being introduced into the large molecules. Amino acids have been identified, and the entire structure of beta-ACTH has been revealed. A peptide chain of 39 amino acids has been recognized, and their sequence in the molecule is known. (See also BIOCHEMISTRY; CHEMOTHERAPY; DRUGS; VITAMINS.)

Textiles.—World production of six textile fibers remains at an annual level of over 24 billion pounds, but man-made fibers increased by 9% to about 4.9 billion pounds in 1954. At one time staple rayon yarn was of minor importance, but at present its production is decidedly larger than the filament type, the two together representing about 90% of all artificial fibers. Including glass fibers, artificial noncellulose fibers have a world output of 476 million pounds annually, of which about three fourths are made in the United States. World capacity for synthetic fiber production is expected to exceed 900 million pounds by 1956.

Closely woven tubes of nylon thread are being used as artificial arteries to substitute for autopsied human material. The nylon is braided on glass, given a formic acid dip, and crimped on the original mandrel to prevent kinking. Final treatment involves silicones. The fabric is unwettable, and blood forms an impervious lining in a few minutes with very little leakage. Work is being done with water-repellent acrylic fibers and with orlon for the same purpose.

The same polyester plastic developed for textiles, and later for film, is being employed in a somewhat expensive but highly efficient rope for specialized uses. For some purposes an elastic rope is desirable, particularly for glider tow lines, but the new rope is employed where little stretch is desired. Its breaking strength is said to be twice that of ordinary rope. It is water-repellent and is impervious to acids and greases. It also may be employed as a cable core.

Agricultural Chemicals.—Antibiotics in extremely dilute solutions (100 parts per million of water) are successfully controlling a number of fungal and bacterial diseases of plants, including mint rust, cherry leaf spot, apple scab, halo blight, black leg in potatoes, and tobacco blue mould. This is a relatively new development in agriculture.

A variety of compounds with halogenated benzene rings, some of which are also carbamates or ureas, are being applied in a very shallow soil layer after planting to kill weed seeds before crop plants break through. Such treatment does away with hand-weeding, and only about one third as much chemical is required as when weeds are killed later. Special application machinery has been developed for this purpose. Most of these pre-emergence herbicides are used by commercial market gardeners, but there has been limited application also in the growing of peanuts. (See also AGRICULTURAL RESEARCH SERVICE; HORTICULTURE.)

(For prizes in the field of chemistry, see PRIZES AND AWARDS; and for further references to chemical subjects, see the Index entry, *Chemistry*.)

W. T. READ,
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CHEMOTHERAPY. Chlorpromazine.—By far the most encouraging chemomedical development since the discovery of penicillin and the sulfa drugs has been the new drug, chlorpromazine, discovered in France and first used in the United

States in 1954. This drug works in the mysterious corridors of the subconscious mind, or more specifically, in that sector of the brain known as the thalamus.

Since the highly complicated nerve circuits of this region permeate to every part of the human system, a variety of disease conditions, ranging from the "jitters" to the most violent forms of insanity, can be affected by the new drug, whose outstanding feature is its calming effect on jangled nerves.

Particularly spectacular is the fact that the sedative effects in most cases are achieved without rendering the patient unconscious or producing serious after effects. On the contrary, the drug dissipates the "hangover" that stems from such excesses as chronic alcoholism and various forms of drug (particularly narcotics) addiction. The new drug also mitigates the agonies attendant on the withdrawal of drugs from the addict.

Chlorpromazine may be of equal value to the surgeon, especially in precarious operations such as those on the heart or brain. The slowed-down metabolism and blood flow required by such operations is readily brought about by the new therapy.

The dangerous exhaustion resulting from hiccups which persist for months can be relieved, and the pain of inoperable cancer can be lessened by chlorpromazine treatment. Furthermore, many phobias and obsessions can be so exposed as to render adjustment more likely. In fact, the favorable relaxation achieved by chlorpromazine is in many ways similar to that produced by reserpine, a drug derived from the plant, *Rauwolfia serpentina*. Unlike the former, however, reserpine has its greatest effect in lowering the blood pressure.

Chlorpromazine in its present state of development, however, has its limitations. Its side effects can be exceedingly serious in some cases. The occasional individual whose white corpuscles are depleted to the point of agranulocytosis by chlorpromazine treatment emphasizes the need for extreme caution. Even more serious are the Parkinsonian-like responses—the shuffling gait, the tremor, the utter blankness of expression. Fortunately these symptoms regress on withdrawal of the drug. Again, its rather characteristic ability to intensify the action of other sedatives increases the danger inherent in the use of "sleeping pills."

Kalash (K-54).—Another mental health development especially promising in its preventive effects in the area of psychoneurosis is the treatment that employs a new vitamin preparation known as Kalash, or K-54. Developed by Drs. Watson and Comrey of the University of Southern California and the University of California at Los Angeles, respectively, this treatment marks a radical departure from the traditional Freudian approach to mental therapy. The high percentage of favorable results in statistically significant numbers of cases has proved the development to be worthy of further attention.

Natural Immunity.—It has finally become apparent that antibiotics cannot function as miracle exterminators of microbes quite independently of the animal body in which they act. That the latter has an important role to play, this author stressed in his book on sulfa drugs more than 20 years ago. In therapeutic practice, however, the view was largely ignored until recently.

Isoniazid is the drug largely responsible for closing the doors of so many tuberculosis sanatoriums recently, yet it is now known that a soluble extract of the microbe itself can so rein-

force the drug's action that, experimentally at least, complete protection results. Such results were obtained under conditions in which the control animals were fatally infected, and even in which the protective BCG vaccine alone could only delay eventual death.

In the same vein, cortisone now appears to be such an important adjunct in the treatment of tuberculous meningitis that 50 per cent of a series of controlled cases treated with cortisone recovered without neurologic complications, and much more rapidly than did the cases which did not receive cortisone. These results indicate that one of the body's hormones is a factor in its well-known resistance to tuberculosis. By the same token, they help to explain the vulnerability of certain experimental animals to the disease when the adrenal glands are largely removed.

It is startling to note that isoniazid, under the trade name Marsilid (Hoffmann-LaRoche), is reported to be able to stimulate the antimicrobial activities of the body's tissues to such an extent that certain chronic infections are cured despite the resistance of their microbes to antibiotics.

From an extract of beef brain there has been isolated a substance which inhibits penicillin-resistant microbes. In mice, it has cut mortality from 80 per cent to 1 per cent. Furthermore, immunity may be produced for as long as six months. The experimenters incline to the view that the substance is one fragment in the natural immunity mosaic. Paradoxically, this substance may even stimulate the growth of virulent microbes, while simultaneously depriving them of their ability to produce toxin.

It has become increasingly clearer that the old idea of a mass sterilization of microbes in vivo has proved to be a crude approach to the problem which must take into serious consideration the anti-infectious nutritional resources of the body itself.

RALPH R. MELLON,
Formerly Director, Institute of Pathology,
Western Pennsylvania Hospital.

CHERRIES. See FRUITS.

CHESS. See SPORTS, GAMES, AND SHOWS.

CHIANG KAI-SHEK, Chinese political and military leader: b. Chikow, District of Fenghua, Chekiang Province, China, Oct. 31, 1887. Leader of the Chinese Nationalist Party (Kuomintang) since the death of Dr. Sun Yat-sen in 1925, he was inaugurated as China's first constitutional president on May 20, 1948, but under Chinese Communist military pressure, retreated to Formosa with the Nationalist government in December 1949. There he formed a government in exile of which he was president.

The international crisis brought about in January 1955 by the threatened invasion by Communist China of the Nationalist-held offshore islands and of Formosa itself focused world attention on Chiang Kai-shek's government. From the beginning, his position was that the United Nations proposal of a cease-fire in the Formosa Strait was unacceptable to his government; that the widely discussed idea of "two Chinas" could not be admitted; and that Nationalist China would fight alone, if necessary, to retain the offshore islands of Quemoy and Matsu. In December 1955 it was reported that Chiang had rejected two appeals from President Eisenhower to cooperate in the approval of Outer Mongolia as one of 18 nations to be admitted to United Nations membership. (See also FORMOSA.)

CHICAGO. Second most populous city in the United States (1950 census: 3,620,962) and center of the second most populous standard metropolitan area (5,495,364), Chicago, Ill., covers a land area of 213 square miles.

State legislative activity in 1955 transferred budget-making power from the City Council (50 aldermen) and the mayor to the mayor alone, increased the independent authority of the city purchasing agent, and rigidified conditions for granting zoning variations. Chicago's representation in the state legislature was established at 18 senators out of 58 and at 69 representatives out of 177, in the first reapportionment in 44 years. The City Council created the office of chief administrative officer, under the mayor, and streamlined council procedures.

On Aug. 1, 1955, the city began to levy an occupational excise (sales) tax of $\frac{1}{2}$ of 1% on retailers, the first broad-based nonproperty tax ever levied in Chicago. It is estimated that the tax will net Chicago not less than \$21 million annually. Ordinances imposing a consumers' utility tax, for which permission was also granted by the state, passed the City Council late in 1955. Official estimates of annual yield were between \$8 million and \$9 million.

The city's budget appropriations for all corporate purposes (1955): \$121,436,117.62; corporate tax rate: \$0.61 per \$100 of assessed valuation. An additional \$122,296,660 was levied for all school purposes. Outstanding debt (Jan. 1, 1955): \$333,952,000.

Estimated value of industrial output of Chicago metropolitan area in 1954: \$17 billion, including \$2.3 billion for steel (17,506,400 tons) and other primary metals, and \$2,220 million for meat products and other processed foods. Steel output in the first 8 months of 1955 was 14,239,100 tons, a new record. Industrial plant investments during the first 9 months of 1955 were \$258,970,000 (full year 1954: \$231,683,000). Metropolitan retail sales in 1954 were estimated at \$7 billion.

Activity and planning for physical improvements continued unabated throughout 1955. Chicago's housing program (64,972 new dwelling units from 1950 through 1954) achieved national recognition in February as Chicago won a National Municipal League award for its program of neighborhood conservation and slum prevention. Work continued on the Congress Street Expressway, which by 1956 will link the western suburbs with downtown Chicago. Plans were further developed for the \$400 million Fort Dearborn project, involving the tearing down of 40 blocks of slums, and the building of a civic center on the near North Side. Completion in 1955 of the 41-story, \$40 million home of the Prudential Insurance Company gave Chicago its first new office skyscraper in 20 years. The state legislature created a Metropolitan Fair and Exposition Authority empowered to construct a convention hall in Chicago. By late 1955 a comprehensive zoning ordinance, the first major revision since 1942, was virtually completed.

City government leadership changed hands following the election of April 5, 1955, when Richard J. Daley, Cook County clerk and county Democratic chairman, was elected mayor over Republican Robert E. Merriam, a young member of the City Council. With Daley were elected Morris B. Sachs as city treasurer and John Marcin as city clerk. Highlights of the campaign were the Democratic primary of February 22, in which Daley defeated the incumbent mayor, Martin Kennelly, and the subsequent juggling of the Democratic ticket when the original nominee for clerk, faced with disbarment proceedings, resigned from the ticket.

GILBERT Y. STEINER,

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WIDE WORLD

Chicago's Mayor Daley (l.) shakes hands with predecessor, Martin Kennelly, at inauguration ceremony, April 20, 1955.

CHICAGO NATURAL HISTORY MUSEUM. See SOCIETIES AND ORGANIZATIONS.

CHILD HEALTH. SEE CHILD WELFARE; PEDIATRICS; POLIOMYELITIS; UNITED NATIONS CHILDREN'S FUND; WORLD HEALTH ORGANIZATION.

CHILD LABOR. SEE WAGE AND HOUR AND PUBLIC CONTRACTS DIVISIONS.

CHILD WELFARE. The substantial increase in the world's population in 1955 was more significant than any advance in child welfare made during a rather uneventful year. The reduction of infant mortality in several of the less privileged countries was impressive. Birth rates were sustained or increased in most countries, including the United States. The added baby crop, plus measures effective in prolonging life, posed a challenge to those who through the years have seen famine and pestilence reduce population in the most densely populated areas. Governments appropriated funds to improve the lot of children, influenced in part by the many international child welfare programs which in recent years have stimulated countries to invest as never before in their children.

United Nations Services to Children.—The World Health Organization (WHO), longest established of those agencies within the United Nations committed to serving children, expanded its operations in 1955. The prevention and cure of communicable diseases continued to be a major objective, with WHO and the United Nations Children's Fund (UNICEF) sharing their resources and combining them with those of the governments of countries where projects were conducted. Malaria was the target of such efforts in Africa, Asia, and the Americas; and tuberculosis, yaws, and syphilis were treated to an unprecedented extent. In addition, nutrition programs were conducted in cooperation with the Food and Agriculture Organization of the United Nations (FAO). The protection of water supplies and the development of sanitary engineering were among other tasks aimed at reducing morbidity and mortality, especially among children. A consequence of these measures has been a



An Iraqi girl, suffering from bejel (a tropical disease) is given her first medical treatment by a UNICEF doctor.

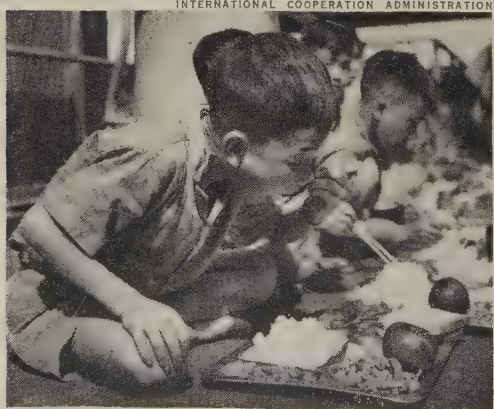
marked increase in population, notably in Latin America, which now almost equals the population of Canada and the United States.

The rehabilitation of the handicapped has become a part of WHO programs in many countries, especially where sufficient professional services are available, as in Europe, Israel, and Japan. Studies of mental health under WHO auspices have attracted much attention. A 1955 report, *The Child in Hospital*, presented the findings of an international meeting held in Stockholm, Sweden, in September 1954.

The work of UNICEF was even more child centered than that of WHO. Its major mass health campaigns in 1955 included the vaccination of nearly 15 million children against tuberculosis, the protection of about 8.7 million children and mothers against malaria by the use of DDT, and the treatment of 2 million children and mothers for yaws, bejel, or syphilis, and of nearly 1.5 million for trachoma. Mass health and feeding objectives in 90 countries and territories reached about 32 million children and pregnant and nursing mothers in 1955. In addition, about 2.7 million children in 36 countries received UNICEF milk and other rations.

Special efforts in 1955 included relief for many of the 500,000 refugees in Saigon, South Viet-Nam. Distribution channels were shared by all welfare agencies, including UNICEF, the

Orphans being evacuated from Haiphong to Saigon, Viet-Nam, are fed by the crew of the U.S.S. *Marine Serpent*.



U.S. Foreign Operations Administration, CARE, Church World Service, the National Catholic Welfare Council, and the Vietnamese and French Red Cross Societies. Here, as in certain eastern Mediterranean areas, refugees were crowded, sometimes 60 in a family-sized tent, with survival uncertain for persons of all ages and especially for children.

A project for the control and eradication of trachoma in French Morocco reached large numbers, including more than 130,000 tribesmen. In the two-year period 1953-1955 more than 300,000 persons, mostly children, were protected or treated against this often blinding disease. As in most such campaigns against epidemics, UNICEF provided vehicles, drugs, and other supplies and materials, and WHO furnished professional staff. Their combined contributions cost about \$137,000 for one year, and the French government provided about \$400,000.

Production of milk was a 1955 UNICEF project in 18 countries where this food had been almost unavailable. Milk-drying, pasteurizing, or sterilizing plants were in operation. In Indonesia a milk substitute was being manufactured from a mixture of soybeans, peanuts, and malt, and fish flour was being used in child-feeding projects in countries where milk was unavailable. (See also UNITED NATIONS CHILDREN'S FUND; WORLD HEALTH ORGANIZATION.)

Canada.—The improvement of services to Canadian children continued in 1955. In several respects it paralleled similar developments in the United States, but in some ways Canada moved more rapidly.

By the end of June 1955, some 800,000 Canadian children had received two immunizing inoculations of Salk poliomyelitis vaccine. Plans were completed to give the third inoculation to the first group of children in the next school year and to immunize at least an additional 2 million children during 1955-56. The program is financed by the federal government and the provinces on an equal basis, using funds from the National Health Program.

During 1955 two provincial acts passed in 1954 became effective. These were the Child Welfare Act of Ontario, consolidating legislation for child protection, adoption, and children of unmarried parents; and the Social Assistance Act of Newfoundland, incorporating mothers' allowances and dependents' allowances.

There was continued emphasis on the early placement of children legally free for adoption. To facilitate cooperation by participating agencies in Ontario, a new Adoption Clearance Service began to publish a monthly bulletin (circulated to 55 children's aid societies) outlining the histories of children for whom it was hard to find suitable homes. Thus one children's aid society could obtain help from another in a distant part of the province and so expedite placements of children whose age, race, or handicaps tended to complicate home finding.

A Senate Committee on Narcotic Control in Canada received evidence on the extent of addiction among youth in Canada and concluded that there was no problem of childhood narcotic addiction in the country.

Interest in Canada concerning services for retarded children was concentrated in 1955 on keeping such children in their own homes. In Halifax, Nova Scotia, a special project was launched to make special classes available for retarded children and to provide transportation from their homes or foster homes. A continued

examination of institutional programs for children was also evident during the year. Both these fields were being studied by the Child Welfare Division of the Canadian Welfare Council. The concern of social agencies in problems of family desertion also was channeled into committee study through the council.

The problem of improving the staffing of child welfare agencies was considered as part of the larger question of personnel in social work by the personnel committee of the Canadian Welfare Council and other groups in studying the *Report of the Survey of Welfare Positions, 1954*, and at the regional meetings on social work education held during 1954-55 under the auspices of the joint committee convened by the National Committee of Canadian Schools of Social Work.

United States.—The child population of the United States increased from 47 million to about 56 million during the five years preceding 1955. In the first 11 months of 1954 infant mortality declined to 26.6 per 1,000 live births, the lowest percentage ever recorded. The number of births in 1954 reached an all-time high of 4,021,000.

The schools of the country were so crowded in 1955 that several states and many local communities were considering new sources of tax revenue to be used for school construction and increased operating budgets for educational purposes. Enrollments rose during the years 1950-55 by 25% in elementary schools and 16% in high schools, with further increases indicated for the school year 1955-1956. (See EDUCATION.)

The immunization of children against poliomyelitis was a major health project during 1955. After the Salk vaccine had been approved by public health authorities and the National Foundation for Infantile Paralysis, there was a clamor for it, with the foundation providing a free supply for the nearly 8,000,000 first- and second-grade children and the 1,390,000 children in a control group which did not receive the vaccine in 1954. Funds to purchase the vaccine were authorized by federal legislation and by similar action in several states. The development of a few cases of polio following the first dose of the vaccine led to retesting large quantities, with a consequent delay in resuming the program of vaccination. (See POLIOMYELITIS.)

Services to mentally retarded children were expanded during 1955. The National Association for Retarded Children and its affiliates in more than 40 states were continuing efforts to mobilize parents of such children. Objectives in these efforts included greater acceptance of mentally retarded children by their families and the community; earlier and more adequate diagnosis; extension and improvement of facilities for training in the home, public schools, and institutions; and research in medicine, psychology, and education. Massachusetts established a division of special education which was to classify all mentally retarded children of school age as being either educable, trainable, or custodial. Each town with five or more such children was to establish special classes for the educable and trainable.

The desegregation of public schools in those states with separate schools for Negro and white children was effected in a few communities in 1955. Most of these states anticipated the first steps in desegregation by September 1956, in keeping with the unanimous decision of the U.S. Supreme Court (May 17, 1954) declaring racial segregation in the public schools to be unconstitutional. (See EDUCATION.)

Child adoption received much professional and popular attention in 1955. The Child Welfare League of America sponsored a National Conference on Adoptions, held in Chicago, Ill., on January 26-29, and the federal Children's Bureau, on June 27-28, brought together in Washington, D.C., the representatives of 31 national agencies and organizations directly concerned with the three parties to adoption—the child, his natural parents, and adoptive applicants.

Juvenile delinquency remained a special concern of the U.S. Congress and various voluntary and governmental agencies throughout the country. A Congressional appropriation permitted expansion of Children's Bureau activities, especially through its Division of Juvenile Delinquency, established in 1954. The Children's Bureau announced that for the sixth year in succession juvenile delinquency continued to rise. About 475,000 young persons came to the attention of juvenile courts because of alleged delinquent behavior, and about 1,300,000 were picked up by the police. On May 19-21, 1955, a conference on health services and juvenile delinquency was held in Washington. Health workers studied means whereby they might improve understanding of personality development and be alert to early signs of maladjustment in children.

(See also the Index entry, *Child Welfare*.)

HOWARD W. HOPKIRK,
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CHILDREN'S BUREAU. See Index entry.

CHILDREN'S FUND, United Nations. See UNITED NATIONS CHILDREN'S FUND.

CHILDREN'S LITERATURE. In 1955 the topography of juvenile literature might best be described as resembling a high plateau. Probably the most interesting work was done in the fields of picture books and informational books. The former were characterized chiefly by illustrations in the modern manner and by stimulating presentations of aspects of the child's world.

Thus, in *See and Say* (judged the best illustrated book of the year by *The New York Times Book Review* jury) Antonio Frasconi pictured familiar objects with great style, and printed their names in four languages, producing an introduction to the multilingual world. Juliet Kepes' *Beasts from a Brush* was notable for the draftsman's work with which the author-artist portrayed fantastic animals. Taro Yashima's *Crow Boy* was a most moving tale of a lonely Japanese schoolboy, interpreted in brilliant impressionistic pictures.

One of the most original books of the year was Beatrice Schenck de Regniers' *A Little House of Your Own*, a humorous, understanding exploration of the child's need for privacy, illustrated by Irene Haas. Other noteworthy picture books were *Chaga*, by Will and Nicolas; *The Happy Lion in Africa*, by Louise Fatio and Roger Duvoisin; *Play With Me*, by Marie Hall Ets; and *Parsley*, Ludwig Bemelmans' slight story with magnificent pictures.

Marcia Brown was awarded the Caldecott Medal for the best illustrated book of 1954 for her *Cinderella* (see also AMERICAN LIBRARY ASSOCIATION).

The great body of informational books ranged in age appeal from Miriam Schlein's *It's About Time*, a study in time concepts for children of 6 to 9, to William E. Scheele's *The First Mammals*,

a distinguished pictorial and descriptive introduction to prehistoric mammals for readers of 10 up to adulthood. The current craze for dinosaurs was reflected in *Dinosaurs*, by Marie Halun Bloch, and *The True Book of Dinosaurs*, by Mary Lou Clark—the latter being the only book on the subject for children of the primary grades. Studies of contemporary animals were legion. Some, like Robert S. Lemmon's *All About Birds*, were written in strictly factual style; others, like Olive L. Earle's *The Swans of Willow Pond*, presented scientific nature facts in simple narratives.

Many other aspects of science were presented in readable form in such volumes as *Atoms Today and Tomorrow*, by Margaret O. Hyde; *The Wonderful World of Mathematics*, by Lancelot Hogben; an *Illustrated History of Science*, by F. Sherwood Taylor; and in biographies of scientists, such as *Steinmetz, Maker of Lightning*, by Sigmund O. Lavine; Eleanor Dooly's *The Radium Woman: A Life of Marie Curie* (based on Eve Curie's biography); and *Men, Microscopes and Living Things*, Katherine B. Shippen's sketches of great biologists.

Biography was less dominated by the series than during the past few years, although the Landmark Books retained their great popularity and, in general, their high standards. Among the independent studies for teen-agers were Constance Buel Burnett's perceptive life of *Elizabeth Barrett Browning*; *Prairie-Town Boy*, a condensed version of Carl Sandburg's *Always The Young Strangers* (it lost strength in the cutting but still remained a remarkable evocation of a period and a personality); *Harriet Tubman*, by Ann Petry, a life of the famous Negro conductor on the Underground Railroad; *Booker T. Washington*, by Shirley Graham; and *Korean Boy*, by Pak Jong Yong and Jock Carroll, a moving firsthand account of the effect of war upon a Korean family.

There were, inevitably, innumerable versions of the Crockett story, most of them ephemeral; but Walter Blair's *Davy Crockett: Frontier Hero and Davy Crockett*, by Stewart H. Holbrook, were substantial, readable, and informative. *Columbus*, by Ingri and Edgar d'Aulaire, was an outstanding example of biography for quite young children, colorful and appealing in both text and pictures.

It was encouraging to see a few handsome books on the arts: *The Dramatic Story of the Theatre*, by Dorothy and Joseph Samachson, a stimulating study from the Greeks to the present; Langston Hughes' *The First Book of Jazz*, a brief history and analysis done with a refreshing lack of pomposity; and Elizabeth Ripley's biography, *Rembrandt*.

Fiction for teen-agers was strong in quantity, but rather spotty as to quality, especially among the stories for older boys which, unfortunately, dealt more often with the past than the present. Outstanding, however, were Pulitzer Prize-winner Bruce Catton's *Banners at Shenandoah*, a brilliant recreation of the Civil War as seen by a young flag-bearer to Sheridan; *The Buffalo Trace*, by Virginia S. Eifert, a fictionalized narrative of Lincoln's pioneer forbears in Kentucky; and *The Silver Disk*, by Loring MacKaye, an intricate tale of Sicily during the boyhood reign of Frederick II. Among stories of contemporary life for older boys were *Santiago*, Ann Nolan Clark's thoughtful if rather long-winded study of a Guatemalan Indian seeking to find his place in a complex world; *Desert Storm*, by Logan Forster, a story

of an Apache boy and his horse; and *Pipeline Down the Valley*, by Shirley Sargent, a better-than-average story of a boy's adjustment to life through a job in the San Joaquin Valley.

One of the most amusing period stories for older girls was *The Pink Rose*, by Elspeth Woodward and Edward Roberts—something of a rarity in juvenile literature in that it was a comedy of manners—concerning a strong-minded débutante of 1902 who waged a private fight for independence. Mary Stolz, probably the most accomplished and provocative of novelists for the teenage reader, gave us a penetrating study of town-and-gown tensions in *Rosemary*, a story of a college town. D. V. Jackson's *Rising Star* was a study of a young girl's reluctant acceptance of her physical limitations, and was set—of all places—against the background of a Florida race track community. In *The Unwilling Heart*, Catherine Marshall explored the emotional and social problems of an embezzler's daughter in a typical, middle-class community.

Somewhere between the fiction for readers of the middle years and the teen-agers came E. C. Spykeman's *A Lemon and A Star*, a portrait of a family of uninhibited children at the turn of the century, sharply drawn, evocative, and devoid of sentimentality. Fiction for the intermediate readers was plentiful and varied. Mary Norton repeated the brilliant success of *The Borrowers* (an Edwardian fantasy) with her sequel, *The Borrowers Afield*. Jennie D. Lindquist's *The Golden Name Day* was a poetic, nostalgic story of life in a New England family of Swedish origin, combining the two traditions.

Other memorable stories were William Corbin's *Golden Mare*, a moving, off-beat story of a boy and his old mare; *Beezus and Ramona*, one of Beverly Cleary's deft comedies of everyday life, with serious undertones; *Evie and the Wonderful Kangaroo*, Irmengarde Eberle's rollicking extravaganza for the younger grades; and Meindert DeJong's *The Little Cow and the Turtle*, which, like all that author's work, had an odd, almost hypnotic charm. Mr. DeJong was awarded the American Library Association's Newbery Medal for his *The Wheel on the School*, judged the most distinguished American children's book of 1954. (See also CANADIAN LITERATURE.)

ELLEN LEWIS BUELL,
Editor of Children's Books, "The New York Times Book Review."

CHILE. With an area of 286,396 square miles, Chile has a Pacific coastline of 2,653 miles, and extends from 17° 30' south latitude in the north to 56° south latitude at Cape Horn, but its width from east to west is nowhere greater than 221 miles. The eastern boundary lies in the Andes Mountains, a barrier which separates Chile from Bolivia and Argentina. Chile is divided into three major geographic regions: the Atacama Desert in the north, with its rich copper and nitrate deposits; the cold, rainy, forested south; and middle Chile, the economic, political, and social heart of the nation.

Population.—On June 30, 1955, the population was estimated at 6,560,000, an increase of about 11% since the April 1952 census (5,930,809). With a 1953 birth rate of only 2.8 persons per 1,000 population greater than the 1940 figure, much of this rapid growth is accounted for by a steadily decreasing death rate. Infant deaths, for example, averaged 240.6 per 1,000 births from 1935–39, but only 114.3 in 1953. Some 90% of Chile's population is concentrated in the middle third of the country where the five largest cities are found. These cities, with 1952 census figures, are: Santiago, the capital (1,348,283); Valparaíso (222,238) and its fashionable resort suburb, Viña del Mar (88,196); Concepción

(133,580); and Valdivia (45,138). About 66% of the total population are mestizos, 25% are of European descent, primarily Spanish, and 9% are Indians.

Government.—The constitution of Oct. 18, 1925, established a unitary and republican form of government. The president, Gen. Carlos Ibáñez del Campo, who assumed office on Nov. 3, 1952, is elected popularly for a 6-year term and may not succeed himself. The 12-man cabinet may be questioned by Congress, but is responsible only to the chief executive. The 45-member Senate (5 from each of 9 provincial groups) and the 147-member Chamber of Deputies (1 for each 30,000 inhabitants) are elected directly for 8- and 4-year terms, respectively. The judicial system is headed by a 13-member Supreme Court.

Religion and Education.—The principal religion is Roman Catholicism (95% of the population are adherents), but church and state are constitutionally separated.

Education is free and compulsory for persons between 7 and 15 years of age, or until 4 years of schooling have been completed. Chile has over 4,000 public and 1,500 private primary schools, 100 public and 200 private secondary schools, and 1 private and 12 public normal schools. There are, besides the National University of Chile, 4 other institutions of college level. The School of Agronomy of The University of Concepción was recently opened, providing specialized technical training.

Finance.—Chile's budgetary cash deficit for 1954 was about 5 billion pesos* over the 82 billion peso budget for that year. The Ministry of Finance estimated total expenditures for 1955 at 111,590,000,000 pesos, but the estimated governmental income, despite tax increases, was set at only 91,641,078,917, resulting in a deficit of about 20 billion pesos. Bonuses and salary increases paid by the government to offset the mounting cost of living promised to make this deficit still greater.

Cost of Living.—The cost of living rose 72% in 1954 and another 56% in the first four months of 1955, resulting in strikes which often disrupted the economy. The cost of living index (1948 = 100) was 256 in 1953 and 687 in April 1955.

Industry. Manufacturing.—In order to meet the growing financial crisis, the government is encouraging industrial development. Machinery for a new paper mill, with an annual capacity of 60,000 to 70,000 tons, was due to arrive late in 1955. (Chile's paper production in 1953 was 63,-421.9 tons.) A dried-milk plant, producing 1 million kilos a year, is to be built in Chillán in 1956. A new hydroelectric power plant is in operation at Los Molles. Early in 1955 the government announced a 6-year plan, costing 3 billion pesos, for developing port facilities—primarily at San Antonio, which serves Santiago.

Mineral Production.—The new Concón oil refinery, 15 miles north of Valparaíso, completed its first year of activity in August 1955. One third of the crude oil refined came from Chile's own wells, which produced 270,000 cubic meters through 1954, 35% more than in 1953. Late in 1954 the government announced that certain districts were open for exploration and exploitation of oil reserves by foreign capital, but many areas remained restricted to the government-controlled Empresa Nacional del Petróleo.

On May 6, 1955, a new law favoring copper companies went into effect, and was expected to increase 1955 production to 480,000 tons, 30% above the 1954 output of 372,813.2 tons. The new law permits the companies to keep the full sales price, rather than returning 60% in income taxes as they previously did. Instead, a basic tax of 50%, plus a 25% surtax, is tied to production levels; but for each 1% increase over the base production level (95% of the 1949-53 average production), the surtax drops one eighth of 1%. The statute also liberalizes foreign exchange rates.

To stimulate nitrate output (1,420,243 gross metric tons in 1953), the government proposed amending the basic law governing that product on Dec. 10, 1954. The law would liberalize foreign exchange rates and amortization, but in-

crease the former 25% tax on profits to 40%. Producers would also supply nitrate to farmers at cost, plus 10%.

Agriculture.—Chile produces less than half of her food requirements. The National Agrarian Project, adopted in 1953 to increase farm output 38% over the next 8 years, was causing no spectacular rise in farm production. The output of barley (55,600 tons in the fiscal year 1953-54), oats (97,000), maize (97,000), sunflower seed (75,200), and potatoes (606,000) increased somewhat, but the 1953-54 wheat crop (955,-400 tons) fell short of Chile's domestic requirements of 48 million bushels by about 25%. Efforts are being made to settle agricultural areas through immigration; and work was going forward in 1955 on large-scale irrigation projects, one of which will improve 271,000 acres and open an additional 99,000 acres. The first sugar beet plant was opened at Los Angeles, and a large refrigerating plant was completed at Talcahuano.

Foreign Trade.—In 1953 total Chilean exports were 4,739,900 metric tons valued at \$414.1 million. Copper, the main source of income, accounted for about 51% of this total, or \$213.7 million. About 60% of Chile's copper exports are shipped to the United States. In 1954 total exports amounted to \$403 million, and total imports amounted to \$343 million. A large portion of export proceeds, however, remain abroad, which results in an unfavorable balance of trade. (Two American companies control most of Chile's copper production.) Besides the United States, the chief countries of trade are Argentina, Germany, Great Britain, and Peru.

Transportation and Communication.—In 1951 Chile had 5,224.7 miles of railways. In January 1955 the final link of the 2,300-mile railway system, which connects Arica, Chile, on the Pacific Ocean to Santos, Brazil, on the Atlantic Ocean, was completed between Corumbá, Brazil, and Santa Cruz, Bolivia.

In 1954 there were 30,203 miles of roads, of which 27,215 miles were motor roads, the remainder being cart roads. In 1954 Chile had 46,455 passenger cars, 36,083 trucks, and 4,320 motor buses. Chile has 1,357.8 miles of navigable rivers. In 1954 there were 145,139 telephones, of which 81,333 were in Santiago.

Principal Events, 1955.—Most of the political and economic events of 1955 centered around the problem of inflation. On April 11, President Carlos Ibáñez del Campo blamed the situation on political opposition. At that time 19 political parties were represented in Congress, and only one, with 25 deputies, consistently supported the president. On May 21, Ibáñez asked Congress for a fundamental constitutional reform to strengthen executive power. New cabinets were formed on January 6 (revised February 22), on May 30, and on August 12. The latter was the 11th cabinet appointed by Ibáñez since he took office.

A wave of strikes hit Chile during the summer. On May 31, 4,500 steel workers struck for increased wages, followed the next day by a strike of 42,000 government transportation and communication workers. The latter strike was settled on July 10 after promises of higher wages by the government. On August 24, 40,000 government workers struck, and on August 26 this group was joined by an additional 20,500. A state of emergency was ordered in Santiago, resulting in the arrest of approximately 1,000 workers on August 29. The strikes ended on September 4, when the government agreed to consider pay in-

* As of August 1955, U.S. \$1 = 300 pesos (principal export rate), 203 pesos (principal import rate), and 746 pesos (free rate).

creases of from 60 per cent to 100 per cent.

On September 22, José Maza, head of Chile's delegation to the United Nations, was elected president of the U.N. General Assembly.

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CHINA, Nationalist. See FORMOSA.

CHINA, People's Republic of.¹ A Communist-led republic of Asia, the largest in population and third largest in area of the countries of the world. Estimated area (including Tibet), 3,745,296 square miles; pop. (census of June 30, 1953), 582,603,417.² Han Chinese comprised 93.94% of the total population. Chief national minorities are the Chuang, Uigur, Hui, Yi, Tibetan, Miao, Manchu, Mongolian, Puyi, and Korean groups. There are also numerous aboriginal tribes in remote areas. Peking, formerly Peiping (pop. 1953, 2,768,149) is the capital; Shanghai (6,204,417) is the largest city; and Tientsin (2,693,831) the third largest city. Other large cities and populations (est. 1953) are: Mukden, 2.3 million; Canton, 1.6 million; Chungking, 1.6 million; and Wuhan, 1.4 million. The 1953 census reported the urban population as 13.3% of the total, but gave no definition of urban.

Government.—On the basis of elections held in the latter part of 1953, a 1,200-member National People's Congress convened in Peking, Sept. 15–28, 1954, and adopted the Constitution of the Chinese People's Republic.

The constitution designates the National People's Congress as the "supreme organ of state power." It is to be elected every four years by provincial congresses, members of the armed forces, and Chinese residents abroad, and is to meet once a year. Its functions are mainly legislative. Acting for the congress between sessions is the Standing Committee, a working body of about 80 members.

The chief executive officer and most powerful man in the government is the chairman of the republic, who is elected by the congress. Mao Tse-tung was re-elected chairman by the congress on Sept. 27, 1954. The executive body and highest administrative organ of the government is the State Council, or cabinet, consisting of about 35 ministries. Chou En-lai (q.v.) continued as premier and foreign minister in a cabinet endorsed by the congress on Sept. 28, 1954. Other important government bodies include the National Defense Council (headed by Mao Tse-tung) and the Supreme State Conference, a sort of inner cabinet.

Dominant political power is wielded by the Chinese Communist Party. At the head of the party is the Politburo, consisting of Mao Tse-tung (chairman), Liu Shao-ch'i (vice chairman), Chou En-lai, Chu Teh, and Ch'en Yun (who form the Central Secretariat, or inner core), and 8 other top political and military leaders. The power hierarchy extends downward through key party posts on the national and provincial levels in the government and the army, and through the mass organizations, such as labor unions, youth and women's organizations, and co-operatives. Communist Party membership in February 1954 was reported at 6.5 million.

Religion.—Confucianism has exerted strong influence on the Chinese way of life, although it has no formal church organization. Taoism and Buddhism, the other two principal faiths, are to some extent fused. Moslemism exists mainly in the Northwest. There are also an estimated 4 million Catholics and 1 million Protestants in China. Reverence for ancestors has been characteristic

¹ Data given in this article, unless otherwise specified, pertain to the Chinese mainland, or Communist China. For information on Nationalist China, see the article, FORMOSA.

² According to the National Bureau of Statistics in Peking, which claimed the census to be the most accurate in China's history, 574,205,940 persons were counted and 8,397,477 were reported by local governments in outlying areas. On the basis of sample surveys, the population was said to be increasing at an annual rate of 2%. The 1953 census figure is considerably above the 463,493,000 estimate (including Formosa) for 1948, contained in the *Statistical Yearbook, 1954* of the U.N. Statistical Office.

of the Chinese outlook, regardless of religious affiliation.

Education.—Primary education begins at the age of 7 and lasts 5 years. In addition to the regular primary schools, there are literacy classes and workers and peasants schools on the primary level. Many types of academic, vocational, and other training schools exist on the secondary and higher levels. Particular stress is placed on technical and engineering training. For the school year beginning in September 1955, enrollment in elementary and secondary schools was reported at a record 60 million students; in higher institutions, 289,000. Enrollments planned for 1957, with percentage increases over 1953, were reported in 1955 as: primary, 60,200,000 (18%); junior middle, 3,983,000 (78.6%); senior middle, 724,000 (178%); and higher, 434,000 (127%).

Finance.—Effective March 1, 1955, the official exchange rate of the yuan (people's dollar) was changed to 2.343 yuan=U.S.\$1.00 (previous rate, 23,430 yuan=U.S.\$1.00). The 1955 budget submitted by Finance Minister Li Hsien-nien to the National People's Congress on July 6, 1955, placed expenditure at 29,736.7 million yuan, and revenue at 31,192.5 million. Of the total expenditure, 47.72% was earmarked for economic development, 24.19% for defense; and 12.95% for social, cultural, and educational purposes. Expenditure in 1954 (in terms of the new yuan) was reported at 24,632.4 million (50.17% for economic development); revenue, 26,236.8 million. Principal sources of revenue in 1954 were taxes on industry and trade (45% of receipts), proceeds from state enterprises (35.9%), and taxes on agriculture (13.4%).

Five-Year Plan.—Communist China's first Five-Year Plan (1953–57) calls for a total investment in capital construction of 42,470 million yuan, divided as follows: industry, 58.2%; transport and communications, 19.2%; agriculture, forestry, and water conservation, 7.6%; culture, education, and public health, 7.2%; municipal and public utilities, 3.7%; banking and stockpiling, 3%; and miscellaneous, 1%. As part of the industrial effort, 694 large-scale enterprises are to be built or renovated, including 156 with Soviet aid; 15 new steam power stations, each with a capacity of over 50,000 kw., are to be erected; and 48 major projects are to be constructed or rebuilt at the Anshan steel center in the period ending in 1960.

In the agricultural sector, the 1957 target output of grain was reduced in 1955 to 192.8 million metric tons, a rise of 17.6% over 1952. (The original target called for a 30% rise.) Other 1957 goals adopted in 1955 were: cotton, 1,635,000 metric tons; jute and ambary hemp, 365,000; tobacco, 390,000; sugarcane, 13,150,000; and sugar beets, 2,135,000. The combined industrial and agricultural output was reported by Finance Minister Li Hsien-nien to have risen by 9.4% in 1954, and was scheduled to rise another 7% in 1955. Production increases planned for 1955 were: power, 19.3%; coal, 14.7%; crude oil, 31.6%; paper, 8.9%; sugar, 17.8%; cotton, 20.6%; and tobacco, 38%.

Industry.—Large-scale industrial enterprises are predominantly state-owned. State enterprises also control all of foreign trade, about 80% of wholesale trade, and 50% of retail trade. Output of the modern industrialized sector was reported to have increased by 18% in 1954, with pre-1949 peaks surpassed in virtually all manufacturing industries. Private enterprises, concentrated mainly in the consumer goods sector, contributed only

about 29% of the value of industrial output in 1954. In November 1955 a program was announced to accelerate "socialist transformation" of industry by extending the state-private partnerships in the private sphere.

Most of the new large-scale industries are located in the Northeast, China's heavy industry center. The Anshan Iron and Steel Company was reported in 1954 to be building a steel smelting plant, a steel sheet plant, 2 steel blooming mills, 2 automatic blast furnaces, 2 coke ovens, and other facilities. Other Northeast projects include expansion of coal production at Fusin, expansion of 5 power plants, and construction of 3 heavy machinery plants, 3 electrical engineering plants, and an automobile factory. Large steel mills are being built at Paotow, in Inner Mongolia, and at Wuhan, central China; smaller mills are being constructed at Tientsin, Tangshan, and Chungking. Additional large-scale projects outside the Northeast area are chiefly railroads and highways, power plants, cotton mills, a tractor factory in the north, and an oil refinery in Shanghai.

CHINA'S INDUSTRIAL EXPANSION

	1952	1954 est.	1957 goal
Steel ('000 metric tons).....	1,350	2,170	4,120
Coal ('000 metric tons).....	63,500	81,990	113,000
Electricity (million kw.-hr.).....	7,280	10,800	15,920
Generators (kw.).....	30,000	...	227,000
Electric motors (kw.).....	640,000	...	1,050,000
Cement ('000 metric tons).....	2,860	4,730	6,000
Machine-processed paper ('000 metric tons).....	370	480	650
Cotton piece goods ('000 bolts).....	111,630	...	163,720
Machine-processed sugar ('000 metric tons).....	249	...	686

¹No official estimates. ²Output given as 4,600,000 bales of cotton yarn. (Source: State Planning Commissioner Li Fu-ch'un's report to the National People's Congress in Peking, July 6, 1955, as reported in the New York Times of that date.)

Electricity output rose an estimated 20% to 10,800 million kw.-hr. in 1954, when it was 56% over the pre-1949 peak. In late 1954 the first turbogenerator unit was installed at the hydroelectric power station of the Futseling Reservoir on the Hwai River, and in 1955 a new power station at the Kuanting Reservoir on the Yungting River was scheduled to begin operations, using turbogenerators produced by the new Harbin Electrical Machinery Plant. Output of machine tools and electrical appliances rose by 25% in 1954, and many new types of machines, vehicles, and instruments are now produced which were never before produced in China. Output of the chemicals industry (sulfuric acid, ammonium sulfate, caustic soda, and pure soda) rose by 43% in 1954. The chief consumer goods industry undergoing expansion is that of cotton textiles. Production of cotton piece goods in 1954 totaled an estimated 1,960 million meters, compared with 1,893 million in 1953 and 1,090 million in 1951. Much of the output of light industry has been criticized by the Communist press as of inferior quality.

Minerals.—Coal production in 1954 was reported at 81,990,000 metric tons, a rise of nearly 30% over 1952. Production of crude petroleum was said to have risen 32% in 1954, with activity expanding in the chief Northwest fields of Yümen, Wusu, and Yenchang, and at the shale oil refining center of Fushun, in the Northeast. China is the major antimony producer of the Far East and an important producer of tungsten, manganese, and tin ores. Production of tin concentrates in 1954 was estimated at 7,500 metric

tons. Other minerals include iron ore, bauxite, magnesite, pyrite, gypsum, phosphate, gold, and silver.

Agriculture.—By Nov. 10, 1955, some 1,240,000 producers cooperatives had been formed in agriculture, with 590,000 having been set up after July 31, 1955, when Mao Tse-tung called for accelerated mobilization of peasants in the land-pooling organizations. Thus, by the end of 1955, an estimated 30% of the country's 110 million farm households were in these cooperatives. Other forms of rural organization include mutual-aid teams, supply and marketing cooperatives, and credit cooperatives. State farms, as yet relatively unimportant, numbered 3,000 in 1954, including 102 mechanized farms.

Irrigation works completed in the period 1950-54 included 8.4 million ponds and ditches, 900,000 wells, and 600,000 pumps—adding a total of 4.1 million hectares to the area under irrigation (estimated at 43.2 million hectares in 1938). Comprehensive flood control projects, consisting mainly of detention of flood flow by series of lakes and depressions, are under way on the Hwai, Yungting, Liao, and other rivers. The disastrous flood of 1954, which affected about 10.7 million hectares of farmland, revealed that many of these projects had been inadequately constructed.

China produced 169.5 million metric tons of unprocessed primary foodstuffs in 1954, as compared with 166.8 million in 1953. Although rice output was below that of 1953, increases took place in wheat, maize, millet, and other coarse grains. Production of cotton in 1954 (prelim.) was estimated at 2,950,000 bales (3,200,000 in 1953). Estimated output of certain other crops in 1954 was: peanuts, 2,370,000 short tons; sesame seed, 715,000; tung oil, 77,000; rapeseed, 3,100,000; and soybeans, 321.5 million bushels. Other farm products include sugarcane, beet sugar, tobacco, jute and ambary hemp, vegetables, and livestock and poultry products.

Foreign Trade.—China's foreign trade in 1954 exceeded 8.4 billion yuan (about \$3.5 billion), according to Minister of Foreign Trade Yeh Chi-chuang's report to the National People's Congress on July 29, 1955. China's 1954 exports to non-Communist countries were estimated (by non-Chinese sources) at \$271.2 million; imports from those countries, \$285 million. Thus, the bulk of China's foreign trade is with the Soviet-bloc countries, such trade amounting to about \$2,016 million in 1953. The important non-Communist trading partners of China include Hong Kong, Ceylon, Japan, Switzerland, West Germany, and Great Britain. Some 89% of China's 1954 imports consisted of industrial installations and equipment, raw materials, chemical fertilizers, and other capital goods obtained chiefly from other Communist countries. China's principal exports are soybeans, groundnuts, tung oil, pig bristles, egg products, vegetable oils, food-grains, tea, silk, hemp, wool, furs, fruits, flued tobacco, antimony, tungsten, tin, and handicraft products.

Transportation.—China's railroad trackage in operation amounted to 15,835 miles at the end of 1954, with about 1,700 miles of new trackage having been constructed between 1950 and 1954. In 1955 an additional 620 miles were scheduled for construction, compared with 496 miles built in 1954. A 600-mile rail link between the Soviet Trans-Siberian Railway and the Chinese rail system, running through the Mongolian People's Republic, was completed in late 1955, the Chinese having built the segment from Tsining to Erhlien,

on the Mongolian border. Construction continued in 1955 on the strategic line running from Lanchow through Sinkiang, to connect with the Soviet rail network near Alma-Ata. By late 1955 the Chinese section extended beyond Changyeh.

At the end of 1953, 86,061 miles of roads were reported in operation, with about 25,000 miles having been either rehabilitated or newly built since 1949. An additional 2,670 miles of roads were reported to have been built in 1954. Outstanding among China's newly built roads are the 1,400-mile Sikang-Tibet highway and the 1,300-mile Chinghai-Tibet highway, both projects having utilized army as well as civilian labor in their construction. China's merchant shipping fleet totaled 659,000 gross registered tons in 1953. China's airline system was operated by a joint Sino-Soviet company until its dissolution and the assumption of full Chinese control at the beginning of 1955. Plans call for civil airlines to carry 8.1 million ton-kilometers of freight by 1957, more than treble that of 1952.

M. J. G.

THE YEAR 1955 IN COMMUNIST CHINA

For the Chinese Communists the year 1955 was one of vital importance. It was a year in which their policy of "liberating" Formosa entered a crucial period when any aggressive move might lead to war with the United States, the ally of Nationalist China. It was also a decisive year in the implementation of the Five-Year Plan (1953-57), for with about half of the volume of capital construction to be completed during the last two years of the plan, failure to carry out the schedule for 1955 would seriously jeopardize the plan's final fulfillment.

Economic Developments. *Industrialization.*—The 1955 national budget allotted for economic construction 14,188 million yuan, representing an increase of 14.81% over the figure for 1954 and accounting for 47.72% of total 1955 expenditures. Of the overall allotment for economic construction, 45.02% was allocated to industry, exceeding the figure for 1954 by 11.32%. Emphasis was placed on heavy industry, which received 89.20% of industrial expenditures. The Communists insisted that priority be given to expansion of the means of production so as to achieve economic independence and consolidate national defense. They maintained that once heavy industry had reached a high degree of development, light industry could be developed without difficulty. Until then any large-scale increase in the production of consumer goods and the betterment of the life of the people would have to wait.

Because of the failure of heavy industry to fulfill 1954 targets, cadres were ordered to make special efforts in 1955 to raise the standard of

technical and organizational management. In May, an overall economy drive, calling for stringent austerity and denouncing waste on nonproductive projects, was launched. It was strongly urged that building costs be cut 10 to 15%.

Agricultural Development.—Agriculture occupied an important position in Communist China's economic plan for 1955, since agricultural products not only supplied the food of the people and the raw materials for more than 50% of industrial products, but also were exported to earn the bulk of the foreign exchange needed to pay for imported industrial materials. During the years 1953 and 1954, agricultural production, partly because of serious natural disasters, did not fulfill the original plans for production increases, and it was the Communist plan in 1955 to make up as much as possible for the losses suffered in the preceding two years.

The target for 1955 was 10 million tons of grain. Cotton production was to be increased 20.6%, tobacco 38%, and sugarcane 16%. The output of oilseeds, tea, hemp, and livestock was also to be raised. Collectivization of rural areas was to be furthered vigorously in order to fulfill agricultural plans and to achieve by 1957 the basic organization of China's agriculture into semisocialist cooperatives. In the spring of 1955 agricultural producer cooperatives reached a total of 650,000 and comprised 15% of all peasant households. At a meeting of the Central Committee of the Communist Party in October, it was resolved to increase the number of such cooperatives to 1,300,000.

Despite the Communists' vigorous efforts to increase agricultural production, grain shortages were reported in several areas, particularly near Shanghai and in Kwangtung and Shantung provinces. While the Communists blamed natural calamities, they were also concerned over man-made difficulties. They seemed to be particularly disturbed by excessive haste to achieve collectivization. The April 1955 issue of the magazine *Hsüeh Hsi* (*Study*), for instance, declared that voluntarism was the fundamental principle of agricultural collectivization, and that it was wrong to force the peasants into any form of collectivized agriculture.

Measures adopted to deal with the grain shortage included: (1) a food austerity campaign calling on the people to economize on food consumption and to curb waste; (2) a nationwide campaign for the "rectification of food sales," with the purpose of reducing by at least 20 to 30% government sales of rationed food to rural consumers; (3) extension of stricter grain rationing to all municipal areas, grain being allotted to each person according to his age, type of work, and regional food habits; and requirements for farmers to sell 80 to 90% of any surpluses to the government; and (4) an intensified "back-to-the-farm" drive in Shanghai and other large cities, under which hundreds of thousands of persons were sent to the villages so as to increase food production and reduce the number of urban mouths to feed.

Domestic and Foreign Trade.—The total value of retail sales for 1955 was expected to exceed that of 1954 by 9%. Government and co-operative trading concerns were expected to account for 51.7% of all such sales.

During the year, Communist China continued its efforts to develop foreign trade. Trade agreements were concluded with Rumania (January 20), the Soviet Union (February 11), and Poland (March 21), and trade was developed with

U.S. airmen, captured by Chinese Communists during Korean War, cross bridge to freedom at Hong Kong, Aug. 4, 1955, four days after their release from prison.



WIDE WORLD

India, Burma, Indonesia, Ceylon, and Pakistan. In addition, efforts were made to establish trade relations with Afghanistan, Egypt, and Syria. A three-year trade agreement signed with Egypt on August 22 provided for an exchange of \$56 million in its first year of operation.

The Chinese Communists were eager to utilize trade relations in order to develop diplomatic relations. In the trade agreement concluded at Tokyo on May 4 between a Chinese trade delegation and a private Japanese businessmen's association, which provided for an exchange of goods of \$84 million in either direction, it was stipulated that both parties would urge their respective governments to hold official negotiations on the question of trade.

Political Situation. Government.—The second session of the National People's Congress was held in Peking (Peiping) on July 5-30, 1955. One of its major actions was the adoption of the Five-Year Plan, which had undergone much revision in the preceding two years. The Congress reorganized the economic administration by abolishing the Ministry of Fuel Industry and by establishing four new ministries: Coal Industry, Electric Power Industry, Petroleum Industry, and Purchase of Agricultural Supplies. In addition, it adopted a military service law which substituted compulsory service for voluntary enlistment.

The Communist government gave much attention in 1955 to the frontier provinces. On July 30, the National People's Congress ratified the decision of the State Council (cabinet) to abolish the provinces of Jehol and Sikang. On September 13, the Sinkiang Uigur Autonomous Region was established to control three fourths of Sinkiang's population of 4,000,000. This was interpreted in some quarters as a move to recognize the growing Soviet influence in the area.

The Purge.—The purge of Kao Kang and Jao Shu-shih was announced by a national conference of the Chinese Communist Party on March 31, 1955. Kao Kang, former political boss of Manchuria and head of the State Planning Commission, had lost favor with the party in 1954. It was not until this conference, however, that he was publicly condemned for undermining party solidarity and unity, for making the north-eastern area an independent kingdom, and for attempting to instigate party members in the army to support his conspiracy against the leadership of the party. The conference made a passing mention of his suicide, but castigated it as "an expression of his ultimate betrayal of the party." Jao Shu-shih, former regional boss in eastern China and director of the party's Department of Organization, was expelled from the party for his "alliance" with Kao. Seven lesser figures were also punished.

Parallel with the purge of Kao and Jao, the Communists launched a series of drives against the intellectuals. A new ideological campaign against the "bourgeois idealism of Hu Shih," begun in the fall of 1954, was continued in 1955. In the spring numerous meetings were held by academic, literary, and educational organizations to denounce the "reactionary literary thought" and the "subjective pragmatism" of Hu Shih.

But it was in the case of Hu Feng that the Chinese Communists really dramatized their demands for ideological uniformity. Hu Feng, active in left-wing Chinese literary circles, had been regarded as a Marxist writer and critic. He had thrown his lot in with the Communists before they came to power, and was later elected



EASTFOTO

Communist China's Chairman Mao Tse-tung (l.) and North Viet-Nam's President Ho Chi Minh in Peking, July 1955.

to the National People's Congress. In February 1955, at a meeting of the Union of Chinese Writers, he was charged with viewing literature and art subjectively and Marxism-Leninism as a cold doctrine damaging to creative activity. He was arrested in July on the charge of creating an antiparty literary clique which had infiltrated the Communist Party and revolutionary ranks.

Suppression of "Counterrevolutionaries."—The year 1955 saw numerous reports on "counterrevolutionaries hidden among the people." The Communists were particularly determined to suppress the Taoist sects. There were many of these sects, with such names as I Kuan Tao, Ta Fu Tao, Ming Yen Chiao, Shen Hsien Tao, and Hsin Tien Tao, whose activities extended from Kalgan in the north to Kwangtung Province in the south. In Hupeh Province, for instance, Taoist activities were reported in 30 districts and municipal areas during the first quarter of 1955. In the provinces of Hopeh, Shansi, and Kansu alone, more than 150 caves, some of them able to hold 30 persons, were discovered. One of the common charges against the Taoist sects was that they sabotaged the agricultural cooperatives and induced the peasants not to sell grain to the government.

Other "counterrevolutionary" elements named by the Chinese Communists were the alleged "United States-Chiang Kai-shek spies" and the "remnant counterrevolutionaries of the hostile classes." Their activities were discovered in all parts of China. Severe sentences were inflicted on those arrested by the Communist police on charges of gathering intelligence, establishing underground organizations, plotting riots, and other sabotaging activities. According to the report of Shih Liang, Communist minister of justice, from January 1954 to May 1955 the people's courts dealt with 364,000 "counterrevolutionary" cases.

Foreign Relations. Formosa.—In the mutual defense treaty signed with Nationalist China on Dec. 2, 1954, the United States pledged itself to defend Formosa in case of armed attack on Nationalist territory. The treaty covered the Pescadores, but it was not clear whether it included other Nationalist-held islands off the China coast. The Chinese Communists, while hesitating to challenge the U.S. Seventh Fleet guarding Formosa, took advantage of the uncertain United States position toward the offshore islands. On Jan. 18, 1955, the Communists captured Yikiang Island, a Nationalist outpost off the coast of Chekiang Province, 7.5 miles northwest of the Tachen Islands. With the fall of Yikiang, the

Tachens were exposed to attack. The United States government advised the Nationalists to evacuate, and on February 7, with the assistance of the U.S. Seventh Fleet, the evacuation of the Tachens began. The Chinese Communists had declared that United States participation in the evacuation might precipitate "a major war," but they took no action as the operation was smoothly completed on February 11.

After the Tachens, world attention centered on the Quemoy and Matsu island groups. Reports were rife that the Communists would strike at these islands, while the Nationalists resolutely rejected the idea of further retreat. The United States government, though refusing to commit itself to the defense of the two island groups, made it known that it would not exclude fighting if the attack on these islands appeared to be a preliminary to an attack on Formosa.

Meanwhile, the U.N. Security Council decided to consider the Formosa question. In a resolution passed (9-1, with 1 abstention) on January 31, it invited Communist China to send a representative to be present during the discussions. The invitation was rejected on February 3 by Premier Chou En-lai, who declared that the representatives of Nationalist China first must be ousted from the Security Council; then, with the Communists sitting in their place, his government would discuss "acts of aggression" by the United States in the Formosa area. The harsh terms of the Communists shattered the hopes of holding any Security Council session on Formosa. On October 1, the Communists reaffirmed their determination to "liberate" the island. (See also FORMOSA.)

Asia and Africa.—In Asia, Communist China was eager to play the role of the leading power. In 1953 it had agreed to give 8 billion (old) yuan to North Korea, and in July 1955 it decided to give North Viet-Nam the equivalent sum of 800 million (new) yuan (\$338 million).

When the Asian-African Conference (q.v.) met at Bandung, Indonesia, on April 18-24, 1955, the Chinese Communists welcomed it as an opportunity to exert their leadership and dis-

seminate their propaganda. But no sooner had the conference opened than they encountered vigorous attacks. The representatives of Iraq, Pakistan, and the Philippines all warned of a new imperialism masquerading in the guise of liberation. In a stirring speech on April 21, Sir John Kotelawala, prime minister of Ceylon, called attention to subversive Communist movements in Asia and Africa and reminded his fellow delegates that the Communists themselves had not concealed their aim of transforming other countries into their satellites.

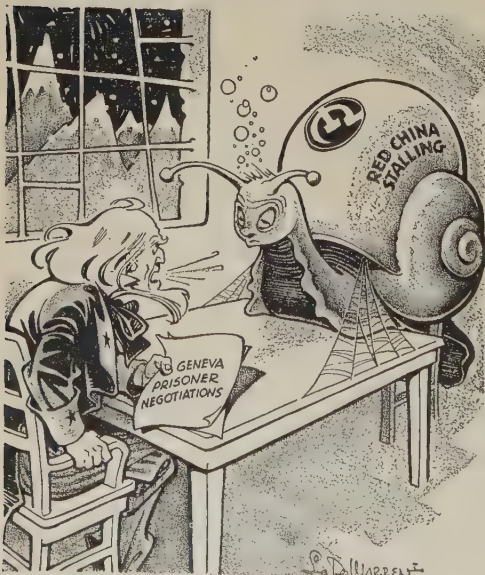
Though irritated, the Chinese Communists could not afford to make the conference a failure. They therefore adopted a policy of striving for unity instead of stressing divergences. Throughout the conference, Chou En-lai managed to be conciliatory and pleasant, and his smiles softened the attitude of some of his opponents. In order to cultivate the friendship of the Arab countries, he lent his support to the nationalists of French North Africa and to the Arabs of Palestine. To demonstrate his "goodwill" toward the Indonesian people and to secure favorable propaganda from his action, he signed at Bandung on April 22 a dual nationality treaty with Indonesia, settling the latter's complaint concerning Chinese simultaneously holding two nationalities. In response to an invitation delivered by Chou at the conference, the Indian diplomat, V. K. Krishna Menon, visited Peking on May 11-21 to discuss various aspects of the Formosa question.

The United States.—On April 23, Chou En-lai declared at the Bandung Conference that Communist China did not want to fight a war with the United States, and that it was willing to sit down and negotiate with the United States government on the question of relaxing tension in the Far East, especially in the Formosa area. Three days later, U.S. Secretary of State John Foster Dulles indicated in a news conference that the United States government was willing to negotiate directly with Communist China for a "cease-fire" in Formosa Strait. He added that Nationalist China would not necessarily have to be present at talks limited to the question of a cease-fire. What Communist China wanted with the United States in the negotiations, however, was the "liberation" of Formosa by peaceful means. Chou En-lai therefore declared the United States stand to be "evasive and equivocal," and renewed his support of a Soviet proposal of February 4 for a 10-power conference on the Formosa question. International discussion of a possible large conference reached an impasse, however, because the Communists insisted on excluding Nationalist China.

The Far Eastern problem was not raised at the Geneva Conference (q.v.), but on July 25, two days after the close of the conference, the United States and Communist China announced that talks between ambassadors of the two countries would be held on the release of detained civilians and "other practical matters." Meanwhile, on May 31, 4 United States airmen who had been imprisoned in Communist China reached Hong Kong after their release from jail. On August 1, U. Alexis Johnson, United States ambassador to Czechoslovakia, and Wang Pingnan, Communist Chinese ambassador to Poland, began their talks at Geneva. The Communist representative notified the United States that 11 airmen imprisoned as "spies" had been released the day before (they reached Hong Kong on August 4). After much parrying and stalling, the two sides came to an agreement on September 10.

"DIDN'T I MEET YOU AT PANMUNJOM?"

WARREN IN THE CINCINNATI ENQUIRER



This provided that citizens of either country who desired to return home were entitled to do so, and that if they should encounter any obstruction to their departure, Chinese might apply to the Indian embassy in Washington, and Americans to the office of the British chargé d'affaires in Peking, for assistance.

Having completed the first phase of the Geneva talks, the Communist representative pressed forward with negotiations on the second item on the agenda—"other practical matters" at issue between the two countries. He proposed to focus discussion on two questions: (1) the trade embargo directed against Peking; and (2) the question of preparing for higher-level negotiations between the two countries. The United States government, however, refused to discuss these questions until all the American civilians held in China were returned. By late December, 13 American civilian prisoners and approximately 40 other Americans still remained in China. Meanwhile, on October 8, 39 Chinese returned to Communist China from the United States.

The Soviet Union.—In 1955, Communist China and the Soviet Union continued to maintain a united front in international affairs. On the questions of Formosa, the unification of Germany, the resumption of relations with Japan, and the rapprochement with Yugoslavia, the two countries cooperated closely in their policy and actions. The Soviet Union supported, though again unsuccessfully, Peking's claim to China's seat in the United Nations and, on January 31, charged the United States with "acts of aggression" in the Formosa area. On the other hand, Communist China's proposal to sit down and negotiate with the United States was parallel with the so-called soft line adopted by the Soviet Union at the Geneva Conference.

In a protocol of April 29, the Soviet Union agreed to give Communist China experimental atomic piles and technical assistance in the peaceful use of atomic energy. In May the Soviet government withdrew its armed forces from the Port Arthur area in accordance with the agreement of October 1954, and on July 5 it was announced in Peking that the two countries had signed an agreement to exchange scientific and technical information.

(For a discussion of Nationalist government activities in 1955, see the article FORMOSA; and for further references to developments in China, see the Index entry, *China*.)

CHESTER C. TAN,
Lecturer in Public Affairs and Regional
Studies, New York University.

CHIROPRACTIC. Chiropractic is a science based on the premise that disease results from lack of normal nerve function. The doctor of chiropractic treats, by scientific manipulation and specific adjustment, the structures of the body, and uses clinical nutrition, psychotherapy, and physiotherapeutic measures, as indicated, to restore normal nerve function, thereby enabling the protective and restorative powers of the body to function normally. Since 1895, over 33,000,000 people have been served by some 25,000 chiropractors throughout the United States.

Forty-three states, the District of Columbia, Alaska, Hawaii, Puerto Rico, and five Canadian provinces now require professional education of four academic years as a minimum licensing requirement. (The National Council on Education, official accrediting agency of the profession, announced that only eight chiropractic schools had

continued to receive accredited ratings in 1955.) Some 22 states demand two years of pre-professional education. Licensing regulations were established in Mexico in June 1955.

The 60th Anniversary Convention of the National Chiropractic Association was held July 4-8, 1955, at Hotel Claridge, Atlantic City, N.J., with some 1,200 persons in attendance. Highlighting the convention agenda was a series of scientific symposia covering important developments in diagnostic procedure, adjusting technic, X-ray interpretation, poliomyelitis, physiotherapeutic practices, and public health problems. The 61st convention will be held at the Morrison Hotel, Chicago, Ill., July 1-6, 1956.

Among the other important activities in the chiropractic field during 1955 were: (1) the production of a 15-minute sound and color picture entitled *How Do You Stand*, a public service feature which emphasizes the importance of correct posture and its relationship to health; (2) the publishing of a new series of educational advertisements in the magazines *Editor and Publisher*, *American Press*, and *Broadcasting Telecasting*, to inform the press about the many advancements of the profession in the health field during the past decade; and (3) the increasing of the circulation of *Healthways* magazine to more than 1,500,000 copies annually.

Additional information may be obtained from the National Chiropractic Association, National Building, Webster City, Iowa.

L. M. ROGERS,
Executive Secretary, National Chiropractic
Association, Inc.

CHOCOLATE. See COCOA; CONFECTIONERY.

CHOU EN-LAI, premier of Communist China: b. Huaiyin, Kiangsu Province, China, 1898. A member of the Communist Party from early manhood, and a leading Chinese political figure from the 1920's, he became premier and foreign minister of the People's Republic of China on Oct. 1, 1949.

In early January 1955, U.N. Secretary General Dag Hammarskjöld visited Chou En-lai in Peking to attempt to persuade him to release 11 American airmen held as prisoners by the Chinese. (The airmen were freed on July 31 and reached Hong Kong on August 4.) Later in January, when a Communist Chinese invasion of Formosa seemed imminent, Chou bluntly refused to accept an invitation from the United Nations to discuss the Formosa problem unless his government were given Nationalist China's seat on the U.N. Security Council.

At the Asian-African Conference (q.v.), where Chou was a central figure, he created a favorable impression among many of the delegates by his conciliatory attitude on many issues. Although he attacked the United States in his opening address at the conference, in speeches given elsewhere later in May and in June he expressed the willingness of his government to negotiate with the United States over the future of Formosa. (See also CHINA—*The Year 1955 in Communist China*.)

CHRISTIAN SCIENCE. Television and radio activities were strengthened and expanded by The Mother Church, The First Church of Christ, Scientist, in Boston, Mass., during 1955.

The new filmed television series, *How Christian Science Heals*, featured documented accounts of spiritual healing, and personal testimonials of religious experiences. Complete and

permanent healings of many types of physical ailments were recounted in the programs by those who experienced them. They also gave actual examples of how many other types of human problems, such as relations with others, business difficulties, and character problems, can be solved through spiritual understanding of God.

The denomination's radio programs, which include the series also entitled *How Christian Science Heals*, were heard over some 800 radio stations in the United States, Canada, South America, South Africa, and Continental Europe.

More widespread acceptance of divine healing was reported during 1955 by many departments of The Mother Church, and continued growth in church membership was also reported. As of the Annual Meeting in June 1955, The Mother Church had 3,161 branch churches and societies in some 46 countries. Thirty-one new branches were recognized during the year. Included were those in Salzburg, Austria; Upper Hutt, New Zealand; Freemantle, Australia; Aarhus, Denmark; Kyoto, Japan; Heidelberg, Germany; and Caracas, Venezuela.

During 1955, hundreds of insurance companies recognized the services of Christian Science practitioners, nurses, and sanatoriums. A growing number of companies added special Christian Science riders to their automobile, medical expense, health and accident, and general liability insurance contracts.

New translations of certain of the writings of Mary Baker Eddy, the discoverer and founder of Christian Science, into French, Greek, and seven other languages, were announced.

Circulation of Christian Science periodicals and publications continued to rise during the year, and new advertising records for *The Christian Science Monitor* were announced.

WILL B. DAVIS,

Manager of Committees on Publication, The First Church of Christ, Scientist, Boston.

CHRISTMAS ISLAND. The name of two British islands, as follows:

(1) The largest atoll in the Pacific Ocean (area, 234 square miles, of which 94 square miles is land; pop., 127 in 1952), lying south of Hawaii, and a component, with Fanning and Washington, of the Gilbert and Ellice Islands Colony (see WESTERN PACIFIC ISLANDS, BRITISH). A copra plantation is worked by the government, using native labor, which is augmented seasonally from other Pacific islands.

(2) An integral part since 1900 of the colony of Singapore (q.v.), and administered by an officer of the Malayan civil service. Lying southeast of Java Head and 260 miles northeast of the Cocos (Keeling) Islands, in the Indian Ocean, it has an area of about 60 square miles and a population in mid-1954 of 1,929, including 1,435 Chinese, 396 Malaysians, 89 Europeans, and 9 Indians and Pakistanis. Lime deposits are worked by the British Phosphate Commission.

CHROMITE. The United States depends almost entirely upon imports of chromite because domestic production is small and of substandard quality. Most of the imports originate in remote sources; Cuba is the only producer of importance in the Western Hemisphere. Stimulated by government purchases, domestic production increased from 58,817 short tons in 1953 to 159,743 tons in 1954 (85,199 tons during the first 7 months of 1955). Imports of chromite, which increased from 1,203,852 tons in 1949 to 2,226,610 tons in 1953, declined to 1,312,561 tons in 1954.

Imports of 955,395 tons in the first 7 months of 1955 indicated a reversal of the downward trend. Consumption declined from 1,335,755 short tons in 1953 to only 913,973 tons in 1954, but substantial gains were made in 1955, reaching 844,566 tons during the first 7 months. The 1954 imports included 668,496 tons of metallurgical ore, 470,089 tons of refractory ore, and 173,976 tons of chemical grade ore.

Turkey is the chief source of metallurgical ore; Southern Rhodesia ranks a close second, and the Union of South Africa, third. More than 70% of the refractory ore originates in the Philippines, and the chemical grade ore comes from the Union of South Africa. These four countries produced 93% of the chromite ore imported into the United States in 1954. (See MINERAL PRODUCTION for output of major producing countries.)

CHRONOLOGY, 1955. A list of the important dates of 1955, and a Chronological Index of the more important events of the year, will be found at the front of the volume.

CHURCH MEMBERSHIP, U.S. Church membership in the continental United States was reported at 97,482,611 in 1954 by the *Yearbook of American Churches* (1955 edition)—an increase of 2,639,766, or 2.8%, over that of 1953. A total of 300,056 local churches was reported, compared with 294,359 in 1953.

Figures reported by 81 religious bodies with membership of 50,000 or more (representing about 98% of all membership) are shown in the accompanying table.

U.S. CHURCH MEMBERSHIP, 1954¹

(Churches of 50,000 or more members)

Religious body	Members
PROTESTANT BODIES	
Adventists, Seventh Day	270,079
Apostolic Overcoming Holy Church of God	75,000 ²
Assemblies of God	400,000
Baptist Association, American	286,691 ²
Baptist Association, North American	243,750
Baptist Churches, General Association of, Regular	113,878 ³
Baptist Convention, American	1,505,871 ³
Baptist Convention of U.S.A., National Primitive	80,000 ⁴
Baptist Convention, Southern	8,163,562
Baptist Convention, U.S.A. Inc., National	4,557,416
Baptist Convention of America, National	2,608,974
Baptist Evangelical Life and Soul Saving Assembly of U.S.A., National	57,674 ²
Baptist, Free Will	405,000
Baptist, General	51,368
Baptist General Conference of America	52,485
Baptist, Primitive	72,000 ⁵
Baptist, United	60,525
Baptist, United Free Will	100,000 ⁴
Brethren, Church of the	193,547
Christ Unity Science	1,581,286 ³
Christian and Missionary Alliance	61,483 ³
Church of Christ, Scientist	6
Church of God	68,773
Church of God (Anderson, Ind.)	118,696
Church of God (Cleveland, Tenn.)	138,349
Church of God in Christ	328,304
Church of Jesus Christ of Latter-day Saints	1,179,887
Church of Jesus Christ of Latter-day Saints, Reorganized	134,705
Church of the Nazarene	260,551
Church of our Lord Jesus Christ of the Apostolic Faith, Inc.	50,000 ⁴
Churches of Christ	1,600,000
Congregational Christian	1,298,205
Disciples of Christ, International Convention	1,881,911
Evangelical Mission Covenant of America	53,388
Evangelical and Reformed	761,842
Evangelical United Brethren	746,206
Federated Churches	88,411 ⁷
Friends, Religious Society of (5 Years Meeting)	69,560
Independent Fundamental Churches of America	65,000 ⁸
Int. Church of the Foursquare Gospel	87,206
Lutheran, American	799,790 ⁸
Lutheran Church, Augustana Evangelical	510,116
Lutheran Church, Missouri Synod	1,932,000
Lutheran Church in America, United	2,113,779
Lutheran Church, Evangelical	900,536 ⁹

U.S. CHURCH MEMBERSHIP, 1954,¹ CONT'D
(Churches of 50,000 or more members)

Religious body	Members
Lutheran Free Church.....	68,773 ^a
Lutheran Joint Synod of Wisconsin and Other States, Evangelical.....	322,947 ^a
Lutheran, United Evangelical.....	52,236 ^a
Mennonite.....	68,998
Methodist.....	9,202,728
Methodist Episcopal, African.....	1,166,301 ²
Methodist Episcopal, Colored.....	392,167 ²
Methodist Episcopal Zion, African.....	760,158 ⁴
Methodist Church of North America, Free.....	50,660
Moravian Church in America.....	52,735
Pentecostal Assemblies of the World, Inc.....	60,000
Pentecostal Church, United.....	125,000
Presbyterian, Cumberland.....	84,776
Presbyterian Church in the U.S.....	780,837
Presbyterian Church in the U.S.A.....	2,526,129
Presbyterian Church of N.A., United.....	237,233
Protestant Episcopal.....	2,660,699 ³
Reformed, Christian.....	196,822
Reformed in America.....	203,230
Salvation Army.....	240,130
Spiritualists, Int. Gen. Assembly of.....	157,000 ⁴
Unitarian Churches.....	90,398
Universalist Church of America.....	71,020
Total Protestants.....	57,124,142 ⁹
NON-PROTESTANT BODIES	
American Carpatho-Russian Orthodox Greek Catholic Church.....	75,100
Armenian Apostolic Orthodox Church of America.....	80,000
Buddhist Churches of America.....	63,000
Catholic, Polish National, of America.....	265,879 ²
Catholic, Roman.....	32,403,332
Greek Archdiocese of North and South America.....	1,000,000
Jewish Congregations.....	5,500,000
Old Roman Catholic Church, N.A.....	85,225
Romanian Orthodox Episcopate of America.....	50,000
Russian Orthodox Greek Catholic Church of N.A.....	440,000 ³
Russian Orthodox Church Outside Russia.....	55,000 ²
Serbian Eastern Orthodox.....	100,000 ³
Syrian Antiochian Orthodox.....	75,000
Ukrainian Orthodox Church of U.S.A.....	71,248
Total non-Protestants.....	40,358,469 ⁹
Total Protestants and non-Protestants.....	97,482,611 ⁹

¹ Mainly for the calendar year 1954, or a fiscal year ending in 1954. ² 1951. ³ 1953. ⁴ 1952. ⁵ 1950. ⁶ Not reported. ⁷ 1936. ⁸ 1946. ⁹ Includes bodies with less than 50,000 not listed in table. (Source: *Yearbook of American Churches*, 1955 ed.)

The church membership figure represented 60.3% of the population in 1954, as compared with 59.5% in 1953 and 47% in 1930. Of the 1954 total, 57,124,142 were Protestant; 32,403,332 were Roman Catholic; 5,500,000 were Jewish; 2,024,219 were Eastern Orthodox; 367,918 were Old Catholic and Polish National Catholic; and 63,000 were Buddhist.¹ (See also RELIGION.)

CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS.

It was reported at the April 1955 General Conference of the church that there were 219 stakes, with 1,993 wards and independent branches, 42 missions, and a total membership of 1,302,240. An extensive building program continued to go forward in Alaska, South America, the South Sea Islands, Europe, and the United States, with about 450 chapels under construction. Latest reports showed there were 4,272 missionaries in foreign fields and 6,826 in stakes. The church extended its missionary work and enlarged the operation of its educational system, which includes the Brigham Young University, Ricks College, the Juarez Stake schools, and 320 institutes

¹ Figures were gathered by the National Council of the Churches of Christ in the U.S.A. through questionnaires mailed to statistical officers of all known religious bodies. Roman Catholics count all baptized persons, including infants. Jews regard as members all Jews living in communities having congregations. The Eastern Orthodox churches count all persons in their nationality or cultural groups. Most Protestant bodies count only persons who have attained full membership. However, many Lutheran bodies and the Protestant Episcopal Church now report all baptized persons.

and seminaries. A new junior college was established in Hawaii.

The construction of the Los Angeles Temple neared completion, and plans were drawn for a new temple in New Zealand. The completed temple in Bern, Switzerland, was dedicated on Sept. 11, 1955, by President David O. McKay. The Salt Lake Tabernacle Choir, which toured Europe during August and September, furnished the music at the dedication and also gave concerts in 14 leading European cities. Ground was broken for the erection of the London Temple at New Chapel, London, England, Aug. 27, 1955; and a million-dollar administrative building for the Relief Society, a women's auxiliary, neared completion in Salt Lake City, Utah.

During July and August 1955, President Joseph Fielding Smith of the Quorum of the Twelve Apostles visited the Far East and created two missions, formerly covered by the Japanese Mission, in territory which includes Japan, Hong Kong, Okinawa, the Philippines, Korea, Guam, and Formosa. A new mission was also created in Australia from a division of the former Australian Mission.

The Church Genealogical Society microfilmed copies of genealogical records of five states and six foreign countries, equivalent to 75,691 printed volumes of approximately 300 pages each.

JOSEPH ANDERSON,
Secretary to the First Presidency.

CHURCHILL, Sir Winston. See Index entry.
CIGARETTES AND OTHER TOBACCO PRODUCTS.
See TOBACCO.

CIRCUSES AND RODEOS. *Circuses.*—With the exception of shows which played indoors under organizational auspices, circuses in the United States had a difficult time in 1955. Both large and small shows experienced spotty business, due to poor routing, shortage of help, and inadequate performances. Many smaller shows found it difficult to return to towns previously played, because of earlier unsatisfactory handling of the public. Several small new outfits were in the 1955 circus lineup, but some folded after a few weeks on the road, and the others had an unsatisfactory season.

The only large circus on the road, Ringling Bros.-Barnum & Bailey Combined Shows, traveling on 70 railroad cars, was plagued with internal dissension soon after its opening date, resulting in many major changes in personnel and in advertising policies. After successful stands in Madison Square Garden, New York City, and Boston, Mass., which produced grosses of \$2,000,000 and \$250,000, respectively, the show's business declined sharply, and was spotty throughout the rest of the country. Such cities as Chicago, San Francisco, and Los Angeles, usually very profitable stands, fell far below average. The show extended its season to Dec. 4, 1955, for the longest tour in its history, to try to recoup some of its earlier losses. The Clyde Beatty Circus, the only other railroad show, confined its playing strictly to the West and, after a spotty season, closed early in New Mexico.

Rodeos.—More than half of the country's 250 rodeos were played in connection with county and district fairs and provincial exhibitions. Generally they fared very well. Rodeos which were staged independently were less successful, lacking publicity and the prestige of the fairs.

The Calgary (Alberta) Stampede, best of the outdoor rodeos, drew half a million attendance

in five days. The two major indoor contest events in the United States—the World's Championship Rodeo at Madison Square Garden, New York, and the International Rodeo at International Auditorium, Chicago—drew large attendance chiefly because they had Roy Rogers and Gene Autry, respectively, as added attractions.

NAT GREEN,
Chicago Representative, "Radio-Television Daily"; Former Manager, Chicago Office, Ringling Brothers and Barnum and Bailey Combined Shows, Inc.

CITRUS FRUIT. See FRUITS.

CITY PLANNING. Sustained interest in metropolitan regional planning and in problems of local transportation; continued activity in urban renewal and central business district development; and port and industrial planning, in large part stimulated by the St. Lawrence Seaway project, were outstanding features of city planning in the United States and Canada during 1955.

Metropolitan Planning.—The continued expansion of development beyond the boundaries of central cities has produced serious problems relating to municipal services and facilities which are beyond the ability of suburban municipalities and unincorporated areas to plan and finance. The rapid growth of unincorporated urbanized areas has thus accentuated the urgent need for comprehensive metropolitan planning. In Baltimore, Milwaukee, Savannah, and other cities, new or revived metropolitan planning activity has been undertaken. In Canada, stimulated by the example of the metropolitan government in the Toronto area, official studies of metropolitan organization are being carried on in Vancouver, Edmonton, Winnipeg, and elsewhere. Under the Housing Act of 1954, Detroit, Atlanta, and Little Rock have received federal aid for metropolitan planning.

Local Transportation.—Problems of local transportation planning are becoming increasingly urgent. Expressway systems are producing basic changes in city patterns, and mass transit facilities

are faced with more rapid declines in patronage. New and extended rapid transit systems, of both conventional and newer types, are being planned. Cleveland opened a rapid transit line in 1955, but early results were disappointing, mainly because the line was not yet integrated into a complete system.

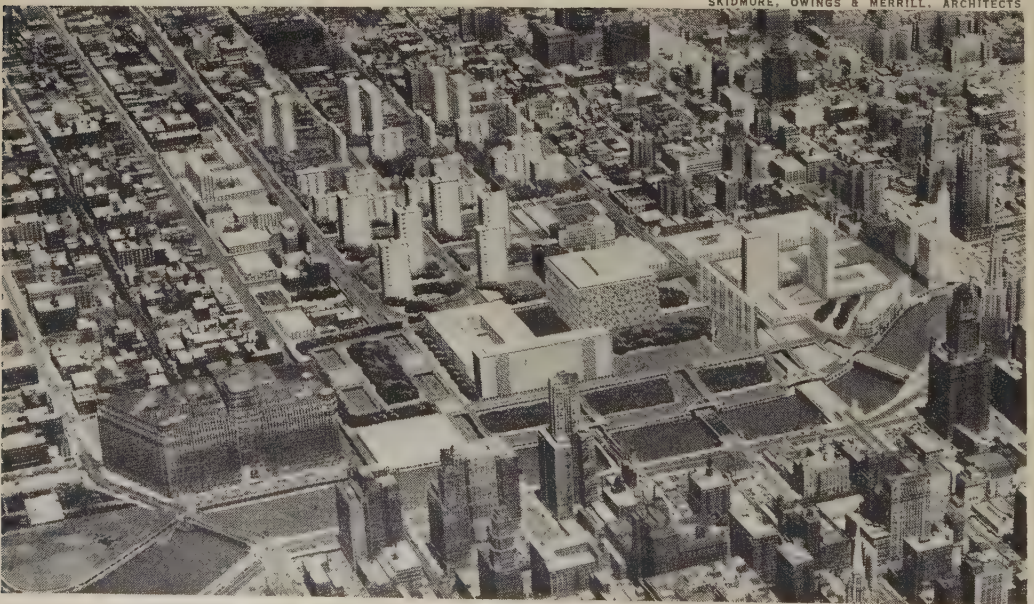
Meanwhile, automobile use continues to increase rapidly in nearly all cities, and focuses attention upon development of parking facilities and measures for relief of traffic congestion. Comprehensive studies of metropolitan transportation requirements are nearing completion in Detroit and Philadelphia, and are about to begin in New York and Chicago. In the largest urban areas, it is generally agreed that modern mass transit systems are essential but cannot be made self-supporting. (See also URBAN TRANSIT.)

Urban Renewal.—The renewal of older sections of cities, including both redevelopment of blighted areas and conservation of middle-aged areas, continues, stimulated by the federal Housing Act of 1954. Large areas of New York, Chicago, Detroit, and other cities are being redeveloped. Federal legislation has proved to be a significant stimulus. In spite of such activity, however, the sustained demand for housing and commercial construction on the outskirts of cities and in central business districts has increased the difficulties of renewal in other parts of cities.

Central Business Districts.—Central business districts of many large cities continue to attract new development. In New York, a midtown skyscraper boom is continuing. Chicago's Loop area saw completion of two skyscraper office buildings and ten large parking garages. Philadelphia's Penn Center greatly expands that city's downtown business district. Detroit, New Orleans, and other cities are building new downtown civic centers. (See also ARCHITECTURE.)

Recent studies show that central shopping continues in a healthy condition in spite of suburban developments. Although use of mass transit is declining in central business districts, automobile riding is increasing proportionately, putting greater emphasis on offstreet parking facilities

Architect's drawing of Fort Dearborn Project, superimposed on aerial photograph of downtown Chicago.



SKIDMORE, OWINGS & MERRILL, ARCHITECTS

and measures for the relief of traffic congestion.

Among central business district developments for which plans have been recently announced or on which construction has begun are: large air-rights developments over both Grand Central and Pennsylvania terminals in New York, and several other major new office buildings in the midtown area; a convention hall and two office buildings in Chicago, as well as the large Fort Dearborn project for a civic center and commercial development on the Near North Side; a very large hotel in downtown Montreal; completion of the Penn Center office and hotel project in Philadelphia; and new central district transit facilities in New York, San Francisco, Los Angeles, and Cleveland.

St. Lawrence Seaway.—As a consequence of the building of the St. Lawrence Seaway project (see CANALS), the major Great Lakes cities have all been actively planning port and industrial developments related to the seaway. In Chicago, plans were completed and construction begun on the first stage of a comprehensive port-industrial project ultimately to occupy 2,300 acres of Lake Calumet in the southern part of the city. Milwaukee is planning expansion of its municipal Lake Michigan terminals. Detroit, Toledo, Cleveland, and Buffalo have each completed studies of potential seaway traffic and are planning new waterfront terminals. Toronto recently opened the first of a series of modern marine terminals. Smaller cities, including Muskegon, Waukegan, Michigan City, Ashland, and Oswego, are actively conducting preliminary studies of possible port and industrial developments.

Four Canadian towns on the north side of the St. Lawrence River are to be built, relocating the residents, businesses, and facilities of eight existing towns. The latter will be partially or completely flooded by the water to be backed up by the Barnhart Island and Iroquois dams now under construction.

(See also HOUSING and the Index entry, *City Planning*.)

HAROLD M. MAYER,

Department of Geography, The University of Chicago; Former Director of Research, Chicago Plan Commission.

CIVIL AERONAUTICS ADMINISTRATION. Commercial aviation, with which the CAA is in part concerned, experienced a continuing steady growth in practically all categories during the 1955 fiscal year. Revenue passenger-miles flown by domestic scheduled carriers showed a 17% increase from the 15.6 billion miles in the fiscal year 1954 to 18.3 billion in 1955. Revenue passenger-miles flown by international scheduled carriers for the same period increased from 3.5 billion to 4.1 billion, or 17%. (See also AERONAUTICS.)

Under the Federal-Aid Airport Program, in the fiscal year ending June 30, 1955, allocations granted to 192 high-priority airport projects amounted to \$22,245,281. For the fiscal year ending June 30, 1956, \$62.5 million was made available, with 205 grants amounting to \$20 million already programmed. A recent amendment to the Federal Airport Act provides \$63 million for aid in each of the next three fiscal years.

During the fiscal year 1955, the length of VOR (very high frequency omnirange) airways was increased to 74,000 miles of primary and 25,000 miles of alternate airways. The number of VOR's was increased by 27, bringing the total to 410. The DME (distance measuring equipment)

system grew to number 231 ground stations. Ten instrument landing systems and 5 airport surveillance radars were installed, while a long-range surveillance radar commissioned at New York covers a radius of about 100 miles.

The increased use of direct radio communications between pilots and controller personnel in air route traffic control centers, and of radar as a traffic control tool, further expedited the handling of arriving and departing aircraft. Two additional military/civil radar approach control centers were commissioned, making a total of three in a program of 18.

Studies of the problems connected with the use of new-type aircraft now in service and proposed for the near future continued as the first turboprop-powered aircraft to be used in United States scheduled service, the Vickers Viscount, began flights between Washington and Chicago and between Washington and Norfolk. New, larger, and faster aircraft, such as the Douglas DC-7 and the Lockheed Super Constellation, were delivered, replacing older equipment. In the fiscal year 1955, civil aircraft manufacturers shipped 4,232 aircraft valued at \$267,972,000.

Because of continued increases in aviation activities, proposals were developed to place more responsibility for safety on the aviation industry and operators. A report containing the proposals was under consideration by industry groups and trade associations in 1955.

An important legal decision in the Cedarhurst case upheld the validity of government regulations on the basis that Congress pre-empted control of air space necessary for the flight of aircraft. The decision voided an ordinance of the village of Cedarhurst, N.Y., restricting low-altitude approaches to New York International Airport, as being in conflict with the paramount federal authority to regulate minimum flight altitudes.

The dynamic air traffic control simulator at the CAA Technical Development and Evaluation Center in Indianapolis was used to develop an improved air traffic control system for the Chicago area, preparatory to placing the second civil airport in operation. Using radar techniques, the system will permit a large increase in air traffic flow for the area.

The center's analyzer for determining the effectiveness of an aircraft fire-extinguishing system in flight was applied to the B-36 airplane with satisfactory results. Facilities were erected at the center for the conduct of full-scale fire tests on helicopters and for the investigation of explosion hazards associated with jet engine installations.

Evaluation tests were conducted on military radars between Boston and Norfolk to determine the feasibility of using some of the existing network of military equipment in conjunction with some civil radar in civil air traffic control. Present plans call for the first all-radar airway between these two points. From operation of this airway, the CAA expects to learn much that will be useful as radar coverage is expanded across the country.

A basis for evaluation of collision prevention devices was developed at the center. Two DC-3 airplanes (normally equipped and painted) were flown at each other in more than 140 tests to measure pilot reaction under simulated daytime collision conditions. Similar tests with devices installed for improving aircraft conspicuity and proximity warnings will produce the evaluation results.

During the year the CAA was authorized to

purchase airways aids for eight countries in Europe, the Near East, and Asia, under the Foreign Operations Administration (now International Cooperation Administration) program. This equipment will further the standardization of a common air navigation system for worldwide use. Twenty FOA/CAA missions and groups were in operation or being planned in 19 countries to give technical advice and assistance.

BEN STERN,

Director, Office of Aviation Information.

CIVIL AVIATION. See Index entry.

CIVIL DEFENSE. See Index entry.

CIVIL ENGINEERING. See BRIDGES; CANALS; DAMS; FLOOD CONTROL; HIGHWAYS; RAILROADS; TUNNELS.

CIVIL LIBERTIES. Two specific events and a "tendency" made 1955 a particularly significant year in the history of American civil liberties. The events were court decisions—one, a pronouncement by the U.S. Supreme Court laying down a pattern for enforcement of racial desegregation in the public schools of the United States (*Brown v. Board of Education of Topeka*, 75 S.Ct. 753); the second, a decision by an U.S. Court of Appeals, denying the secretary of state arbitrary power to withhold passports from Americans who wish to travel abroad (*Schachtman v. Dulles*, 23 *United States Law Week* 2665). The "tendency" was a marked relaxing of tension over problems of internal security and a disposition to re-examine methods employed in the recent past to combat the threat of subversion.

Segregation.—The Supreme Court had announced its decision on May 17, 1954, that racial segregation violated the 14th Amendment of the Constitution, but had postponed a decree giving that holding effect. In its pronouncement of May 31, 1955, the court solved the problem of implementing the fundamental principle by remanding the cases to the local courts in the districts where they had originated and instructing those courts to shape the various enforcement decrees in the light of local conditions. In fashioning the decrees, said the Supreme Court, the local courts "will be guided by equitable principles" which have been traditionally characterized by "practical flexibility" of remedy "and by a facility for adjusting and reconciling public and private needs." However, the Supreme Court made it clear that local court discretion was sharply limited by the mandate of the amendment. The establishment of unsegregated schools must take place "as soon as practicable," and the burden of proving that a delay is necessary for practical reasons must rest on the school districts themselves. Local feeling against a desegregation policy is not to be considered a valid ground for postponing its inauguration.

National reaction to the court's policy was variable, but it is probably a fair generalization to say that two broad patterns were emerging in the South: more or less willing compliance in the fringe areas where racial feeling was not so intense; and determined opposition in the deep South where a policy of segregation is very deeply rooted. (See also EDUCATION; NEGROES, AMERICAN.)

The Passport Decision.—For many years government attorneys have insisted that the granting or withholding of a passport is entirely a matter of executive discretion. But on June 23, 1955, the Court of Appeals for the District of Columbia

held that this was not the case, and that the refusal of a passport (which, of course, prevents the person involved from traveling abroad) is subject to judicial review on the question of whether due process of law has been granted. Said the court:

The right to travel, to go from place to place as the means of transportation permit, is a natural right subject to the rights of others and to reasonable regulation under law.

In this case, the secretary of state was assumed to have acted arbitrarily in denying a passport, since he had not answered the appellant's arguments in his own behalf. Just what procedural forms the secretary would have to comply with in order to meet the 5th Amendment's due process demands was not decided. But if the principle of the decision survives future court tests, it must be regarded as an important milestone in modern history of civil freedom.

Reconsideration of the Loyalty Problem.—Surely the most important development in 1955 was the tendency to take a long second look at the attitudes and measures which had been engendered by the subversion issue during recent years. Such broad alterations of viewpoint are almost impossible to evaluate with complete accuracy, but no observer could deny that the temper of officialdom had changed since the preceding year, and many evidently felt that the climate of popular opinion had also shifted.

One of the most dramatic manifestations of this different spirit toward civil liberties was the sharp decline in the political influence of Sen. Joseph R. McCarthy of Wisconsin. It would be hazardous to try to estimate the exact extent of his loss of popular support, but the fact beyond dispute was that both the leaders of his own party and the newspapers of the nation were paying far less attention to him than they had in 1954.

Meanwhile, a number of more specific straws in the wind could be identified. Subcommittees of the Senate committees on Government Operations and on Post Office and Civil Service began to inquire into past dismissals of federal employees for security reasons. Democratic Party threats to extend the range of these inquiries led to passage of an act which established a bipartisan 12-member commission to review the government's loyalty-security program for public employees and defense workers. The law, which vests power to appoint the commission in the president, the president of the Senate, and the speaker of the House, was signed by President Eisenhower on August 9.

Perhaps even more significant was the fact that in several well-publicized cases high administration officials reversed security decisions and apologized to the individuals who had been adversely affected by them. Eugene Landy, who had at first been denied a Naval Reserve commission in the U.S. Merchant Marine because of allegations against his mother, was granted his commission by order of Secretary of the Navy Charles S. Thomas. Wilber M. Brucker, secretary of the army, publicly apologized to Alfred P. Kelly of Wayne University, who had been incorrectly identified as pro-Communist by U.S. Army security officers. Wolf I. Ladejinsky, who had earlier been ruled a security risk by Secretary of Agriculture Ezra T. Benson, was hired for sensitive work by the International Cooperation Administration and later received Secretary Benson's

assurance that the adverse ruling had been cancelled and the whole matter expunged from the records.

Finally, the Supreme Court wrote a judicial footnote to the story of the employee-security question when it held that the Loyalty Review Board of the Civil Service Commission had exceeded its authority in holding that Dr. John P. Peters was a security risk (*Peters v. Hobby*, 23 *United States Law Week* 4311). The court's decision did not reach the constitutional issues Dr. Peters had raised, but its effect was to overturn the adverse judgment and thus to add one more to the lengthening list of such reversals in 1955.

(See also the Index entry, *Civil Liberties*.)

ROBERT G. McCLOSKEY,
Associate Professor of Government,
Harvard University.

CIVIL SERVICE, U.S. On June 30, 1955, there were 2,397,000 civilian employees in the federal government, a decrease of 10,000 since June 30, 1954. They were located as follows: 214,000 outside, and 2,183,000 within, the continental United States, including 232,000 in the Washington (D.C.) metropolitan area. The Department of Defense employed 50%; the Post Office Department, 21%; the Veterans Administration, 7%; and all other agencies, 22% of the total. Eighty-four per cent of all employees and 90% of those in the continental United States were in the competitive civil service.

During 1955, the Civil Service Commission, central personnel agency of the federal government, replaced a large number of professional entrance-level examinations with a single Federal-Service Entrance Examination open to college graduates regardless of their academic major. This new examination is expected to increase the yearly intake of recent college graduates.

A new "career-conditional" appointment system, designed to strengthen the career service, became effective Jan. 23, 1955, under Executive Order 10577 of Nov. 22, 1954. Indefinites on the rolls on January 23 who were appointed from civil-service eligible lists were converted to the new type of appointments. An act of Aug. 12, 1955, gave the new type of appointments to additional incumbents with at least three years of satisfactory service who pass qualifying examinations. A feature of the new system is that employees must complete three years of service before they are advanced to full career tenure, thereby demonstrating their competence for and interest in federal service, as well as the government's continuing need for their services.

In order to attract well-qualified applicants in shortage categories, the commission raised entrance salaries for certain grades in such fields as engineering, physical science, veterinary science, and medicine.

The commission also removed maximum age limits for civil-service examinations as provided by the Independent Offices Appropriation Act, 1956.

By agreement between federal agencies concerned and the commission, action was begun to bring approximately 35,000 federal positions in Alaska, Guam, and foreign countries under the competitive civil service. By September 1955 this action had been completed on 10,000 of the jobs in Alaska.

An act of June 28, 1955, increased by approximately 7½% the salaries of federal employees paid under the Classification Act, as well as of certain other executive, legislative, and judicial

branch employees. The \$14,800-a-year ceiling was maintained.

An act of June 10, 1955, increased the pay of employees of the postal field service about 8.1% by raising salary rates and classifying positions to place them in proper relation according to duties and responsibilities.

An act of July 28, 1955, increased maximum per diem rates for employees in travel status from \$9 to \$12, and mileage rates from 7 to 10 cents a mile for automobiles. Lower rates can be paid.

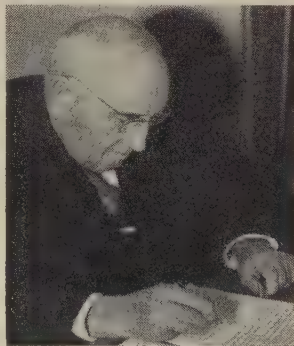
Civil-service annuitants received increases under an act of Aug. 11, 1955. Annuitants who retired before July 1, 1955, received increases of 12% on the first \$1,500 of yearly annuity and 8% on any excess, but no increase was provided for any annuity over \$4,104 a year.

PHILIP YOUNG,
Chairman, U.S. Civil Service Commission.

CLAUDEL, Paul-Louis-Charles-Marie, French author and diplomat: b. Villeneuve-sur-Fère-en-Tardenois, France, Aug. 6, 1868; d. Paris, France, Feb. 23, 1955. A distinguished diplomat whose many posts included the ambassadorship to the United States (1927-32), Paul Claudel has also been termed one of the most creative poet-playwrights of the 20th century.

He was educated at the Lycée Louis-le-Grande, and began his diplomatic career in 1893 as assistant consul in New York, following which he served at various diplomatic posts in the Far East (1894-1909), including Shanghai, Foochow, Tientsin, and Peking. Returning to Europe, he was appointed consul at Prague in 1910, and in the following year, consul-general at Frankfurt,

Paul Claudel
(d. Feb. 23, 1955)



FRENCH EMBASSY PRESS
AND INFORMATION SERVICE

Germany. In 1913 he was transferred to Hamburg. With his expulsion from German territory at the outbreak of World War I, he was appointed chargé d'affaires at Rome (1915-16); and at the end of the war he served with his government's economic mission to the United States. In 1917 he was promoted to the rank of minister and sent to Rio de Janeiro where he remained until 1920. After a brief period in Copenhagen, Claudel was appointed ambassador to Japan in 1921. He attained the peak of his diplomatic career in 1927-33 when he served as ambassador to Washington. From 1933 to 1935 he was ambassador to Brussels, retiring in the latter year to devote his full time to literature. He was elected to l'Académie Française in April 1946.

Paul Claudel's career as a writer was prolific and varied. Besides numerous poetic dramas, he wrote several volumes of poetry, travel literature, and literary and religious criticism, and translated Aeschylus' trilogy, the *Oresteia*. Paradoxically, he rediscovered Catholicism (1886) after

reading Rimbaud's *Illuminations*, and from then until his death he incorporated in his works the intensity and mystical nature of his religious beliefs.

Claudél's poetry, inspired by his Catholic faith, is lyrical and cosmic in its emotional and intellectual proportions. The poetry that best reflects his mysticism and reveals the lyrical grandness of his style has been published in *Cinq grandes odes* (1910) and *La cantate à trois voix* (1913). Other poetic volumes of a style more familiar in character include *Corona benignitatis anni Dei* (1915) and *La messe là-bas* (1919).

Attracted by the theater early in his career, Claudél developed a dramatic form whose style and spirit suggests a kinship with the religious theater of the Middle Ages. Difficult to perform because of their extraordinary length and their complex and often unorthodox structure, his plays are nevertheless capable of evoking an intense and positive response. Among them are *L'Échange*, written in 1893 (1901); *Partage de midi* (1906), considered his masterpiece; *L'Otage* (1911), the best known and least difficult to perform; *L'Annonce faite à Marie* (1912), originally written as *La jeune fille Violaine*; *Le soulier de satin*, written in 1919-24 (1929), the longest and most complex; *Le livre de Christophe-Colomb* (1930), the music of which was composed by Darius Milhaud; and *Jeanne au Bûcher* (1939).

Admired no less as a writer of prose, Claudél was the author of several works on the Far East, including *Un coup d'oeil sur l'âme japonaise* (1923) and *L'Oiseau noir dans le soleil levant* (1929). His works of criticism include *Positions et propositions, I-II* (1928-34) and *Contacts et circonstances* (1940). From his retirement in 1935 until his death he devoted most of his time to the study of the Bible, rejecting the modern radical criticism in favor of the traditional medieval interpretations. Prominent among his works of religious criticism are *Toi, qui es-tu?* (1936); *Un poète regarde la croix* (1938); *Introduction au livre de Ruth* (1938); *Introduction à l'Apocalypse* (1946); and *Le livre de Job* (1946). His more recent prose includes *Sous le signe du dragon* (1948); *Correspondance avec André Gide* (1949); and *Emmatis* (1950).

CLAY. Total clay of domestic origin, sold or used by producers in the United States (as reported to the U.S. Bureau of Mines), declined from 42,435,964 short tons (valued at \$125,202,672) in 1953 to 41,025,000 tons (valued at \$118,750,000) in 1954. The 1954 totals included 8,900,000 tons of fire clay, 1,875,000 tons of kaolin, 1,275,000 tons of bentonite, 400,000 tons of fuller's earth, 325,000 tons of ball clay, and 28,250,000 tons of miscellaneous clays. Clay imports increased from 149,111 tons in 1953 to 165,000 tons in 1954, and exports also increased from 302,388 tons in 1953 to 370,000 tons in 1954. (See also CERAMICS.)

CLEVELAND. Largest city in Ohio and seventh-ranking city of the United States in population, Cleveland is the center of one of the most rapidly growing industrial districts in the nation. The estimated population of the city proper (73.43 square miles) was 950,000 in 1955 (1950 census, 914,808), while Greater Cleveland (Cuyahoga County) had a population of 1,600,000, with a growth of more than 3% for the year.

Mayor Anthony J. Celebrezze, Independent Democrat, was assured of a second term when he received 55% of the total votes cast for five

candidates at the city's primaries on Oct. 4, 1955. The City Council of 33 members continued to be largely Democratic.

Budget appropriations for 1955 totaled \$113,429,552.28; the city tax rate (1955), \$15.60 per \$1,000 of assessed valuation (\$2,387,744,450); and the overall net tax rate of city, county, and schools, \$32.10. The overall net city debt (Oct. 1, 1955) was \$185,738,500, and the net tax-supported debt (Jan. 1, 1956) was estimated at \$101,000,000. Of the ten largest cities in the United States, Cleveland has the lowest tax rate. Greater Cleveland school enrollment (public, parochial, and private) in October 1955 was 312,232; college and university enrollment, 26,056.

The district of northeastern Ohio, of which Cleveland is the metropolis, is developing rapidly in the categories of steel, chemicals, automotive products, titanium, petroleum, and machine tools. Of the 3,500 classifications of product manufacturers in the country, two thirds are represented in this area. Industrial expansion in Cleveland involved the expenditure of \$131 million in 1954; and in 1955, three companies announced expansions totaling \$170 million for the immediate future. In 1955 metropolitan Cleveland was achieving an all-time high for contracts awarded for future construction. Totals for the first seven months included \$103,303,000 for nonresidential and \$167,363,000 for residential buildings. Total employment in Greater Cleveland on Oct. 1, 1955, was 655,600; unemployment, 18,000; and average weekly earnings of production workers, \$90.40.

Among the many evidences of business progress in 1954-55 were: the building of a central bridge across the Cuyahoga Valley; the final planning of a 22-story office building for the Public Square (estimated cost, \$17 million); a \$9 million Parcel Post Annex; progress in urban renewal, with large sums expended in community planning and development; completion of the City Hospital's Research Laboratory, one of the most complete of its kind in the nation; \$8 million worth of improvements in the airport terminal; the opening of three major suburban shopping centers; the building of a \$3,500,000 Cuyahoga County administration building; and modernization of the Great Lakes fleets.

The Ohio Turnpike (see OHIO) opened in 1955, and connects with Cleveland through several interchanges. A rapid transit system from the Union Terminal on the Public Square, to east and west over a route of 13 miles, was completed in 1955 at a cost of approximately \$30 million. Expansions of the system were being studied.

WILLIAM GANSON ROSE,
Public Relations Counsel; Author, "Cleveland
—The Making of a City."

CLIMATE. See METEOROLOGY.

CLOTHING INDUSTRY. Practically all branches of the apparel trades made encouraging volume gains during the first half of 1955. This followed a year in which women's wear, as a whole, showed improvement while men's wear sales dropped.

Net shipments of women's, misses' and juniors' outerwear in 1954 amounted to \$2,921 million, compared with \$2,743 million in 1953. A breakdown of items (in millions of dollars, with 1953 figures in parentheses) is as follows: unit-price dresses, \$1.175 (\$1.081); dozen-price dresses, \$353 (\$354); coats and suits, \$865 (\$810); blouses, \$327 (\$310); skirts, \$201 (\$188).

The value of total net shipments of these merchandise types for the first six months of 1955 was \$1,531 million, compared with \$1,432 mil-

lion for the same period of 1954. A breakdown of items for the first half of 1955 (in millions of dollars, with the corresponding 1954 figures in parentheses) is as follows: unit-price dresses, \$702 (\$636); dozen-price dresses, \$202 (\$194); coats and suits, \$353 (\$365); blouses, \$168 (\$151); skirts, \$106 (\$86).

Production for 1954 (in thousands of units, with 1953 figures in parentheses) was: unit-price dresses, 138,100 (135,774); dozen-price dresses, 110,676 (111,264); coats, 25,679 (23,762); suits, 14,143 (14,087); blouses, 168,132 (152,460); skirts, 72,420 (71,160).

Production for the first six months of 1955, compared with the corresponding period of 1954 (in thousands of units, with 1954 figures in parentheses) was: unit-price dresses, 83,807 (79,374); dozen-price dresses, 67,908 (59,460); coats, 11,065 (11,792); suits, 8,077 (7,449); blouses, 94,884 (86,496); skirts, 40,920 (35,916).

In the first seven months of 1955, 3.2% more units were produced in the dress market than in the same period of 1954, but dollar value rose 8.1%. This reflected a relatively stronger demand for higher-priced than for lower-end goods. Somewhat similar trading-up was evidenced in dozen-price dresses.

Production of men's apparel in 1954 (in thousands of units, with 1953 figures in parentheses) was as follows: suits, 19,301 (21,774); overcoats and topcoats, 4,245 (5,656); separate dress and sport trousers, 56,112 (52,576).

Output for the first six months of 1955 (in thousands of units, with figures for the same period of 1954 in parentheses) was: suits, 11,126 (10,001); overcoats and topcoats, 2,337 (2,051); trousers, 33,300 (29,204).

Manufacturers' shipments of children's and infants' outerwear in 1953 amounted to \$621 million, compared with \$575 million in 1952.

New York City ranks first among the major United States markets in all apparel categories. A 1952 analysis shows the following percentage breakdown for manufacturers' sales of leading merchandise types in the five largest production centers:

	Women's dresses ¹	Women's coats and suits ²	Men's tailored clothing ³	Men's furnishings and work clothing ⁴
New York.....	65.8	71.7	37.7	36.0
Los Angeles.....	5.7	5.4	...	3.3
Philadelphia.....	4.4	...	9.6	3.1
Chicago.....	4.3	3.1	8.1	4.0
Boston.....	2.4	4.4	...	...

¹ Preliminary 1953 results, based on the results of almost 30% of the dress manufacturers accounting for 30% of total trade volume, show sales 10% higher than for 1952. ² Kansas City, with 2.2% of coat and suit sales, ranks fifth. Preliminary 1953 results, based on more than 30% of the trade's firms and sales, show coat and suit volume 8% ahead of 1952.

³ Baltimore, with 7.2% of men's tailored clothing volume, ranks fourth. Preliminary 1953 results, based on about 500 men's clothing firms, indicate sales 9% up from 1952.

⁴ Nashville, with 2.8% of men's furnishings and work clothing sales, ranks fifth.

The apparel industry ranked eleventh in value of sales in 1954, the same as in 1953 and a notch behind the 1952 standing. Preliminary volume for 1954 was \$10,621,000,000, one half of 1% higher than for 1953.

Canada.—The total estimated value of Canadian-made clothing in 1954 was \$638,932,000, as compared with \$697,189,000 in 1953. Preliminary figures for the three major merchandise categories (in thousands of dollars, with 1953 figures in parentheses) are: men's apparel, \$229,561 (\$273,946); women's apparel, \$217,-

702 (\$220,410); children's wear, \$44,245 (\$45,348).

SAMUEL FEINBERG,
Columnist, "Women's Wear Daily."

COAL. The world output of coal reached 1,959 million metric tons in 1953 and 1,952 million tons in 1954. (See MINERAL PRODUCTION for output of major countries.)

United States.—Coal production has been reported as follows (in thousands of short tons):

Year	Anthracite	Bituminous	Total	Change (per cent)
1948.....	57,140	599,518	656,658	-4.5
1949.....	42,702	437,868	480,570	-26.8
1950.....	44,077	516,311	560,388	+16.6
1951.....	42,670	533,665	576,335	+2.8
1952.....	40,583	466,840	507,423	-12.0
1953.....	30,949	457,290	488,239	-3.8
1954 ¹	27,118	392,000	419,118	-14.2
1955 ²	21,197	399,094	420,291	+14.5

¹ Preliminary. ² January 1 through the week ending November 12. (Source: U.S. Bureau of Mines.)

The decline in bituminous coal production, which characterized three successive years until the end of 1954, was reversed by a strong increase in output during 1955. The expanded production, compared with 1954, began in January 1955 and by October had been maintained or increased during each succeeding month. The gain up to October 15 was 20%, compared with the like period of 1954. The increase was due primarily to strong industrial activity, which was supplemented by an expansion in export trade, particularly overseas shipments.

Anthracite production, which suffered a 23% decline in 1953 compared with 1952, receded moderately in 1954; and, according to preliminary estimates, in 1955 dropped 4% below the 1954 level.

Canada.—Coal production of 15,900,000 short tons in 1953 declined to 14,906,000 tons in 1954, and reached 9,814,481 tons during the first 9 months of 1955.

Germany.—Production of bituminous and anthracite coal in West Germany increased from 125,653,000 metric tons in 1953 to 129,032,000 tons in 1954 (86,829,000 tons during the first 8 months of 1955). Corresponding figures for lignite were: 84,690,000, 87,811,000, and 57,808,000. East German production of bituminous and anthracite coal was 3,148,000 metric tons, and of lignite, 178,266,000 tons in 1954.

United Kingdom.—Coal production was 227,801,000 metric tons in 1953; 227,649,000 tons in 1954; and 143,374,000 tons during the first 8 months of 1955.

(See also EUROPEAN COAL AND STEEL COMMUNITY; MINING.)

OLIVER BOWLES, *Former Chief, Nonmetals Division, U.S. Bureau of Mines;* and
BERENICE B. MITCHELL, *Foreign Minerals Staff, U.S. Bureau of Mines.*

COAST AND GEODETIC SURVEY, U.S. Increasing emphasis on aviation and national preparedness was a special factor influencing operations of this bureau in 1955. New charts for the aviation industry and surveying operations in Alaska were given first priority in carrying out the work program for the year.

Geodetic Surveys.—Of special significance in the United States was the extension of horizontal control into the offshore area along the coast of Louisiana. Geographic positions and related mapping data were collected for use by government agencies, states, and private organizations in locating well drillings and lease blocks. Primary horizontal control was extended into the interior of Alaska. Gravimetric measurements were made in many areas of the United States, and an inter-continental connection was made between New York and Rome, Italy, transporting gravimeters by air.

Hydrographic Surveys.—Seventeen ships and two shore-based parties operated along the United States coasts and in Alaska, using modern navigational and electronic equipment. Major Alaskan surveys were concentrated in the Aleutian Islands, Alaska Peninsula, and other areas. New surveys were begun in the Gulf of Maine in a region under study in the fisheries program. Hydrographic surveys controlled by electronic methods were extended over 500 miles offshore.

Tides and Currents Surveys.—Observations and investigations of tides and currents along the United States coasts were continued to provide basic data for the prediction of tides and currents in support of maritime commerce and for engineering projects important to the commercial and industrial development of coastal areas. Six volumes of annual tide and current tables were published. Data obtained on temperature and density of sea water at tide stations are published in four volumes, one of which is revised annually.

Photogrammetric Surveys.—Changes in the topography of coastlines caused by forces of nature and the rapid industrial and cultural development of the nation were mapped from aerial photography for the revision of charts. The program includes both the preparation of large-scale original maps and the revision of existing maps. This information is used extensively for local planning and engineering purposes, and for settlement of property boundaries involving coastal areas.

Geophysics.—The magnetic survey of the United States and Alaska was continued, with observations at 26 new stations and seven repeat stations supplementing results from seven magnetic observatories. The new observatory and laboratory near Fredericksburg, Va., was completed, and some of the new instruments were in operation by the end of the year. A new series of world magnetic charts for the 1955 epoch was compiled and published as a joint undertaking with the Navy Hydrographic Office.

Seismological services included prompt location of 1,153 earthquakes. One new and eight old stations were operated, and close cooperation was maintained with 15 others.

Charts.—Production of charts rose to over 45 million copies. Nautical charts on issue increased to 808 at the end of the year. The program of reconstructing and modernizing nautical charts was continued. Aeronautical charts increased by 80 for a total of 1,550. Nine new route charts were published to replace the old series of area charts. A new chart covering the Pacific air routes from Seattle to the Orient was added to the series of aircraft position charts. Acetate drawings were introduced to replace opaque material for chart revision at a substantial annual saving. A new-type transfer ink developed by the bureau for indicating revisions on acetate drawings simplified negative preparation for reproductions.

Research and Development.—An experimental pressure tide gage was designed, utilizing light rays as a pressure-sensing device instead of the mechanical arrangement originally used. The geodimeter was used successfully in observing over extensive water areas in making island connections with the mainland. An improved method was developed for pointing and focusing this new electronic distance-measuring device. Special tent poles were designed from magnesium tubing for use by field parties supplied by airlift.

H. ARNOLD KARO,
Rear Admiral, USCGS; Director, U.S. Coast
and Geodetic Survey.

COAST GUARD, U.S. Operations of the U.S. Coast Guard in the fiscal year 1955 were directed primarily toward carrying out its traditional peacetime mission: the maintenance of safety and order on the high seas and navigable waters of the United States. Diminished requirements for search and rescue facilities, for ocean weather station coverage in the Pacific Ocean, and for port security facilities in the United States resulted in the inactivation of 4 cutters in addition to the 12 previously deactivated. Available funds were reduced from \$226,870,872 to \$208,705,170. Military personnel strength was at 28,500, approximately the same level as the preceding year, while authorized civilian personnel totaled 5,314, as compared with 5,128 during the previous year.

Throughout 1955 the Coast Guard continued to carry out its regular duties of maritime law enforcement; promotion of safety and efficiency in the merchant marine; inspection of merchant vessels and enforcement of regulations for motorboats; operation of aids to navigation, including lighthouses, buoys, and electronic signals; the protection of life and property at sea; rescue and aid of persons, vessels, and aircraft in distress; operation of ocean stations and the International Ice Patrol; and maintenance of a state of military preparedness.

The volume of law-enforcement activity during the year was as follows: vessels and motorboats boarded, 83,323; reports of violations of the Motorboat Act, 6,166; reports of violations of port security regulations, 2,695; permits to load or discharge explosives, 1,473; tonnage of explosives covered by permits, 363,194; explosive loadings supervised, 1,469; regattas patrolled, 801; merchant mariners' documents issued bearing evidence of security clearance, 18,826; waterfront workers screened for security, 30,668; and total rejected as poor security risks, 52.

The Coast Guard also helped to enforce the Oil Pollution Act, anchorage regulations, and laws relating to internal revenue, customs, immigration, quarantine, and the conservation and protection of wildlife and fisheries.

Facilities used in assistance operations included a system of 143 lifeboat stations, together with communications centers, bases, vessels, and aircraft at strategic points along the coasts and inland waterways. Assistance rendered during the year included 19,045 assistance calls responded to; 3,242 lives saved or persons rescued from peril; and 1,215 vessels refloated.

During the year, 2,483 marine casualties were reported, of which 1,938 cases were considered closed. No inspected and certified American passenger vessel was involved in a serious accident, but marine casualties claimed 4 lives.

The Coast Guard completed 5,743 inspections of merchant vessels with a gross tonnage of 17,583,700; made drydock examinations of 4,538 vessels, with a total tonnage of 16,794,052; carried out 19,283 miscellaneous inspections; numbered 358,411 undocumented vessels; and reviewed plans for 11,728 merchant vessels.

A total of 38,389 aids to navigation was maintained in the United States and its territories and possessions, in the Trust Territory of the Pacific Islands, and at overseas military bases. These aids included 49 loran stations, 378 manned light stations, and 53 lightships.

The Coast Guard's larger ships consisted of 178 cutters and buoy tenders of various types. Fixed and rotary-wing aircraft in operation numbered 126. Coast Guard reserve strength com-

prised 3,499 officers and 20,492 enlisted personnel.

The Coast Guard Auxiliary, a nonmilitary organization of volunteers, was active in 328 communities in the promotion of safety and efficiency in the operation of small boats. Its 12,747 members examined 25,245 motorboats, patrolled 297 regattas, and answered 2,535 calls for assistance.

A. C. RICHMOND,
Vice Admiral, USCG, Commandant.

COBALT. World production of cobalt established a new high of 14,500 short tons in 1954, a gain of 7% over 1953. A new plant of the International Nickel Company at Port Colborne, Ontario, began production in October 1954. Production increased substantially in Northern Rhodesia and the Belgian Congo. United States production increased from 1,251,160 pounds in 1953 to 1,990,677 pounds in 1954.

United States production of cobalt metal from domestic and imported ores declined to 2,805,258 pounds (cobalt content) in 1954, a loss of 0.5% from 1953. It reached 1,888,256 pounds in the first 7 months of 1955. The cobalt content of other compounds (oxide, hydrate, and others) dropped to 1,210,660 pounds in 1954 (1,401,036 pounds in 1953). It reached 978,337 pounds in the first 7 months of 1955.

The 4-year upward trend in imports of cobalt into the United States was reversed in 1954 when imports amounted to 16,871,000 pounds (cobalt content), a decline of 2% from the record year 1953. Imports in 1954 comprised 14,227,754 pounds of metal and cobalt content in other forms as follows: oxide, 318,000 pounds; white alloy, 2,360,551 pounds; ore, 3,349 pounds; and salts and compounds, 74,000 pounds. Imports were recorded from Northern Rhodesia for the first time. Consumption of cobalt in the United States in 1954 was 7,350,000 pounds, a decline of 32% from 1953. The decline is due primarily to a lesser use of cobalt in various alloys. (See MINERAL PRODUCTION for output of major producing countries.)

COCOA. World cocoa (cacao bean) production in the 1955-56 crop year was forecast at 1,784 million pounds, compared with 1,745 million pounds in 1954-55 and 1,603 million pounds in 1953-54. The output of the leading producers was as follows (in millions of pounds):

	1953-54	Preliminary 1954-55	Forecast 1955-56
Gold Coast ¹	483 ²	512 ²	512
Brazil.....	271	372	348
Nigeria ³	218	182	202
Ivory Coast.....	117 ²	145 ²	145
French Cameroons.....	125	128	141
Dominican Republic.....	66	84	85
Ecuador.....	66	56	71

¹ Includes British Togoland. ² Adjusted for estimated quantity produced in the Gold Coast and moved across the border for marketing in French territories. ³ Includes British Cameroons.

COFFEE. Total world production of green coffee for the marketing year 1955-56 was estimated at 46.5 million bags (of 132.3 pounds each), a record crop season. This production would exceed the revised estimate of 41.3 million bags in 1954-55 by almost 13%, and the 1935-39 average output of 41.6 million bags by about 12%.

Exportable production from the 1955-56 crop was expected to reach 38.3 million bags, more than 5 million bags above the preceding year, and 9.5 million more than in the immediate postwar period, 1946-50.



U. S. COAST GUARD

Coast Guard crewmen break ice on the cutter *Unimak*, on ocean station patrol off the coast of Labrador.

In recent years coffee production has been increasing in Africa, particularly in French West Africa, and in some of the North American countries, notably Mexico. South America, which in 1935-39 accounted for three fourths of all coffee produced, has in recent years produced about two thirds of the world total. The severe frost of 1953 in Brazil damaged coffee trees less than had been feared. This fact, and the large number of new trees coming into production, indicate increasing South American and world output in the years ahead.

United States imports of coffee were estimated at about 19 million bags for 1955. This compares with 21 million bags in 1953 and only 17 million in 1954 when high prices reduced imports sharply. Per capita consumption of coffee in the United States was estimated at 14.6 pounds for 1955, compared with 16.7 in 1953 and the 1935-39 average of 13.9 pounds.

PRODUCTION OF GREEN COFFEE, BY MAJOR COUNTRIES (1,000 bags)

	1935-39 average	1954-55*	1955-56*
Brazil.....	25,340	17,600	22,200
Colombia.....	4,452	6,700	7,200
French West Africa.....	250	1,450	1,835
Mexico.....	959	1,600	1,600
Indonesia.....	1,961	980	1,170
El Salvador.....	1,091	1,335	1,100
Guatemala.....	1,002	1,080	1,090
World.....	41,886	41,291	46,498

* Preliminary estimate. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

C. J. ENZLER,
Administrative Officer, Office of the Secretary,
U.S. Department of Agriculture.

COFFIN, Robert P(eter) Tristram, American author and educator; b. Brunswick, Me., March 18, 1892; d. Portland, Me., Jan. 20, 1955. Best known as a poet of the New England scene and Pulitzer Prize winner in 1936, Coffin was also successful as a prose writer, illustrator, teacher, and lecturer.

Coffin was born of an old family of Nantucket whalers, and grew up on his father's salt-water farm at Harpswell on Great Island, Me. He

was graduated from Bowdoin College in 1915, and in the following year received his M.A. degree from Princeton University. As a Rhodes scholar from Maine, he spent the year 1916-17 at Trinity College, Oxford, before his study was interrupted by service in World War I. Returning to Oxford in 1919, he proceeded to take his B.A. degree in 1920 and his B. Lit. degree in 1921.

On his return to the United States in 1921, Coffin accepted an instructorship at Wells College, Aurora, N.Y., where he became professor of English in 1928 and remained until 1934. During this period he published his first volume of poetry, *Christchurch* (1924). Besides his accomplishments as poet and teacher, Professor Coffin was instrumental in introducing at Wells the Oxford system of honors work in English. In 1934 he was appointed Pierce professor of English at Bowdoin, where he remained, with the exception of brief leaves of absence, until his death. From 1937 to 1939 he was book review and poetry editor of *Yankee*, and from 1948 to 1953 he taught at Corpus Christi Fine Arts Colony. Throughout this period he lectured frequently and widely. In 1953-54 he was a Fulbright special lecturer on American literature and civilization at the University of Athens, Greece.

In 1935, Coffin was awarded the gold medal as National Honor Poet. In 1936 he won the Golden Rose of the New England Poetry Society, and in the same year, the Pulitzer Prize for his volume of poetry, *Strange Holiness*, published in 1935. He was elected a member of the National Institute of Arts and Letters in 1946.

His verse is characterized by a highly optimistic view of and an uninhibited sentimentality for man. The imagery of the poems is common and earthy; the language, informal and straightforward; and the tone, robust and masculine. Drawing from his background and youthful experiences, he created in his poems a romantic legend of Maine—its people, history, and natural surroundings. His numerous volumes of poetry include *Dew and Bronze* (1927); *Ballads of Square-Toed Americans* (1933); *Saltwater Farm* (1937); *People Behave Like Ballads* (1946); *Collected Poems* (enl. ed., 1948); and *Apples By Ocean* (1950).

Coffin was a prolific writer. Besides poetry, he wrote several volumes of essays, including *Book of Crowns and Cottages* (1925); *An Attic Room* (1929); *Book of Uncles* (1942); *Mainstays of Maine* (1944); and *Yankee Coast* (1947); three novels, *Red Sky in the Morning* (1935); *John Dawn* (1936); and *Thomas-Thomas-Ancil-Thomas* (1941); several biographies, including *Laud, Storm Center of Stuart England* (1930); *The Dukes of Buckingham* (1931); and *Portrait of an American* (1931); an autobiography, *Lost Paradise* (1934); a volume of literary criticism, *New Poetry of New England: Frost and Robinson* (1938); and a history, *Kennebec: Cradle of Americans* (1937), the first volume in the *Rivers of America* series. He also compiled, with Alexander M. Witherspoon, the popular text, *A Book of Seventeenth-Century Prose and Poetry* (1929).

COINS AND COINAGE. See MINT ESTABLISHMENT.

COKE. World production of coke in 1954 totaled 210,000,000 metric tons, of which the United States produced 26%, as compared with 32% in 1953. (See MINERAL PRODUCTION for output of major countries.)

The United States output of coke declined from 78,836,857 short tons in 1953 to 59,662,496 tons in 1954, including 59,061,442 tons of by-product coke and 601,054 tons of beehive coke. A striking change in 1954 production was the drop in beehive output to less than one eighth of the 1953 figure. This was due largely to lower operating rates and higher fuel efficiency in iron

blast furnaces. Production through August 1955 (48,717,814 short tons) indicated a substantial recovery. The 1954 output required 85,619,619 tons of coal, which, in addition to the coke produced, supplied 3,958,076 tons of coke breeze. Consumption in 1954 was 59,280,816 short tons, of which 51,973,401 tons were used in blast furnaces, 2,568,561 tons in foundries, 3,472,132 tons in other industries, and 1,266,722 tons in residential heating.

COLD, Common. See Index entry.

COLLEGES AND UNIVERSITIES. A selected list of the major colleges and universities in the United States and its possessions and in Canada appears on the following pages. Statistics, unless otherwise indicated, are for the full 1954-55 academic year. All information concerning these institutions has been supplied by the head or registrar of each. (See also EDUCATION; and for a more complete list of institutions of higher education in the United States, consult the *Education Directory*, Part 3, "Higher Education," published annually by the Office of Education, Department of Health, Education, and Welfare, Washington, D.C.)

COLLIER, Constance (real name LAURA CONSTANCE HARDIE), Anglo-American actress: b. Windsor, Berkshire, England, Jan. 22, 1878 or 1880; d. New York, N.Y., April 25, 1955. Constance Collier, regarded by some drama critics as one of the outstanding actresses of the modern theater, was the daughter of Shakespearian actors. She made her stage debut at the age of three or four as a fairy in *A Midsummer Night's Dream*. After appearing in London as one of George Edwardes' famous Gaiety Girls, she joined Wilson Barrett's company in 1896 to play Ancaria in his famous play, *The Sign of the Cross*.

Scoring her first triumph in 1898 as the gypsy Chiara in H. V. Esmond's *One Summer's Day*, Miss Collier joined Sir Herbert Beerbohm Tree's company at His Majesty's Theatre in London in 1901. There followed a seven-year period in which her most memorable parts included the title role in *Tribly*, Mistress Ford in *The Merry Wives of Windsor*, Portia in *Julius Caesar*, Viola in *Twelfth Night*, and Cleopatra in *Antony and Cleopatra*.

Miss Collier made her Broadway debut (with William Gillette) in October 1908 at the Criterion Theatre as Anne-Marie in Henri Bernstein's *Samson*. Among her successes during this period were her roles as Juliet in *Romeo and Juliet* (London, 1910); Imogen Parrott in *Trelawny of the Wells* (New York, 1911); Love in *The Vision of Delight* (London, 1911); Nancy Sykes in *Oliver Twist* (New York, 1912); Emilia in *Othello* (New York, 1914); and Lady Sneerwell in *A School for Scandal* (London, 1915). On July 23, 1915, she made her first appearance as the Duchess of Towers in *Peter Ibbetson*, adapted by John N. Raphael and Miss Collier from the George du Maurier novel. Taking the play to the United States after considerable revision, she induced John Barrymore to play the role of Peter. It received its New York premiere on April 18, 1917, and became one of the plays with which Miss Collier's name is most closely associated. This second period of her career came to a close when her actor-husband, Julian L'Estrange, died late in 1918.

Returning to the stage in a revival of *Peter Ibbetson* in February 1920, Miss Collier em-
(Continued on Page 169)

MAJOR COLLEGES AND UNIVERSITIES, U.S. AND CANADA, 1954-1955

† Statistics for 1953-54 school year (latest data received from institution). * Statistics as of beginning of fall term, 1955-56. The following letter symbols are used in this table:

AdC—Advent Christian
AG—Assemblies of God
AL—American Lutheran
AMA—American Missionary Association
AME—African Methodist Episcopal
AMEZ—African Methodist Episcopal Zion
Bapt—Baptist
Br—Brethren
C—Coeducational
CBR—Church of the Brethren
CC—Church of Christ
CG—Church of God
CMA—Christian and Missionary Alliance
Cong—Congregational
DC—Disciples of Christ
Dom—Dominion

Dst—District
EL—Evangelical Lutheran
Epis—Episcopal
ER—Evangelical Reformed
EUB—Evangelical United Brethren
Fed—Federal
FM—Free Methodist
Fr—Friends
Inter—Interdenominational
Jew—Jewish
LDS—Latter-day Saints
Luth—Lutheran
M—Men only
MCA—Missionary Church Association
ME—Methodist Episcopal
Men—Mennonite
Meth—Methodist
Mor—Moravian
Mun—Municipal

Naz—Nazarene
Pres—Presbyterian
Pri—Private
Prov—Provincial
RC—Roman Catholic
Ref—Reformed
SDA—Seventh Day Adventist
SDB—Seventh Day Baptist
St—State
St-Dst—State-District
St-Pri—State-Private
Ter—Territorial
UL—United Lutheran
UCC—United Church of Canada
UP—United Presbyterian
W—Women only
YMCA—Young Men's Christian Association

¹ Faculty and students are all part-time. ² Locally sponsored and operated as part of the program of the State University of New York. ³ Campuses are located at Berkeley, Davis, La Jolla, Los Angeles, Mount Hamilton, Riverside, San Francisco, and Santa Barbara. ⁴ Chiefly part-time. ⁵ There are an additional 14,000 in overseas enrollment. ⁶ Most instructors are part-time. ⁷ Renamed Chatham College in 1955. ⁸ The faculty of Harvard University is also that of Radcliffe College. ⁹ The Colleges of the Seneca is the corporate name of Hobart (for men) and William Smith (for women) colleges, coordinated with the faculty and enrollment shown here for both. ¹⁰ All instructors are part-time. ¹¹ All students are part-time.

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Undergraduate	Graduate	
Abilene Christian College, Abilene, Texas.....	CC	1906	D. H. Morris.....	91	1,547	223	1,760 C
Acad. of Aeronautics, Inc., LaGuardia Field, N.Y....	Pri	1932	C. S. Jones.....	52	785	...	1,210*M
Acaedia University, Wolfville, N.S.....	Bapt	1838	W. Kirkconnell.....	60	598	62	689 C
Adams State College, Alamosa, Colo.....	St	1921	F. J. Plachy.....	48	946	101	1,047 C
Adelphi College, Garden City, N.Y.....	Pri	1896	P. D. Eddy.....	108	1,570	106	3,149 C
Agnes State College, Decatur, Ga.....	Pri	1889	W. M. Alston.....	54	535	...	538 W
Akron, University of, Akron, Ohio.....	Mun	1870	N. P. Auburn.....	145	...	...	5,548 C
Alabama, University of, University, Ala.....	St	1831	O. Carmichael.....	650	6,221	1,280	7,501 C
Alabama A. & M. College, Normal, Ala.....	St	1875	J. F. Drake.....	70	1,528	...	1,528 C
Alabama College, Montevallo, Ala.....	St	1896	F. E. Lund.....	62	749	30	795 W
Alabama Polytechnic Institute, Auburn, Ala.....	St	1872	R. B. Draughton.....	450	8,168	503	9,128 C
Alabama State Teachers Coll., Florence, Ala.....	St	1873	E. B. Norton.....	68	1,195	...	1,195 C
Alabama State Teachers Coll., Jacksonville, Ala.....	St	1883	H. Cole.....	55	2,274	...	3,398 C
Alabama State Teachers Coll., Livingston, Ala.....	St	1840	D. P. Culp.....	25	416	...	520 C
Alabama State Teachers Coll., Troy, Ala.....	St	1887	C. B. Smith.....	48	1,138	...	2,338 C
Alaska, University of, College, Alaska.....	Ter	1917	E. N. Patty.....	48	383	14	482 C
Albany State College, Albany, Ga.....	St	1903	W. H. Dennis, Jr.....	38	487	...	601 C
Alberta, University of, Edmonton, Alberta.....	Prov	1908	A. Stewart.....	253	3,662	224	6,445 C
Albion College, Albion, Mich.....	Meth	1835	W. Whitehouse.....	73	1,174	4	1,196 C
Albright College, Reading, Pa.....	EUB	1856	H. V. Masters.....	47	602	...	709 C
Alcorn A. & M. College, Lorman, Miss.....	St	1871	J. R. Otis.....	31†	571	...	859 C
Alfred University, Alfred, N.Y.....	St-Pri	1836	M. E. Drake.....	111	946	50	1,461 C
Allegheny College, Meadville, Pa.....	Meth	1815	L. L. Pelletier.....	71	922	8	1,057 C
Allen University, Columbia, S.C.....	AME	1870	S. R. Higgins.....	39	745	6	751 C
Alma College, Alma, Mich.....	Pres	1886	J. S. Harker.....	36	562	...	583 C
Alverno College, Milwaukee, Wis.....	RC	1936	Sr. M. Augustine.....	58	429	...	1,199 W
Amarillo College, Amarillo, Texas.....	Mun	1929	A. M. Meyer.....	35	763	...	763 C
American Academy of Art, Chicago, Ill.....	Pri	1923	F. H. Young.....	25†	230	...	735 C
American International Coll., Springfield, Mass.....	Pri	1885	J. F. Hines, Jr.....	54	840	132	1,018 C
American River Jr. College, Del Paso Heights, Calif.....	Dst	1955	B. Priest.....	34	575	...	1,663*C
American University, The, Washington, D.C.....	Pri	1893	H. Anderson.....	144	694	200	5,998†C
Amherst College, Amherst, Mass.....	Pri	1821	C. W. Cole.....	124	1,056	12	1,076 M
Anderson College, Anderson, Ind.....	CG	1917	J. A. Morrison.....	45	782	58	1,090 C
Antelope Valley Jr. College, Lancaster, Calif.....	Dst	1929	F. Fleming.....	16	452	...	1,519 C
Antioch College, Yellow Springs, Ohio.....	Pri	1852	S. B. Gould.....	105	980	...	996 C
Appalachian State Teachers College, Boone, N.C.....	St	1903	W. H. Flemmons.....	72	2,707	445	3,152 C
Apprentice School, Newport News, Va.....	Pri	1919	F. R. White.....	11	...	...	425 M
Aquinas College, Grand Rapids, Mich.....	RC	1923	A. F. Bukowski.....	...	504†	...	...
Arizona, University of, Tucson, Ariz.....	St	1885	R. A. Harvill.....	383	5,521	289	6,435 C
Arizona State College, Flagstaff, Ariz.....	St	1899	L. A. Eastburn.....	50	1,066	522	2,406 C
Arizona State College, Tempe, Ariz.....	St	1886	G. Gammage.....	225	4,283	975	5,258 C
Arkansas, University of, Fayetteville, Ark.....	St	1871	J. T. Caldwell.....	426	4,950	490	5,612 C
Arkansas A. & M. College, College Heights, Ark.....	St	1909	H. E. Thompson.....	54	925	...	925 C
Arkansas A. M. & N. College, Pine Bluff, Ark.....	St	1875	L. A. Davis.....	153	...	...	1,322 C
Arkansas Polytechnic College, Russellville, Ark.....	St	1910	J. W. Hull.....	65	983	...	983 C
Arkansas State College, State College, Ark.....	St	1909	C. B. Reng.....	90	1,800	...	3,000 C
Arkansas State Teachers College, Conway, Ark.....	St	1907	S. D. Snow.....	75	2,570	105	2,675 C
Arlington State College, Arlington, Texas.....	Pri	1918	E. H. Hereford.....	90	3,151	...	3,151 C
Armstrong College, Berkeley, Calif.....	St	1917	J. E. Armstrong.....	20†	891	...	891 C
Armstrong College of Savannah, Savannah, Ga.....	Mun	1935	F. M. Hawes.....	17	478	...	1,684 C
Art Center School, The, Los Angeles, Calif.....	Pri	1930	E. A. Adams.....	48	594	12	926†C
Art Institute of Chicago, Sch. of the, Chicago, Ill.....	Pri	1879	H. Ropp.....	42	925	20	3,684 C
Asbury College, Wilmore, Ky.....	Pri	1890	Z. T. Johnson.....	55	958	...	969 C
Asheville-Biltmore College, Asheville, N.C.....	Mun	1927	G. L. Bushey.....	14	171	...	465 C
Ashland College, Ashland, Ohio.....	Br	1878	G. L. Clayton.....	33	405	15	470 C
Assumption College, Windsor, Ont.....	RC	1857	E. C. LeBel.....	37	590	1	1,218 C
Atlanta University, Atlanta, Ga.....	Pri	1867	R. E. Clement.....	44	...	...	681 C
Atlantic Christian College, Wilson, N.C.....	DC	1902	T. A. White.....	30	540	...	711 C
Atlantic Union College, South Lancaster, Mass.....	SDA	1882	L. M. Stump.....	32	361	...	463*C
Augsburg Coll. & Theol. Sem., Minneapolis, Minn.....	Luth	1869	B. Christensen.....	41	649	27	831 C

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
Augustana College, Rock Island, Ill.	Luth	1860	C. Bergendoff	77	1,004	...	1,498 C
Augustana College, Sioux Falls, S.Dak.	EL	1860	L. M. Stavig	64	998	...	1,074 C
Aurora College, Aurora, Ill.	AdC	1893	T. P. Stephens	19	349	...	349 C
Austin College, Sherman, Texas	Pres	1848	J. D. Moseley	31	421	2	610 C
Austin Peay State College, Clarksville, Tenn.	St	1929	H. Harvill	65	967	35	1,858 C
Babson Institute, Babson Park, Mass.	Pri	1919	E. B. Hinckley	26	489	59	558 M
Baker University, Baldwin, Kans.	Meth	1858	N. P. Horn	36	578	...	578 C
Bakersfield College, Bakersfield, Calif.	Dst	1913	R. Prator	87	1,533	...	4,792 C
Baldwin-Wallace College, Berea, Ohio	Meth	1845	H. J. Smith	88	1,536	...	1,536 C
Ball State Teachers College, Muncie, Ind.	St	1918	J. R. Emens	189	4,511	1,207	6,636 C
Baltimore, University of, Baltimore, Md.	Pri	1925	T. H. Wilson	20	406	...	2,579 C
Baltimore College of Commerce, Baltimore, Md.	YMCA	1884	H. L. Bradley	10	715	93	808 C
Baltimore Junior College, Baltimore, Md.	Mun	1947	C. Katenkamp	28	468	...	571 C
Bank Street Coll. of Ed., New York, N.Y.	Pri	1916	L. S. Mitchell	10	...	30	229 C
Baptist Bible Seminary, Johnson City, N.Y.	Bapt	1932	P. R. Jackson	18	410	...	410 C
Barnard College of Columbia Univ., New York, N.Y.	Pri	1889	M. C. McIntosh	102	1,207	...	1,227 W
Barry College, Miami, Fla.	RC	1940	Moth. M. Barry	30	296	...	450 W
Bates College, Lewiston, Me.	Pri	1864	C. F. Phillips	54	831	...	833 C
Bay City Junior College, Bay City, Mich.	Dst	1922	E. J. Bradner	24	746	...	1,165 C
Baylor University, Waco, Texas	Bapt	1845	W. R. White	172	4,576	378	6,183 C
Beaver College, Jenkintown, Pa.	Pres	1853	R. M. Kistler	51	526	...	546 W
Beckley College, Beckley, W. Va.	Pri	1933	D. K. Shroyer	23	678	...	891 C
Bellarmine College, Louisville, Ky.	RC	1950	A. F. Horrigan	22	427	...	472 M
Beloit College, Beloit, Wis.	Pri	1946	M. Upton	68	933	8	941 C
Benedict College, Columbia, S.C.	Pri	1870	J. A. Bacotts	...	376†	...	...
Benjamin Franklin University, Washington, D.C.	Pri	1925	J. T. Kennedy	4*	193	...	929 C
Bennett College, Greensboro, N.C.	Meth	1873	D. D. Jones	37	467	...	467 W
Bennington College, Bennington, Vt.	Pri	1932	F. Burkhardt	44	341	5	349 W
Berea College, Berea, Ky.	Pri	1855	F. S. Hutchins	76	1,145	...	1,230 C
Berry College, Mount Berry, Ga.	Pri	1902	W. M. Martin	130	519	...	519 C
Bethany College, Lindsburg, Kans.	Luth	1881	R. Mortvedt	35	354	...	549 C
Bethany College, Bethany, W. Va.	Pri	1840	P. Greshman	45	445	...	499 C
Bethany Nazarene College, Bethany, Okla.	Naz	1899	R. H. Cantrell	45	860	...	902 C
Bethel College, North Newton, Kans.	Men	1887	D. C. Wedel	32	365	...	624 C
Bethel College, McKenzie, Tenn.	Pres	1842	R. N. Baker	21	419	...	419 C
Bethel College & Seminary, St. Paul, Minn.	Bapt	1871	C. H. Lundquist	34	360	110	528 C
Bethune-Cookman College, Daytona Beach, Fla.	Meth	1904	R. V. Moore	42	799	...	830 C
Bible Bapt. Seminary, Fort Worth, Texas	Bapt	1939	E. K. Oldham	7	287	4	291 C
Bible Inst. of Los Angeles, Inc., Los Angeles, Calif.	Pri	1908	S. Sutherland	35	650	72	824 C
Birmingham-Southern College, Birmingham, Ala.	Meth	1856	G. E. Snively	50	999	...	1,089 C
Bishop College, Marshall, Texas	Bapt	1880	M. K. Curry, Jr.	31	495	104	599 C
Bismarck Junior College, Bismarck, N.Dak.	Mun	1939	S. J. Lee	14	300	...	606 C
Black Hills Teachers College, Spearfish, S.Dak.	St	1883	R. E. Jonas	38	1,096	79	1,175†C
Blackburn College, Carlinville, Ill.	Pres	1857	R. P. Ludlum	27	315	...	327 C
Blinn College, Brenham, Texas	Dst	1883	T. M. Spencer	25	500	...	812 C
Bluefield State College, Bluefield, W.Va.	St	1895	S. J. Wright	34	364	...	525 C
Bob Jones University, Greenville, S.C.	Pri	1927	B. Jones, Jr.	110	2,101	157	2,101 C
Boise Junior College, Boise, Idaho	Mun	1932	E. B. Chaffee	54	938	...	2,035 C
Boston College, Chestnut Hill, Mass.	RC	1863	J. Maxwell	321	4,711	782	7,641 C
Boston University, Boston, Mass.	Pri	1839	H. C. Case	534	7,663	2,016	25,829 C
Bowdoin College, Brunswick, Me.	Pri	1794	J. S. Coles	71	787	...	792 M
Bowling Green State Univ., Bowling Green, Ohio	State	1910	R. McDonald	230	3,190	50	3,404 C
Bradford Jr. College, Bradford, Mass.	Pri	1803	D. M. Bell	30	302	...	303 W
Bradley University, Peoria, Ill.	Pri	1897	H. F. Rodes	144	2,193	150	4,525 C
Brandeis University, Waltham, Mass.	Pri	1947	A. L. Sachar	101	918	68	986 C
Brescia College, Owensboro, Ky.	RC	1925	Moth. A. Martin	19	165	...	500 C
Brier Cliff College, Sioux City, Iowa	RC	1930	Sr. J. Marie	25	325	...	565 W
Bridgeport, University of, Bridgeport, Conn.	Pri	1927	J. H. Halsey	100	1,365	100	2,800 C
Bridgeport Eng. Inst., Bridgeport, Conn.	Pri	1924	A. Keating	73	...	...	393†C
Bridgewater College, Bridgewater, Va.	Br	1880	W. D. Bowman	32	491	...	491 C
Brigham Young University, Provo, Utah	LDS	1875	E. L. Wilkinson	404	7,780	428	8,462 C
British Columbia, The Univ. of, Vancouver, B.C.	Prov	1908	N. MacKenzie	337	5,288	444	5,914 C
Brooklyn, Polytechnic Inst. of, Brooklyn, N.Y.	Pri	1854	H. S. Rogers	181	3,969	2,375	6,344 M
Brooklyn College, Brooklyn, N.Y.	Mun	1930	H. D. Gideonse	563	9,255	914	11,005 C
Brooklyn Law School, Brooklyn, N.Y.	St	1901	C. C. Lockwood	16	437	...	1,232 C
Broome County Tech. Institute, Binghamton, N.Y.	Pri	1947	C. Tyrrell	29	...	...	310 C
Brown University, Providence, R.I.	Pri	1764	B. C. Keeney	298	2,975	400	3,375 M
Bryn Mawr College, Bryn Mawr, Pa.	Pri	1863	H. L. Jacobs	72	1,450	...	1,950 C
Bucknell University, Lewisburg, Pa.	Pri	1885	K. E. McBride	84	632	77	777 W
Buena Vista College, Storm Lake, Iowa	Bapt	1846	M. M. Odgers	142	1,884	15	1,930 C
Buffalo, University of, Buffalo, N.Y.	Pres	1891	J. A. Fisher	33	386	...	620 C
Butler University, Indianapolis, Ind.	Pri	1846	C. C. Furnas	357	3,888	952	12,633 C
		1855	M. O. Ross	145	...	...	2,477 C
California, University of, Berkeley, Calif. ³	St	1868	R. G. Sproul	5,290	29,554	10,744	102,518 C
California Coll. of Arts and Crafts, Oakland, Calif.	Pri	1907	D. S. Defenbacher	25	400	50	600 C
California Inst. of Technology, Pasadena, Calif.	Pri	1891	L. DuBridge	360	578	429	1,007 M
California State Polytech. Coll., San Luis Obispo, Calif.	St	1901	J. A. McPhee	191	3,166	72	3,238 M
Calvin College, Grand Rapids, Mich.	St	1876	W. Spoelhof	60	1,740	...	1,740 C
Cameron State Agric. College, Lawton, Okla.	St	1909	C. V. Howell	33	620	...	1,163 C
Campbell College, Buie's Creek, N.C.	Bapt	1887	L. H. Campbell	31	782	...	782 C
Canal Zone Jr. Coll., Balboa Heights, C.Z.	Fed	1933	R. C. Hackett	11	151	...	424 C
Canisius College, Buffalo, N.Y.	RC	1870	P. E. Dobson	90	1,109	32	2,089 M
Capital University, Columbus, Ohio	AL	1850	H. L. Yochum	69	1,055	242	1,297 C
Capitol Radio Eng. Inst., Washington, D.C.	Pri	1927	E. H. Rietzke	25	310	...	560 M
Cardinal Stritch Coll., Milwaukee, Wis.	RC	1937	Sr. M. A. Miller	25	126	...	732 W
Carleton College, Northfield, Minn.	Pri	1866	L. M. Gould	79	887	...	891 C
Carleton College, Ottawa, Ont.	Pri	1942	J. A. Gibson	44	458	7	1,435 C
Carnegie Inst. of Technology, Pittsburgh, Pa.	Pri	1900	J. C. Warner	380	2,729	286	4,177 C
Carroll College, Helena, Mont.	RC	1910	R. Kavanagh	37	513	...	538 C
Carroll College, Waukesha, Wis.	Pres	1846	R. D. Steele	38	617	...	731 C

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Undergraduate	Graduate	
Carson-Newman College, Jefferson City, Tenn.	Bapt	1851	D. H. Fite	51	1,101	...	1,702 C
Carthage College, Carthage, Ill.	UL	1870	H. H. Lentz	31	418	...	518 C
Case Institute of Technology, Cleveland, Ohio	Pri	1880	T. K. Glennan	164	1,254	638	1,967 M
Casper College, Casper, Wyo.	Mun	1945	M. F. Griffith	33	314	...	2,405 C
Catawba College, Salisbury, N.C.	ER	1851	A. R. Keppel	42	535	...	558 C
Catholic Teachers College, Providence, R.I.	RC	1929	R. J. McVinney	22	400	...	400 W
Catholic Univ. of America, The, Washington, D.C.	RC	1887	B. McEntegart	381	1,550	750	3,836 C
Cedar Crest College, Allentown, Pa.	ER	1867	D. H. Moore	36	369	36	413 W
Centenary College, Shreveport, La.	Meth	1825	J. J. Mickle	57	1,205	...	1,205 C
Centenary Junior College, Hackettstown, N.J.	Pri	1867	E. W. Seay	34	461	...	461 W
Central Bible Institute, Springfield, Mo.	AG	1922	B. Peterson	34	710	...	710 C
Central College, Pella, Iowa	Ref	1853	G. T. Vander Lugt	36	376	...	379 C
Central College, Fayette, Mo.	Meth	1854	R. Woodward	39	569	45	614 C
Central Mich. Coll. of Educ., Mt. Pleasant, Mich.	St	1892	C. L. Anspach	196	2,858	...	5,625 C
Central Missouri State Coll., Warrensburg, Mo.	St	1871	G. W. Diemer	98	2,541	197	2,946 C
Central State College, Wilberforce, Ohio	St	1887	C. H. Wesley	86	965	...	1,000 C
Central State College, Edmond, Okla.	St	1890	W. M. Chambers	60	1,270	120	1,747 C
Central Technical Institute, Kansas City, Mo.	Pri	1932	C. L. Foster	25	750	...	8,750 C
Central Wash. Coll. of Educ., Ellensburg, Wash.	St	1891	R. E. McConnell	100	1,581	59	2,103 C
Centre Coll. of Kentucky, Danville, Ky.	Presb	1819	W. A. Groves	36	403	...	403 C
Chaffey College, Ontario, Calif.	Dst	1916	D. Milliken	78	1,650	...	1,920 C
Chattanooga, University of, Chattanooga, Tenn.	Pri	1886	D. A. Lockmiller	56	899	106	1,827 C
Chestnut Hill College, Philadelphia, Pa.	RC	1871	Sr. C. Frances	39	433	...	575 W
Chicago, University of, Chicago, Ill.	Pri	1892	L. A. Kimpton	776	2,337	3,025	7,546 C
Chicago Academy of Fine Arts, Chicago, Ill.	Pri	1902	R. V. Ford	15	120	80	400 C
Chicago City Jr. Coll., Crane Br., Chicago, Ill.	Mun	1934	L. M. Hrudka	31	732	...	1,209 C
Chicago City Jr. Coll., Wilson Br., Chicago, Ill.	Mun	1934	J. McCallister	108	2,370	...	2,370 C
Chicago City Jr. Coll., Wright Br., Chicago, Ill.	Mun	1934	P. Masick, Jr.	145	9,292	...	9,292 C
Chicago Medical School, Chicago, Ill.	Pri	1912	J. Sheinin	45	...	277	277 C
Chicago Teachers College, Chicago, Ill.	Mun	1869	R. M. Cook	103	2,805	97	6,043 C
Chicago Technical College, Chicago, Ill.	Pri	1904	C. W. Morey	14	421	...	928 M
Chico State College, Chico, Calif.	St	1889	G. Kendall	113	1,664	102	2,232 C
Christian College, Columbia, Mo.	DC	1851	J. C. Miller	36	316	...	316 W
Cincinnati, University of, Cincinnati, Ohio	Mun	1870	W. C. Langsam	417	5,206	701	14,580 C
Citadel, The, Charleston, S.C.	St	1842	M. W. Clark	113	1,586	...	1,586 M
Citrus Junior College, Azusa, Calif.	Dst	1915	M. Eisenbise	20	500	...	580 C
City College of the City of New York, N.Y.	Mun	1847	B. G. Gallagher	1,245	10,540	2,329	38,643 C
Claffin College, Orangeburg, S.C.	Meth	1869	J. J. Seabrook	...	442+	...	...
Claremont Graduate School, Claremont, Calif.	Pri	1925	G. C. Benson	23	...	123	507 C
Claremont Men's College, Claremont, Calif.	Pri	1947	G. Benson	20	368	...	368 M
Clark College, Atlanta, Ga.	ME	1869	J. P. Brawley	35	751	...	751 C
Clark College, Vancouver, Wash.	Mun	1933	P. F. Gaiser	50	792	...	2,306 C
Clark University, Worcester, Mass.	Pri	1887	H. B. Jefferson	64	630	135	830 C
Clarke College, Dubuque, Iowa	RC	1843	Sr. M. A. Graham	43	474	...	474 W
Clarkson College of Technology, Potsdam, N.Y.	Pri	1896	W. G. Van Note	80	1,090	6	1,096 M
Clarey College, Ypsilanti, Mich.	Pri	1883	O. J. Cleary	10	422	18	490 C
Clemson Agricultural College, Clemson, S.C.	Pri	1889	R. F. Poole	211	2,870	56	3,035 C
Coe College, Cedar Rapids, Iowa	Pres	1851	H. H. Brooks	50	771	...	830 C
Coffeyville Coll. of Arts, Sci., & Voc., Coffeyville, Kans.	Pri	1923	K. M. Wilson	18	549	...	549 C
Colby College, Waterville, Me.	Pri	1813	J. S. Bixler	84	1,100	...	1,100 C
Colby Junior College, New London, N.H.	Pri	1837	E. M. Austin	43	454	...	454 W
Colgate University, Hamilton, N.Y.	Pri	1819	E. N. Case	105	1,313	...	1,319 M
Colorado, University of, Boulder, Colo.	St	1876	W. Darley	563	7,685	1,399	9,084 C
Colorado A. & M. College, Fort Collins, Colo.	St	1870	W. E. Morgan	225	3,660	352	4,424 C
Colorado College, Colorado Springs, Colo.	Pri	1874	L. T. Benezet	65	980	18	998 C
Colorado School of Mines, Golden, Colo.	St	1874	J. Vandervilt	133	1,011	51	1,062 C
Colorado State Coll. of Education, Greeley, Colo.	St	1890	W. R. Riess	146	1,011	300	5,101 C
Colorado Woman's College, Denver, Colo.	Pri	1888	V. H. Wilson	35	359	...	365 W
Columbia Bible College, Columbia, S.C.	Pri	1923	G. A. Fleece	23	393	56	491 C
Columbia College, Columbia, S.C.	Meth	1854	R. W. Spears	30	479	...	580 W
Columbia University, New York, N.Y.	Pri	1754	G. Kirk	1,615	5,284	17,952	23,236 C
Columbia Univ. Teachers College, New York, N.Y.	Pri	1888	H. L. Caswell	144	714	6,525	7,239 C
Concord College, Athens, W.Va.	St	1875	V. H. Stewart	57	1,018	...	1,267 C
Concordia College, Moorhead, Minn.	EL	1891	J. L. Knutson	61	1,202	...	1,202+C
Concordia Teachers College, River Forest, Ill.	Luth	1864	M. L. Koehnke	46	1,139	...	1,139 C
Concordia Teachers College, Seward, Nebr.	Luth	1894	P. A. Zimmerman	24	341	...	589 C
Concordia Theol. Seminary, St. Louis, Mo.	Luth	1839	A. Fuerbringer	43	686	58	996 C
Connecticut, Teachers Coll. of, New Britain, Conn.	St	1849	H. D. Welte	148	1,247	...	1,747+C
Connecticut, University of, Storrs, Conn.	St	1881	A. Jorgensen	753	6,741	1,638	9,065 C
Connecticut College, New London, Conn.	Pri	1911	R. Park	98	839	1	840 W
Converse College, Spartanburg, S.C.	Pri	1890	E. Morgan	28	329	7	336 W
Cooper Union, New York, N.Y.	Pri	1859	E. S. Burdell	57	580	...	1,348 C
Copiah-Lincoln Junior College, Wesson, Miss.	St	1928	J. M. Ewing	45	354	...	436+C
Cornell College, Mount Vernon, Iowa	Meth	1853	R. D. Cole	53	677	...	702 C
Cornell University, Ithaca, N.Y.	Pri	1868	D. W. Malott	1,448	8,777	1,670	10,659 C
Corpus Christi, Univ. of, Corpus Christi, Texas	Bapt	1947	W. A. Miller	29	658	...	658 C
Creighton University, Omaha, Nebr.	RC	1878	C. M. Reinert	167	1,182	917	2,483 C
Culver-Stockton College, Canton, Mo.	DC	1853	L. E. Ziegler	28	274	...	310 C
Dakota Wesleyan University, Mitchell, S.Dak.	Meth	1885	M. D. Smith	27	274	...	512 C
Dalhousie University, Halifax, N.S.	Pri	1818	A. E. Kerr	87	1,344	67	1,441 C
Dallas Theol. Sem. & Grad. Sch. of Theol., Dallas, Texas	Pri	1925	J. F. Walvoord	15	...	274	296 M
Danbury State Teachers Coll., Danbury, Conn.	St	1904	R. A. Haas	64	450	56	920+C
Dartmouth College, Hanover, N.H.	Pri	1770	J. S. Diekey	283	2,737	222	2,959 M
David Lipscomb College, Nashville, Tenn.	Pri	1891	A. C. Pullias	52	796	...	796 C
Davidson College, Davidson, N.C.	Pres	1836	J. Cunningham	63	845	...	845 M
Davis-Elkins College, Elkins, W.Va.	Pres	1904	D. K. Allen	26	500	...	500 C
Dayton, University of, Dayton, Ohio	RC	1850	A. L. Seebold	172	2,581	...	5,623 C
Delaware, University of, Newark, Del.	St	1833	J. A. Perkins	210	1,820	136	4,289 C
Del Mar College, Corpus Christi, Texas	Mun	1935	E. L. Harvin	76	934	...	3,426 C
Delta State College, Cleveland, Miss.	St	1925	W. M. Kethley	47	538	...	538 C

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Undergraduate	Graduate	
Denison University, Granville, Ohio.....	Pri	1831	A. B. Knapp.....	102	1,298	2	1,310 C
Denver, University of, Denver, Colo.....	Meth	1864	C. M. Alter.....	197	3,420	1,075	8,419 C
DePaul University, Chicago, Ill.....	RC	1898	C. J. O'Malley.....	234	3,380	858	6,863 C
DePauw University, Greencastle, Ind.....	Meth	1837	R. J. Humbert.....	127	1,751	8	1,801 C
Detroit, University of, Detroit, Mich.....	RC	1877	C. J. Steiner.....	298	5,053	809	10,163 C
Detroit Coll. of Law, Detroit, Mich.....	Pri	1891	J. A. Danhof.....	5	108	...	304 C
Detroit Institute of Technology, Detroit, Mich.....	Pri	1891	A. R. Ayers.....	41	765	...	2,224 C
Dickinson College, Carlisle, Pa.....	Meth	1773	W. W. Edell.....	75	855	...	871 C
Dillard University, New Orleans, La.....	Pri	1935	A. W. Went.....	52	810	...	810*C
District of Columbia Teach. Coll., Washington, D.C.....	Mun	1873	W. E. Hager.....	51	665	...	748 C
Doane College, Crete, Nebr.....	Cong	1872	D. M. Typer.....	30	316	...	334 C
Dominican College of San Rafael, San Rafael, Calif.....	RC	1890	Sr. M. Patrick.....	37	301	95	396 W
Donnelly College, Kansas City, Kans.....	RC	1949	Sr. J. Keeler.....	14	301	...	350 C
Drake University, Des Moines, Iowa.....	Pri	1881	H. G. Harmon.....	200	3,283	633	7,842 C
Drew University, Madison, N.J.....	Meth	1867	F. G. Holloway.....	48	348	263	774 C
Drexel Inst. of Technology, Philadelphia, Pa.....	Pri	1891	J. Creese.....	190	2,941	43	7,513 C
Drury College, Springfield, Mo.....	Pri	1873	J. F. Findlay.....	45	649	117	878 C
Dubuque, University of, Dubuque, Iowa.....	Pres	1852	G. Couchman.....	40	425	99	570 C
Duke University, Durham, N.C.....	Meth	1838	A. H. Edens.....	539	3,406	1,537	5,011 C
Duquesne University, Pittsburgh, Pa.....	RC	1878	V. F. Gallagher.....	166	2,090	1,789	3,879 C
D'Youville College, Buffalo, N.Y.....	RC	1908	Sr. R. Marie.....	48	467	...	550 W
Earlham College, Richmond, Ind.....	Fr	1847	T. E. Jones.....	37	678	14	692 C
East Carolina College, Greenville, N.C.....	St	1907	J. D. Messick.....	120	2,557	27	2,878 C
East Central Junior College, Decatur, Miss.....	St	1928	W. A. Vincent.....	43	419	...	726 C
East Central State College, Ada, Okla.....	St	1909	C. F. Spencer.....	70	1,186	...	2,558 C
East Contra Costa Jr. College, Concord, Calif.....	Dst	1948	D. J. McCunn.....	122	970	...	5,331 C
East Los Angeles Jr. Coll., Los Angeles, Calif.....	St	1945	B. K. Swartz.....	94	3,017	...	10,336 C
East Tennessee State Coll., Johnson City, Tenn.....	St	1911	B. E. Dossett.....	150	3,500	300	4,221 C
East Texas Baptist College, Marshall, Texas.....	Bapt	1917	H. D. Bruce.....	39	557	...	557 C
East Texas State Teachers Coll., Commerce, Texas.....	St	1889	J. G. Gee.....	110	2,092	737	2,829 C
Eastern Illinois State College, Charleston, Ill.....	St	1895	R. G. Buzzard.....	159	2,449	187	3,213 C
Eastern Kentucky State College, Richmond, Ky.....	St	1906	W. F. O'Donnell.....	88	2,617	254	2,871*C
Eastern Montana Coll. of Educ., Billings, Mont.....	St	1925	A. G. Peterson.....	29	678	5	798 C
Eastern Nazarene College, Wollastan, Mass.....	Naz	1918	E. S. Mann.....	25	412	11	593 C
Eastern New Mexico Univ., Portales, N.Mex.....	St	1934	F. D. Golden.....	71	1,230	23	1,253 C
Eastern Oklahoma A. & M. Coll., Wilburton, Okla.....	St	1909	E. T. Dunlap.....	30	...	...	855 C
Eastern Oregon Coll. of Educ., La Grande, Oreg.....	St	1929	F. B. Bennet.....	47	876	...	876 C
Eastern Wash. Coll. of Educ., Cheney, Wash.....	St	1890	D. S. Patterson.....	84	1,608	499	2,241 C
El Camino College, El Camino College, Calif.....	Dist	1947	F. G. Murdock.....	127	3,680	...	8,550 C
Elgin Community Coll., Elgin, Ill.....	Mun	1949	G. I. Renner.....	15	191	...	1,740 C
Elizabethtown College, Elizabethtown, Pa.....	CBR	1899	A. C. Baugher.....	33	547	...	547 C
Elmhurst College, Elmhurst, Ill.....	ER	1871	H. Dinkmeyer.....	38	658	...	852 C
Elong College, Elong College, N.C.....	Cong	1889	L. E. Smith.....	44	341	...	589 C
Emmanuel College, Boston, Mass.....	RC	1919	Sr. A. Gertrude.....	55	596	...	596 W
Emmanuel Mission, Coll., Berrien Springs, Mich.....	SDA	1874	F. Rittenhouse.....	40	806	...	926 C
Emory and Henry College, Emory, Va.....	Meth	1836	F. G. Gibson.....	30	536	...	723 C
Emory University, Atlanta, Ga.....	Meth	1836	G. C. White.....	353	1,412	1,883	3,664 C
Endicott Junior College, Beverly, Mass.....	Pri	1939	G. Bierkoe.....	37	360	...	375 W
Erie County Technical Institute, ² Buffalo, N.Y.....	Dst-St	1946	L. E. Spring.....	50	790	...	1,996*C
Erskine College, Due West, S.C.....	Pri	1839	M. W. Lesesne.....	30	281	...	281 C
Evansville College, Evansville, Ind.....	Meth	1854	M. W. Hyde.....	67	1,176	...	2,734 C
Everett Junior College, Everett, Wash.....	St	1941	F. T. Giles.....	56	872	...	872 C
Fairfield University, Fairfield, Conn.....	RC	1942	J. Fitzgerald.....	43	634	54	950 M
Fairleigh Dickinson College, Rutherford, N.J.....	Pri	1941	P. Sammartino.....	102	1,902	...	5,133 C
Fairmont State College, Fairmont, W.Va.....	St	1867	J. W. Pence.....	60	1,000	...	1,300 C
Farmington State Tchrs. Coll., Farmington, Me.....	St	1864	E. H. Scott.....	43	317	...	317 C
Fashion Institute of Technology, ² New York, N.Y.....	St	1944	L. B. Bethel.....	23	355	...	1,146 C
Fenn College, Cleveland, Ohio.....	Pri	1881	G. B. Earnest.....	76	1,004	...	6,841 C
Ferris Institute, Big Rapids, Mich.....	St	1884	V. F. Spathelf.....	75	983	...	983 C
Fisk University, Nashville, Tenn.....	Cong	1865	C. S. Johnson.....	86	690	69	945 C
Flint Junior College, Flint, Mich.....	Mun	1923	C. Blocker.....	47	1,286	...	1,591 C
Florida, University of, Gainesville, Fla.....	St	1853	J. W. Reitz.....	816	1,504	9,677	11,181 C
Florida A. & M. University, Tallahassee, Fla.....	St	1887	G. W. Gore, Jr.....	186	1,982	260	2,242 C
Florida Southern College, Lakeland, Fla.....	Meth	1885	L. M. Spivey.....	125†	1,600	...	2,850 C
Florida State University, Tallahassee, Fla.....	St	1857	D. S. Campbell.....	607	4,549	816	6,691 C
Fontbonne College, St. Louis, Mo.....	RC	1923	Sr. S. Vachon.....	36	403	...	1,245 W
Fordham University, New York, N.Y.....	RC	1841	L. J. McGinley.....	324	5,020	1,365	11,903 C
Fort Hays Kansas State College, Hays, Kans.....	St	1902	M. Cunningham.....	98	1,808	209	2,365 C
Fort Valley State College, Fort Valley, Ga.....	St	1895	C. V. Troup.....	65	3,704	...	3,704 C
Frank Phillips College, Borger, Texas.....	St-Dst	1948	J. W. Dillard.....	23	423	...	482 C
Franklin and Marshall College, Lancaster, Pa.....	ER	1787	W. W. Hall.....	96	1,057	71	1,740 M
Franklin College, Franklin, Ind.....	Bapt	1834	H. Richardson.....	31	489	...	502 C
Freed-Hardeman College, Henderson, Tenn.....	CC	1908	H. A. Dixon.....	17	379	...	456 C
Fresno Junior College, Fresno, Calif.....	Mun	1910	S. M. White.....	53	1,038	...	1,038 C
Fresno State College, Fresno, Calif.....	St	1911	A. E. Joyal.....	216	3,826	181	8,050 C
Friends University, Wichita, Kans.....	Fr	1898	L. S. Cressman.....	33	547	...	547 C
Fullerton Junior College, Fullerton, Calif.....	Dst	1913	H. L. Sheller.....	61	1,716	...	1,925 C
Furman University, Greenville, S.C.....	Bapt	1826	J. L. Plyler.....	78	1,290	10	1,365 C
Gannon College, Erie, Pa.....	RC	1941	J. J. Wehrle.....	55	950	...	1,251*M
Gardner-Webb Jr. Coll., Inc., Boiling Springs, N.C.....	Bapt	1905	P. L. Elliott.....	21	362	...	413 C
Garrett Biblical Institute, Evanston, Ill.....	Meth	1855	D. E. Loder.....	22	...	695	695 C
General Motors Institute, Flint, Mich.....	Pri	1919	G. R. Cowing.....	177	2,443	...	2,707 M
Geneva College, Beaver Falls, Pa.....	Pres	1848	C. M. Lee.....	33	710	...	1,476 C
George Peabody Coll. for Teach., Nashville, Tenn.....	Pri	1785	H. H. Hill.....	89	1,811	4,146	5,957 C
George Pepperdine College, Los Angeles, Calif.....	Pri	1937	H. M. Tiner.....	55	735	57	942 C
George Washington Univ., Washington, D.C.....	Pri	1821	C. H. Marvin.....	224	2,270	1,044	11,966 C
Georgetown College, Georgetown, Ky.....	Bapt	1829	H. Eddleman.....	45	725	...	1,036 C
Georgetown University, Washington, D.C.....	RC	1789	E. B. Bunn.....	485	2,577	2,227	6,957 C

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Grad-uate	
Georgia, Medical College of, Augusta, Ga.	St	1828	G. L. Kelly	...	313†	...	C
Georgia, University of, Athens, Ga.	St	1785	O. C. Aderhold	373	5,122	400	5,622 C
Georgia Institute of Technology, Atlanta, Ga.	St	1885	B. R. Van Leer	302	5,175	348	5,523 C
Georgia State Coll. for Women, Milledgeville, Ga.	St	1889	H. Stanford	48	695	...	695 W
Georgia State Coll. of Bus. Admin., Atlanta, Ga.	St	1914	G. M. Sparks	190	5,672	...	5,672 C
Georgia Teachers College, Collegeboro, Ga.	St	1924	Z. Henderson	60	710	...	710 C
Gettysburg College, Gettysburg, Pa.	Luth	1832	W. C. Langsam	95	1,238	...	1,260 C
Glendale College, Glendale, Calif.	Dst	1927	G. E. Ehmann	85	2,759	...	2,759 C
Glenville State College, Glenville, W. Va.	St	1872	H. B. Heflin	35	575	...	605 C
Golden Gate College, San Francisco, Calif.	YMCA	1901	N. T. Miner	31	260	...	3,160 C
Gonzaga University, Spokane, Wash.	RC	1887	F. E. Corkery	89	947	3	1,249 C
Gordon College, Beverly Farms, Mass.	Pri	1889	T. L. Lewis	32	317	136	453 C
Gorham State Teachers College, Gorham, Me.	St	1878	F. L. Bailey	52	513	...	513 C
Goshen College, Goshen, Ind.	Men	1894	P. E. Mininger	60	629	...	886 C
Goucher College, Baltimore, Md.	Pri	1885	O. Kraushaar	52	593	14	626 W
Grace Bible Inst., Omaha, Nebr.	Pri	1943	J. W. Schmidt	17	280	...	325 C
Graceland College, Lamoni, Iowa	LDS	1895	E. Gleazer, Jr.	26	612	...	612 C
Grambling College, Grambling, La.	St	1929	R. W. E. Jones	162	2,881	...	2,881 C
Grand Rapids Jr. Coll., Grand Rapids, Mich.	Mun	1914	J. Tirrell	46	...	...	1,138 C
Grays Harbor College, Aberdeen, Wash.	St	1930	E. P. Smith	18	384	13	1,345 C
Great Falls, College of, Great Falls, Mont.	RC	1932	J. J. Donovan	33	396	...	572 C
Green Mountain Junior College, Poultney, Vt.	Meth	1834	H. C. Ackley	25	333	...	333 W
Greensboro College, Greensboro, N.C.	Meth	1838	H. H. Hutson	36	320	...	321 C
Greenville College, Greenville, Ill.	Meth	1892	H. J. Long	35	472	56	781 C
Grinnell College, Grinnell, Iowa	Pri	1846	H. R. Bowen	73	880	...	880 C
Grove City College, Grove City, Pa.	Pri	1876	W. C. Kettler	70	1,154	...	1,159 C
Guilford College, Guilford College, N.C.	Fr	1889	C. A. Milner	41	597	...	1,320 C
Gustavus Adolphus College, St. Peter, Minn.	Luth	1862	E. M. Carlson	76	943	...	943 C
H. Sophie Newcomb Mem. Coll., New Orleans, La.	Pri	1886	J. R. Hubbard	69	783	...	786 W
Hahnemann Medical College, Philadelphia, Pa.	Pri	1848	M. B. Brown	38	393	23	416 M
Hamilton College, Clinton, N.Y.	Pri	1812	R. W. McEwen	56	579	...	579 M
Hamline University, St. Paul, Minn.	Meth	1854	P. H. Giddens	77	1,166	...	1,193 C
Hamptden-Sydney College, Hamptden-Sydney, Va.	Pres	1776	J. C. Robert	26	337	...	337 M
Hampton Institute, Hampton, Va.	Pri	1868	A. G. Morón	112	1,279	...	1,315 C
Hanover College, Hanover, Ind.	Pres	1827	A. G. Parker, Jr.	41	601	...	608 C
Harding College, Searcy, Ark.	CC	1924	G. S. Benson	49	648	31	722 C
Hardin-Simmons University, Abilene, Texas	Bapt	1891	E. A. Reiff	85	1,293	108	1,863 C
Harris Teachers College, St. Louis, Mo.	Mun	1857	C. A. Naylor	65	1,207	...	1,207 C
Hartnell College, Salinas, Calif.	St	1920	S. Dufour	53	850	...	850 C
Hartwick College, Oneonta, N.Y.	Luth	1928	M. Ritchie	32	533	...	605 C
Harvard University, Cambridge, Mass.	Pri	1636	N. M. Pusey	3,332	5,744	6,954	12,807 M
Hastings College, Hastings, Nebr.	Pres	1882	D. D. Welch	45	604	...	748 C
Haverford College, Haverford, Pa.	Fr	1833	G. F. White	56	460	11	471 M
Hawaii, University of, Honolulu, T. H.	Ter	1907	P. Bachman	217	3,748	332	9,717 C
Heidelberg College, Tiffin, Ohio	ER	1850	W. T. Wickham	50	546	...	575 C
Henderson County Junior College, Athens, Texas	St	1946	O. Pirtle	19	330	...	454 C
Henderson State Teachers Coll., Arkadelphia, Ark.	St	1929	D. McBrien	60	1,419	74	1,693 C
Hendrix College, Conway, Ark.	Meth	1884	M. L. Ellis	39	453	5	458† C
Henry Ford Community College, Dearborn, Mich.	Mun	1938	F. K. Eshleman	65	1,100	...	3,800 C
High Point College, High Point, N.C.	Meth	1924	D. H. Cooke	48	845	...	845 C
Highland Park Jr. Coll., Highland Park, Mich.	Mun	1918	G. O. Withey	52	1,709	...	1,709 C
Hillsdale College, Hillsdale, Mich.	Pri	1844	J. D. Phillips	45	606	...	702 C
Hillier College, Hartford, Conn.	Pri	1879	A. S. Wilson	28	515	...	4,835 C
Hinds Jr. College, Raymond, Miss.	Pub	1922	G. M. McLendon	56	634	...	634 C
Hiram College, Hiram, Ohio	Pri	1850	P. H. Fall	38	568	...	568 C
Hofstra College, Hempstead, N.Y.	Pri	1935	J. C. Adams	149	2,592	99	6,716 C
Hollins College, Hollins College, Va.	Pri	1842	J. R. Everett	45	481	...	490 W
Holy Cross, College of The, Worcester, Mass.	RC	1843	W. A. Donaghy	129	1,837	7	1,844 M
Holy Names, College of The, Oakland, Calif.	RC	1868	Sr. I. Marie	44	352	37	511 W
Hood College, Frederick, Md.	ER	1893	A. G. Truxal	51	423	...	466 W
Hope College, Holland, Mich.	Ref	1862	I. J. Lubbers	63	829	...	954 C
Houghton College, Houghton, N.Y.	Meth	1883	S. W. Paine	37	567	...	609 C
Houston, University of, Houston, Texas	Mun	1934	A. D. Bruce	342	7,152	2,205	16,707 C
Howard College, Birmingham, Ala.	Bapt	1842	H. G. Davis	76	1,327	...	1,327 C
Howard County Junior College, Big Spring, Texas	Dst	1946	W. A. Hunt	19	265	...	530* C
Howard Payne College, Brownwood, Texas	Bapt	1889	G. D. Newman	60	687	100	800 C
Howard University, Washington, D.C.	Pri	1867	M. W. Johnson	452	1,257	1,789	3,774 C
Humboldt State College, Arcata, Calif.	St	1914	C. H. Siemens	61	888	28	916 C
Hunter College, New York, N.Y.	Mun	1870	G. N. Shuster	364	8,099	1,201	16,367 W
Huntingdon College, Montgomery, Ala.	Meth	1854	H. Searcy	29	549	...	708 C
Huron College, Huron, S. Dak.	Pres	1883	D. E. Kerr	26	292	...	400 C
Huston-Tillotson College, Austin, Texas	Meth	1952	J. J. Seabrook	40	597	...	597 C
Hutchinson Junior College, Hutchinson, Kans.	Mun	1928	C. M. Lockman	20	468	...	468 C
Idaho, College of, Caldwell, Idaho	Pres	1891	T. Shearer	32	468	...	828 C
Idaho, University of, Moscow, Idaho	St	1889	D. R. Theophilus	257	3,188	374	3,562 C
Idaho State College, Pocatello, Idaho	St	1947	C. McIntosh	116	2,281	...	2,319 C
Illinois, University of, Urbana, Ill.	St	1867	D. D. Henry	2,898	20,504	5,496	32,884 C
Illinois Institute of Technology, Chicago, Ill.	Pri	1892	J. Rettaliata	173	1,763	174	6,781 C
Illinois State Normal University, Normal, Ill.	St	1857	A. H. Larsen	276	2,975	307	3,749 C
Illinois Wesleyan University, Bloomington, Ill.	Meth	1850	M. J. Holmes	68	826	7	916 C
Immaculate College, Immaculate, Pa.	RC	1920	St. Mary of Lourdes	40	596	...	765 W
Immaculate Heart College, Los Angeles, Calif.	RC	1916	Sr. M. Thecla	43	343	89	774 W
Imperial Valley College, El Centro, Calif.	Pri	1922	G. Weakley	34	229	...	548 C
Incarinate Word College, San Antonio, Texas	RC	1881	Sr. M. Columkille	72	897	132	1,227 W
Indiana Central College, Indianapolis, Ind.	EUB	1902	I. L. Esch	31	503	...	556 C
Indiana State Teachers Coll., Terre Haute, Ind.	St	1870	R. W. Holmstedt	138	2,558	513	3,071 C
Indiana Technical College, Fort Wayne, Ind.	Pri	1930	A. T. Keene	58	1,551	...	1,551 M
Indiana University, Bloomington, Ind.	St	1820	H. B. Wells	855	11,564	6,395	27,198 C
Iona College, New Rochelle, N.Y.	RC	1940	W. H. Barnes	85	1,464	...	1,769 M
Iowa, State University of, Iowa City, Iowa	St	1847	V. M. Hancher	693	4,540	3,874	8,414 C
Iowa State College, Ames, Iowa	St	1858	J. H. Hilton	1,008	8,600	1,558	10,158 C

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Grad-uate	
Iowa State Teachers College, Cedar Falls, Iowa..	St	1876	J. M. Maucker....	243	2,816	248	3,069 C
Iowa Wesleyan College, Mount Pleasant, Iowa..	Meth	1842	J. R. Chadwick....	23	392	...	654 C
Iawamba Junior College, Fulton, Miss.....	St-Dst	1948	P. Sheffield.....	44	587	...	587+C
Ithaca College, Ithaca, N.Y.....	Pri	1892	L. B. Job.....	64	1,056	26	1,386 C
Jackson College, Jackson, Miss.....	St	1877	J. L. Reddix.....	53	834	...	1,643 C
Jackson Junior College, Jackson, Mich.....	Mun	1928	W. Atkinson.....	27	420	...	535 C
Jacksonville Junior College, Jacksonville, Fla....	Pri	1936	P. L. Johnson.....	15	400	...	800 C
Jamestown College, Jamestown, N.Dak.....	Pres	1884	E. H. Rian.....	26	446	...	460 C
Jefferson Medical Coll. of Phila., Philadelphia, Pa.	Pri	1825	G. A. Bennett.....	644 ⁴	...	702	702 M
Jersey City Junior College, Jersey City, N.J.....	Mun	1946	G. Maxwell.....	11	141	...	867 C
Jewish Theological Seminary of America, New York, N.Y.....	Jew	1837	L. Finkelstein.....	55	294	166	517 C
John Carroll Univ., Cleveland, Ohio.....	RC	1886	F. E. Welfie.....	91	1,900	180	2,714 M
John Marshall Law School, Chicago, Ill.....	Pri	1899	N. W. Lee.....	4	82	...	358 C
Johns Hopkins University, Baltimore, Md.....	Pri	1876	L. J. Reed.....	638	1,247	924	8,257 M
Johnston C. Smith University, Charlotte, N.C.....	Pres	1867	H. Liston.....	40	688	...	950 C
Joliet Junior College, Joliet, Ill.....	Dst	1901	H. S. Bonar.....	16	505	...	505+C
Jones County Junior College, Ellisville, Miss.....	St-Dst	1927	J. B. Young.....	40	771	...	771 C
Juilliard School of Music, New York, N.Y.....	Pri	1905	W. Schuman.....	152	499	97	725 C
Juniata College, Huntingdon, Pa.....	Br	1876	C. N. Ellis.....	40	645	...	645 C
Kalamazoo College, Kalamazoo, Mich.....	Bapt	1833	W. K. Hicks.....	38	466	3	471 C
Kansas, University of, Lawrence, Kans.....	St	1865	F. D. Murphy.....	537	6,574	1,665	9,165 C
Kansas City, University of, Kansas City, Mo.....	Pri	1929	E. J. McGrath.....	86	1,349	1,138	4,606 C
Kansas City Coll. of Osteo. & Surg., Kansas City, Mo.....	Pri	1916	J. M. Peach.....	40	364	...	364 C
Kansas City Kansas Jr. Coll., Kansas City, Kans.	Mun	1923	C. W. Harvey.....	18	532	...	532 C
Kansas State College, Manhattan, Kans.....	St	1863	J. A. McCain.....	781	5,663	747	6,410 C
Kansas State Teachers College, Emporia, Kans....	St	1863	J. E. King.....	153	1,705	125	3,192 C
Kansas State Teachers College, Pittsburg, Kans....	St	1903	R. H. Hughes.....	189	2,196	702	3,301 C
Keene Teachers College, Keene, N.H.....	St	1909	L. P. Young.....	28	532	16	562 C
Kent State University, Kent, Ohio.....	St	1910	G. A. Bowman.....	291	5,785	120	6,817 C
Kentucky, University of, Lexington, Ky.....	St	1865	H. L. Donovan.....	559	6,906	1,752	8,658 C
Kentucky State College, Frankfort, Ky.....	St	1886	R. B. Atwood.....	44	532	...	550 C
Kentucky Wesleyan College, Owensboro, Ky.....	Meth	1866	O. W. Lever.....	26	595	...	595 C
Kenyon College, Gambier, Ohio.....	Epis	1824	G. K. Chalmers.....	55	449	59	508 M
Keuka College, Keuka Park, N.Y.....	Bapt	1890	K. G. Blyle.....	40	321	...	343 W
Kilgore College, Kilgore, Texas.....	Dst	1935	C. Stark.....	56	1,092	...	1,931 C
King's College, Wilkes-Barre, Pa.....	RC	1946	G. P. Benaglia.....	40	675	...	695 M
Kirkville Coll. of Osteo. & Surg., Kirkville, Mo....	Pri	1892	M. Thompson.....	48	318	...	318 C
Knox College, Galesburg, Ill.....	Pri	1837	S. G. Umbeck.....	70	822	...	822 C
Knoxville College, Knoxville, Tenn.....	Pres	1875	J. A. Colston.....	30	478	...	478 C
Lafayette College, Easton, Pa.....	Pres	1826	R. Hutchison.....	142	1,446	...	1,446 C
Lake Forest College, Lake Forest, Ill.....	Pres	1857	E. A. Johnson.....	51	701	...	1,307 C
Lamar State Coll. of Technol., Beaumont, Texas.	St	1923	F. L. McDonald.....	87	5,002	...	5,002 C
Lane College, Jackson, Tenn.....	ME	1882	C. Kirkendoll.....	25	369	...	444 C
Langston University, Langston, Okla.....	St	1897	G. L. Harrison.....	60	653	...	653 C
Laredo Junior College, Laredo, Texas.....	St	1947	W. J. Adkins.....	24	480	...	820 C
La Salle College, Philadelphia, Pa.....	RC	1863	E. Stanislaus.....	120	2,824	...	2,824 M
Lasell Junior College, Auburndale, Mass.....	Pri	1851	R. C. Wass.....	40	587	...	587 W
La Sierra College, Arlington, Calif.....	SDA	1922	N. F. Pease.....	54	742	...	955 C
Laval University, Quebec, P. Q.....	RC	1852	A. Parent.....	1,450	3,037	4,544	11,028 C
La Verne College, La Verne, Calif.....	Br	1891	H. D. Fasnacht.....	25	259	1	535 C
Lawrence College, Appleton, Wis.....	Pri	1847	D. M. Knight.....	72	793	...	813 C
Lawrence Inst. of Technology, Detroit, Mich.....	Pri	1932	E. G. Lawrence.....	75	1,677	...	1,677 M
Layton School of Art, Milwaukee, Wis.....	Pri	1920	E. Lewandowski.....	22	322	...	371 C
Lebanon Valley College, Annville, Pa.....	EUB	1866	F. K. Miller.....	44	548	...	813 C
Lee College, Cleveland, Tenn.....	CG	1918	R. L. Carroll.....	31	324	...	346 C
Lee College, Baytown, Texas.....	Dst	1934	G. H. Gentry.....	27	425	...	1,438 C
Lees-McRae College, Banner Elk, N.C.....	Pres	1900	F. Nelson.....	18	305	...	305 C
Lehigh University, Bethlehem, Pa.....	Pri	1865	M. Whitaker.....	276	2,600	100	3,250 M
LeMoyne College, Syracuse, N.Y.....	RC	1946	R. F. Grewen.....	58	990	...	1,873 C
LeMoyne College, Memphis, Tenn.....	AMA	1870	H. F. Price.....	22	437	...	550 C
Lenoir Rhyne College, Hickory, N.C.....	Luth	1891	V. Rhodes.....	46	820	...	840 C
Lesley College, Cambridge, Mass.....	Pri	1909	T. M. White.....	20	300	25	400 W
LeTourneau Tech. Inst., Longview, Texas.....	Pri	1946	R. G. LeTourneau.....	18	446	...	446 M
Lewis and Clark College, Portland, Oreg.....	Pres	1867	M. S. Odell.....	60	1,100	50	1,337 C
Lincoln Memorial University, Harrogate, Tenn....	Pri	1897	R. L. Kincaid.....	30	511	...	579 C
Lincoln University, Jefferson City, Mo.....	St	1866	E. E. Dawson.....	94	1,620	83	1,703 C
Lindenwood College, St. Charles, Mo.....	Pres	1827	F. L. McCluer.....	43	340	...	340 W
Linfield College, McMinnville, Oreg.....	Bapt	1856	H. L. Dillin.....	48	550	26	640 C
Little Rock Junior College, Little Rock, Ark.....	Mun	1927	E. Q. Brothers.....	31	606	...	1,168 C
Livingstone College, Salisbury, N.C.....	AMEZ	1879	W. J. Trent.....	32	427	18	450 C
Long Beach City College, Long Beach, Calif.....	Dst	1927	G. E. Dotson.....	98	6,057	...	6,057 C
Long Beach State College, Long Beach, Calif....	St	1949	P. Peterson.....	111	1,810	256	7,045 C
Long Island University, Brooklyn, N.Y.....	Pri	1926	R. L. Conolly.....	108	1,300	909	2,474 C
Longwood College, Farmville, Va.....	St	1884	F. Lankford, Jr.....	54	928	32	983 W
Loras College, Dubuque, Iowa.....	RC	1839	L. T. Lane.....	73	921	...	921 M
Loretto Heights College, Loretto, Colo.....	RC	1918	Sr. F. M. Walsh.....	50	720	...	734 W
Los Angeles City College, Los Angeles, Calif.....	Mun	1929	J. Lombardi.....	281	...	...	16,924 C
Los Angeles Jr. Coll. of Business, Los Angeles, Calif.....	Mun	1950	J. N. Given.....	42	...	...	8,987 C
Los Angeles St. Coll. of App. Arts and Sc., Los Angeles, Calif.....	St	1947	H. McDonald.....	171	...	...	12,401 C
Los Angeles Trade-Tech. Jr. Coll., Los Angeles, Calif.....	Mun	1927	F. P. Wilber.....	114	3,271	...	10,769 M
Los Angeles Valley Jr. Coll., Van Nuys, Calif.....	Dst	1949	W. T. Coultas.....	79	6,368	...	6,713 C
Louisiana College, Pineville, La.....	Bapt	1906	G. E. Guinn.....	42	823	...	1,172 C
Louisiana Polytechnic Institute, Ruston, La.....	St	1894	R. L. Ropp.....	158	2,916	...	3,023 C
Louisiana State Univ. and A. & M. Coll., Baton Rouge, La.....	St	1860	T. Middleton.....	467	6,392	1,295	9,238 C

Institution and location	Control or affiliation	Year founded	Chief executive	Full- time faculty	Full-time students		Total Students Enrolled
					Under- graduate	Grad- uate	
Louisville, University of, Louisville, Ky.	Mun	1798	P. G. Davidson....	222	2,535	988	8,774 C
Lowell Technological Institute, Lowell, Mass.	St	1897	M. J. Lydon.....	71	795	24	819 C
Lower Columbia Jr. Coll., Longview, Wash.	Mun	1934	S. I. Rislov.....	18	326	...	1,487 C
Loyola College, Baltimore, Md.	RC	1852	V. F. Beatty.....	41	675	69	1,522 M
Loyola College, Montreal, P.Q.	RC	1896	G. F. Lahey.....	28	401	...	401 M
Loyola University, Chicago, Ill.	RC	1870	J. F. Maguire.....	250	2,399	1,113	8,130 C
Loyola University, New Orleans, La.	RC	1912	W. Donnelly.....	117	1,063	480	2,798 C
Loyola Univ. of Los Angeles, Los Angeles, Calif.	RC	1911	C. S. Casassa.....	51	916	137	1,586 M
Luther College, Decorah, Iowa.	EL	1861	J. Ylvisaker.....	57	1,242	...	1,242 C
Luther Theological Seminary, St. Paul, Minn.	EL	1876	A. N. Rogness....	14	...	406	414†M
Lycoming College, Williamsport, Pa.	Meth	1812	J. W. Long.....	46	621	...	724 C
Lynchburg College, Lynchburg, Va.	DC	1903	O. W. Wake.....	39	620	...	864 C
Lyons Township Junior College, La Grange, Ill.	Dst	1929	G. S. Olsen.....	13	305	...	415 C
Macalester College, St. Paul, Minn.	Pres	1885	C. J. Turek.....	82	1,580	19	1,877 C
McCormick Theol. Seminary, Chicago, Ill.	Pres	1829	R. W. Frank.....	22	...	302	302 C
Macdonald College, Ste. Anne de Bellevue, P.Q.	Pri	1906	H. G. Dion.....	75	650	78	728 C
McGill University, Montreal, P.Q.	Pri	1821	F. C. James.....	342	4,047	1,594	6,703 C
McKendree College, Lebanon, Ill.	Meth	1828	R. Grow.....	21	254	...	1,130 C
McMaster University, Hamilton, Ont.	Bapt	1887	G. P. Gilmour.....	87	935	73	1,008 C
MacMurray College, Jacksonville, Ill.	Meth	1846	L. W. Norris.....	42	444	3	456 W
McMurry College, Abilene, Texas.	Meth	1923	H. G. Cooke.....	39	527	62	756 C
McNeese State College, Lake Charles, La.	St	1939	W. N. Cusic.....	63	1,089	...	1,582 C
McPherson College, McPherson, Kans.	CBr	1887	D. Bittinger.....	25	405	...	466 C
Madison College, Harrisonburg, Va.	St	1908	G. T. Miller.....	72	997	...	1,134 W
Maine, University of, Orono, Me.	St	1868	A. A. Hauck.....	290	4,140	93	4,233 C
Manchester College, North Manchester, Ind.	CBr	1895	V. F. Schwalm....	49	943	...	1,038 C
Manhattan College, New York, N.Y.	RC	1853	Br. A. Philip.....	146	2,547	...	2,873 M
Manhattan School of Music, New York, N.Y.	Pri	1917	J. D. Schenck....	92	318	64	562 C
Manhattanville College of the Sacred Heart, Purchase, N.Y.	RC	1841	E. M. O'Byrne....	79	478	11	523 W
Manitoba, University of, Winnipeg, Man.	Prov	1877	H. Saunderson....	223	3,068	293	3,810 C
Marietta College, Marietta, Ohio.	Pri	1835	W. B. Irvine.....	52	774	...	820 C
Marin, College of, Kentfield, Calif.	St	1926	W. H. Austin.....	36	704	...	971 C
Marion College, Marion, Ind.	Meth	1920	W. F. McConn....	23	...	...	550 C
Marquette University, Milwaukee, Wis.	RC	1881	E. O'Donnell....	346	5,482	1,628	9,255 C
Mars Hill College, Mars Hill, N.C.	Bapt	1856	H. Blackwell....	50	1,048	...	1,048 C
Marshall College, Huntington, W. Va.	St	1837	S. H. Smith.....	166	2,613	313	2,926 C
Mary Hardin Baylor College, Belton, Texas.	Bapt	1845	A. Tyson.....	38	...	...	726 W
Mary Manse College, Toledo, Ohio.	RC	1922	Sr. J. B. Macelwane	30	228	...	536 W
Mary Washington College of the University of Virginia, Fredericksburg, Va.	St	1908	C. W. Darden.....	90	1,788	...	1,788 W
Marygrove College, Detroit, Mich.	RC	1910	Sr. M. Honora....	87	682	...	1,562 W
Maryland, Univ. of, College Pk. & Baltimore, Md.	St	1807	W. H. Elkins.....	676	7,492	4,688	19,212* C
Maryland Inst., Sch. of Art & Design, Baltimore, Md.	Pri	1826	D. MacLea.....	35	291	20	651 C
Maryland State College, Princess Anne, Md.	St	1886	J. T. Williams....	48	440	...	440 C
Maryland State Teachers College, Bowie, Md.	St	1867	W. E. Henry.....	21	346	...	346 C
Maryland State Teach. College, Frostburg, Md.	St	1902	R. Hardesty.....	24	493	...	501 C
Maryland State Teach. College, Salisbury, Md.	St	1925	W. Devilbiss....	19	363	...	510 C
Maryland State Teach. College, Towson, Md.	St	1866	E. T. Hawkins....	57	1,059	67	1,511 C
Marylhurst College, Marylhurst, Oreg.	RC	1930	Sr. M. E. Clare....	32	350	...	350 W
Marymount College, Salina, Kans.	RC	1922	Moth. M. Robben..	47	582	...	582 W
Marymount College, Tarrytown, N.Y.	RC	1907	Moth. M. Smith..	60	540	...	540†W
Maryville College, Maryville, Tenn.	Pres	1819	R. W. Lloyd.....	65	681	...	688 C
Maryville Coll. of the Sacred Heart, St. Louis, Mo.	RC	1872	M. O. Mouton....	22	250	...	275 W
Marywood College, Scranton, Pa.	RC	1915	Sr. M. Eugenia....	65	669	7	1,713 W
Massachusetts, University of, Amherst, Mass.	St	1863	J. P. Mather.....	329	3,628	243	4,003* C
Massachusetts Coll. of Pharmacy, Boston, Mass.	Pri	1823	H. C. Newton....	22	489	31	520 C
Massachusetts Inst. of Tech., Cambridge, Mass.	Pri	1861	J. R. Killian, Jr..	1,562	3,481	1,867	5,348 C
Massachusetts School of Art, Boston, Mass.	St	1873	G. Reynolds.....	23	410	...	410†C
Mass. State Teach. Coll., Bridgewater, Mass.	St	1840	C. Maxwell.....	56†	784	...	2,032 C
Mass. State Teach. Coll., Fitchburg, Mass.	St	1894	R. F. Weston.....	57	488	...	488 C
Mass. State Teach. Coll., Framingham, Mass.	St	1839	M. O'Connor.....	39	570	...	570 W
Mass. State Teach. Coll., Lowell, Mass.	St	1894	D. H. O'Leary....	31	457	...	457 C
Mass. State Teach. Coll., Salem, Mass.	St	1854	F. A. Meier.....	40	715	...	715 C
Mass. State Teach. Coll., Worcester, Mass.	St	1871	E. A. Sullivan....	30	437	250	687 C
Mass. Teach. Coll., Boston, Mass.	St	1852	W. F. Looney....	46	738	55	1,150 C
Medical Evangelists, Coll. of, Loma Linda, Calif.	SDA	1905	G. T. Anderson....	70	...	...	715 C
Meharry Medical College, Nashville, Tenn.	Pri	1876	H. D. West.....	171	...	466	466 C
Memorial University, St. John's, Newfoundland.	Prov	1925	R. Gushue.....	47	580	3	679 C
Memphis State College, Memphis, Tenn.	St	1912	J. M. Smith.....	150	3,300	500	4,290 C
Mercer University, Macon, Ga.	Bapt	1833	G. B. Connell....	64	1,403	278	1,698 C
Mercy College, Detroit, Mich.	RC	1941	Sr. M. Middleton..	37	485	...	485 W
Mercyhurst College, Erie, Pa.	RC	1926	Sr. M. E. Taylor..	36	219	...	298 W
Meredith College, Raleigh, N.C.	Bapt	1891	C. Campbell.....	46	597	...	674 W
Merrimack College, North Andover, Mass.	RC	1947	V. McQuade.....	46	599	...	905 C
Mesa College, Grand Junction, Colo.	Dst	1925	H. J. Wubben....	35	509	...	2,047 C
Miami, University of, Coral Gables, Fla.	Pri	1925	J. Pearson.....	528	6,216	837	10,485 C
Miami University, Oxford, Ohio.	St	1809	J. Millett.....	297	4,869	177	5,046 C
Michigan, University of, Ann Arbor, Mich.	St	1817	H. Hatcher.....	1,727	...	...	30,570 C
Michigan Coll. of Min. & Tech., Houghton, Mich.	St	1885	G. C. Dillman....	141	1,860	23	1,883 C
Michigan State Normal College, Ypsilanti, Mich.	St	1849	E. B. Elliott.....	...	5,924†	...	...
Michigan State University, East Lansing, Mich.	St	1853	J. A. Hannah.....	971	13,890	2,025	15,525 C
Middle Georgia Coll., Cochran, Ga.	St	1928	L. E. Roberts....	16	393	...	393 C
Middle Tennessee State Coll., Murfreesboro, Tenn.	St	1909	Q. M. Smith.....	97	1,569	144	3,007 C
Middlebury College, Middlebury, Vt.	Pri	1800	S. Stratton.....	79	1,244	841	2,088 C
Midland College, Fremont, Nebr.	UL	1887	P. Dieckman.....	31	375	...	375 C
Midwestern University, Wichita Falls, Texas.	Mun	1922	D. L. Ligion.....	76	1,011	130	1,300 C
Miles College, Birmingham, Ala.	ME	1907	W. A. Bell.....	56	577	...	853 C
Millikin University, Decatur, Ill.	Pres	1901	J. W. Malone....	66	1,026	8	1,625 C
Mills College, Oakland, Calif.	Pri	1852	L. T. White, Jr..	55	495	40	836 W
Millsaps College, Jackson, Miss.	Meth	1890	H. Finger, Jr....	...	704†	...	...
Milwaukee School of Engr., Milwaukee, Wis.	Pri	1903	K. Werwath.....	73	2,054	...	2,054 M

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Grad-uate	
Milwaukee Voc. and Adult Schools, Milwaukee, Wis.	Pri	1951	W. F. Rasche	10	437	...	2,151 C
Miner Teachers College, Washington, D.C.	Mun	1851	M. Whitehead	31	621	...	621 C
Minnesota, University of, Minneapolis, Minn.	St	1851	J. Morrill	1,499	20,176	3,971	24,147 C
Minnesota, Univ. of, Duluth Br., Duluth, Minn.	St	1949	R. W. Darland	112	1,785	20	1,805 C
Minnesota State Teachers Coll., Bemidji, Minn.	St	1919	C. R. Sattgast	50	570	28	629 C
Minnesota State Teachers Coll., Mankato, Minn.	St	1867	C. L. Crawford	130	2,490	185	4,334 C
Minnesota State Teachers Coll., Moorhead, Minn.	St	1887	A. L. Knoblauch	62	1,223	25	2,335 C
Minnesota State Teachers Coll., St. Cloud, Minn.	St	1869	G. F. Budd	110	2,622	172	2,794 C
Minnesota State Teachers Coll., Winona, Minn.	St	1858	N. Minné	52	908	183	1,091 C
Misericordia, College, Dallas, Pa.	RC	1923	Sr. M. Gonzaga	66	555	...	829 W
Missionary Training Institute, Nyack, N.Y.	CMA	1882	T. Moseley	26	543	...	615 C
Mississippi, University of, University, Miss.	St	1848	J. D. Williams	227	2,122	510	2,678 C
Mississippi College, Clinton, Miss.	Bapt	1826	D. M. Nelson	62	1,540	...	1,763 C
Mississippi Southern College, Hattiesburg, Miss.	St	1912	W. D. McCain	174	3,578	192	4,947 C
Mississippi State College, State College, Miss.	St	1878	B. Hilbun	168	3,287	394	3,681 C
Mississippi St. Coll. for Women, Columbus, Miss.	St	1884	C. P. Hogarth	72	931	...	931 W
Missouri, University of, Columbia, Mo.	St	1839	E. Ellis	668	8,971	1,242	10,213 C
Missouri Valley College, Marshall, Mo.	Pres	1888	M. E. Collins	35	400	...	400 C
Mitchell College, New London, Conn.	Pri	1938	R. C. Weller	13	225	...	475 C
Modesto Junior College, Modesto, Calif.	St	1921	R. C. McCall	90	...	...	1,732 C
Mohawk Valley Technical Institute, ² Utica, N.Y.	St	1946	A. V. Payne	30	250	...	632 C
Monmouth College, Monmouth, Ill.	Pres	1853	R. W. Gibson	44	620	...	664 C
Monmouth Junior College, Long Branch, N.J.	Pri	1933	E. G. Schlaefler	21	...	...	879 C
Montana State College, Bozeman, Mont.	St	1893	R. R. Renne	149	2,737	173	3,065 C
Montana State University, Missoula, Mont.	St	1893	C. McFarland	168	2,576	262	2,838 C
Monterey Peninsula College, Monterey, Calif.	Dst	1947	C. C. Flint	30	654	...	2,489 C
Montgomery Junior College, Takoma Park, Md.	Dst	1946	D. E. Deyo	24	379	...	579 C
Montreal, University of, Montreal, P.Q.	RC	1876	I. Lussier	1,026	5,117	5,218	15,643 C
Moody Bible Inst. of Chicago, The, Chicago, Ill.	Pri	1886	W. Culbertson	43	...	...	2,754 C
Moravian College, Bethlehem, Pa.	Mor	1807	R. S. Hauptert	31	570	28	598 C
Morehead State College, Morehead, Ky.	St	1923	A. Doran	71	1,255	85	1,647 C
Morehouse College, Atlanta, Ga.	Pri	1867	B. E. Mays	41	598	5	602 M
Morgan State College, Baltimore, Md.	St	1867	M. D. Jenkins	103	2,046	...	2,403 C
Morningside College, Sioux City, Iowa.	Meth	1894	E. A. Roadman	35	1,170	...	1,243 C
Morris Brown College, Atlanta, Ga.	AME	1881	J. H. Lewis	40	612	...	761 C
Morris College, Sumter, S.C.	Bapt	1908	O. R. Reuben	35	445	...	445 C
Morris Harvey College, Charleston, W.Va.	Pri	1888	L. Riggelman	49	1,386	...	3,300 C
Morton Junior College, Cicero, Ill.	Dst	1924	A. R. Moore	17	444	...	698 C
Mount Allison University, Sackville, N.B.	UCC	1840	W. Flemington	56	830	6	1,117 C
Mount Holyoke College, South Hadley, Mass.	Pri	1837	R. G. Ham	111	1,192	45	1,237 W
Mount Mary College, Milwaukee, Wis.	RC	1913	Sr. M. J. Francis	56	560	...	935 W
Mount Mercy College, Pittsburgh, Pa.	RC	1932	Moth. M. Corbett	47	350	...	797 W
Mount Royal College, Calgary, Alberta.	UCC	1910	J. H. Garden	13	394	...	422 C
Mount St. Joseph Teachers Coll., Buffalo, N.Y.	RC	1938	Sr. M. Hubert	15	30	3	291 W
Mount St. Joseph-on-the-Ohio, Coll. of, Mount St. Joseph, Ohio.	RC	1854	Moth. M. Romana	54	450	...	802 W
Mount St. Mary's College, Los Angeles, Calif.	RC	1925	Sr. A. Marie	53	430	...	590 W
Mount St. Mary's College, Emmitsburg, Md.	RC	1808	J. Sheridan	33	479	...	479 M
Mount St. Scholastica College, Atchison, Kans.	RC	1863	Moth. M. Schroll	29	389	...	449 W
Mount St. Vincent, College of, New York, N.Y.	RC	1910	Sr. C. Marie	61	468	...	700 W
Mount San Antonio Jr. College, Pomona, Calif.	St	1945	G. H. Bell	102	2,107	...	4,944 C
Mount Union College, Alliance, Ohio.	Meth	1846	C. Bracy	45	709	...	1,213 C
Muhlenberg College, Allentown, Pa.	Luth	1848	J. C. Seegers	52	721	...	753 M
Multnomah College, Portland, Oreg.	Pri	1897	J. Griffith	9	177	...	898 C
Multnomah Sch. of the Bible, Portland, Oreg.	Inter	1936	W. M. Aldrich	15	333	26	359 C
Mundelein College, Chicago, Ill.	RC	1929	Sr. M. Michael	62	887	...	887 W
Murray State Agr. Coll., Tishomingo, Okla.	St	1908	C. Murray	23	421	...	421 C
Murray State College, Murray, Ky.	St	1923	R. H. Woods	...	1,496+	...	...
Muskegon Community College, Muskegon, Mich.	Dst	1926	A. G. Umbrait	23	464	...	1,273 C
Muskingum College, New Concord, Ohio.	Pres	1837	R. Montgomery	72	696	...	735 C
National College of Education, Evanston, Ill.	Pri	1886	K. R. Johnson	...	447+	...	...
Navarro Junior College, Corsicana, Texas.	Dst	1946	R. L. Waller	19	460	...	460 C
Nazareth College, Louisville, Ky.	RC	1920	Sr. M. Murphy	40	663	64	727 W
Nazareth College, Nazareth, Mich.	RC	1897	Sr. M. Kathleen	30	395	...	395 W
Nazareth College, Rochester, N.Y.	RC	1924	Moth. M. Helene	48	427	...	607 W
Nebraska, University of, Lincoln, Nebr.	St	1869	C. M. Hardin	419	6,788	1,557	7,852 C
Nebraska State Teachers College, Chadron, Nebr.	St	1911	B. L. Kline	60	761	45	806 C
Nebraska State Teachers College, Kearney, Nebr.	St	1905	H. L. Cushing	51	1,662	91	1,771 C
Nebraska State Teachers College, Peru, Nebr.	St	1867	N. S. Gomon	48	708	...	762 C
Nebraska State Teachers College, Wayne, Nebr.	St	1910	J. D. Rice	65	821	...	846 C
Nebraska Wesleyan University, Lincoln, Nebr.	Meth	1887	A. L. Forrest	40	799	...	925 C
Nevada, University of, Reno, Nev.	St	1874	M. W. Stout	84	1,495	150	2,273 C
New Brunswick, University of, Fredericton, N.B.	Prov	1785	C. B. MacKay	75	795	79	874 C
New England Conserv. of Music, Boston, Mass.	Pri	1867	H. Keller	66	273	85	1,193 C
New Hampshire, University of, Durham, N.H.	St	1866	E. L. Johnson	274	3,015	221	3,236 C
New Haven College, New Haven, Conn.	Pri	1926	M. Peterson	7 ⁶	43	...	1,141 C
New Haven State Teach. Coll., New Haven, Conn.	St	1893	H. C. Buley	75	1,255	...	1,883 C
New Jersey State Teach. Coll., Glassboro, N.J.	St	1923	T. Robinson	44	438	...	1,140 C
New Jersey State Teach. Coll., Jersey City, N.J.	St	1929	M. B. Gilligan	41	644	...	644 C
New Jersey State Teach. Coll., Newark, N.J.	St	1855	E. G. Wilkins	40	644	...	1,827 C
New Jersey State Teach. Coll., Paterson, N.J.	St	1855	M. E. Shea	36	580	822	1,302 C
New Jersey State Teach. Coll., Trenton, N.J.	St	1855	R. L. West	84	888	...	1,666 C
New Jersey State Teach. Coll., Upper Montclair, N.J.	St	1908	E. Partridge	85	1,085	661	1,746 C
New Mexico, Univ. of, Albuquerque, N.Mex.	St	1889	T. L. Popejoy	215	...	...	6,136 C
New Mexico Coll. of A. & M. Arts, State College, N.Mex.	St	1889	R. Corbett	145	2,000	150	2,764 C
New Mexico Highlands Univ., Las Vegas, N.Mex.	St	1893	T. Donnelly	72	950	310	1,260 C
New Mexico Western College, Silver City, N.Mex.	St	1893	J. C. Miller	73	416	15	655 C
New Orleans Bapt. Theol. Sem., New Orleans, La.	Bapt	1918	R. Leavell	30	895	52	947 C
New Rochelle, College of, New Rochelle, N.Y.	RC	1904	M. D. Dunkerley	63	844	...	844 W
New School for Social Research, New York, N.Y.	Pri	1918	H. Simons	30	411	398	4,772 C

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
<i>New York, State University of, Albany, N.Y.</i>	St	1948	W. S. Carlson.....	2,280	22,547	1,416	32,637
Harpur College, Endicott, N.Y.	St	1946	G. G. Bartle.....	60	579	...	963 C
Downstate Medical Center, Brooklyn, N.Y.	St	1857	H. W. Potter.....	138	585	17	646 C
Upstate Medical Center, Syracuse, N.Y.	St	1834	W. R. Willard.....	72	308	111	470 C
College of Forestry, Syracuse, N.Y.	St	1911	H. Shirley.....	78	610	82	713 M
Maritime College, Ft. Schuyler, New York, N.Y.	St	1874	C. T. Durgin.....	29	522	...	522 M
College of Ceramics, Alfred, N.Y.	St	1900	J. McMahon.....	27	340	24	374 C
College of Agriculture, Ithaca, N.Y.	St	1904	W. I. Myers.....	398	1,622	773	2,481 C
College of Home Economics, Ithaca, N.Y.	St	1925	H. Canoyer.....	78	629	106	754 C
School of Indust. & Labor Rel., Ithaca, N.Y.	St	1945	M. Cathwood.....	43	323	79	402 C
Veterinary College, Ithaca, N.Y.	St	1894	W. A. Hagan.....	34	196	6	212 C
College for Teachers, Albany, N.Y.	St	1844	E. R. Collins.....	144	1,636	212	2,497 C
Teachers College, Brockport, N.Y.	St	1866	D. M. Tower.....	85	984	3	1,107 C
College for Teachers, Buffalo, N.Y.	St	1867	H. M. Rice.....	148	2,287	...	2,830 C
Teachers College, Cortland, N.Y.	St	1866	D. V. Smith.....	124	1,724	...	1,826 C
Teachers College, Fredonia, N.Y.	St	1886	H. W. Porter.....	71	724	...	834 C
Teachers College, Geneseo, N.Y.	St	1867	F. J. Moench.....	70	634	...	639 C
Teachers College, New Paltz, N.Y.	St	1886	W. Haggerty.....	83	963	2	1,229 C
Teachers College, Oneonta, N.Y.	St	1889	R. F. Netzer.....	68	778	...	858 C
Teachers College, Oswego, N.Y.	St	1861	F. S. Brown.....	92	1,307	...	1,435 C
Teachers College, Plattsburg, N.Y.	St	1889	G. Angell.....	...	931	...	991 C
Teachers College, Potsdam, N.Y.	St	1866	F. W. Crumb.....	81	810	...	941 C
Agricultural & Tech. Inst., Alfred, N.Y.	St	1908	W. C. Hinkle.....	59	1,246	...	1,246 C
Agricultural & Tech. Inst., Canton, N.Y.	St	1906	A. E. French.....	34	402	...	477 C
Agricultural & Tech. Inst., Cobleskill, N.Y.	St	1914	R. L. Wheeler.....	23	313	...	313 C
Agricultural & Tech. Inst., Delhi, N.Y.	St	1916	W. Kunsela.....	21	239	...	243 C
Agricultural & Tech. Inst., Farmingdale, N.Y.	St	1916	H. B. Knapp.....	108	1,327	...	7,106 C
Agricultural & Tech. Inst., Morrisville, N.Y.	St	1910	M. Galbreath.....	43	528	...	528 C
New York City Community Coll., ² Brooklyn, N.Y.	Dst	1946	O. Klitgord.....	165	3,086	...	5,500 C
New York Law School, New York, N.Y.	Pri	1891	A. Reppy.....	5	229	7	520 C
New York Medical College, New York, N.Y.	Pri	1860	J. Hetrick.....	634	481	60	541 C
New York University, New York, N.Y.	Pri	1831	H. T. Heald.....	1,427	10,954	4,095	56,338 C
Newark College of Engineering, Newark, N.J.	St	1881	R. Van Houten.....	144	1,316	...	3,794 C
Newberry College, Newberry, S.C.	UL	1856	C. Kaufmann.....	25	435	...	435 C
Niagara University, Niagara University, N.Y.	RC	1856	F. L. Meade.....	94	992	43	1,196 C
North Carolina, A. & T. Coll. of, Greensboro, N.C.	St	1891	F. D. Bluford.....	150	2,686	1,483	4,169 C
North Carolina, University of, Chapel Hill, N.C.	St	1789	H. Purks.....	650	4,322	1,870	6,192 C
North Carolina, Woman's Coll. of the Univ. of, Greensboro, N.C.	St	1891	E. K. Graham.....	203	2,215	55	2,388 W
North Carolina College, Durham, N.C.	St	1910	A. Elder.....	109	1,218	92	1,702 C
North Carolina State College of Agric. & Eng., Raleigh, N.C.	St	1889	C. H. Bostian.....	530	4,000	300	4,744 C
North Carolina State Teach. Coll., Elizabeth City, N.C.	St	1891	S. Williams.....	28	486	...	486 C
North Carolina State Teach. Coll., Fayetteville, N.C.	St	1877	J. W. Seabrook.....	39	682	...	980 C
North Central College, Naperville, Ill.	EUB	1861	C. H. Geiger.....	44	682	...	832 C
North Dakota, Univ. of, Grand Forks, N.Dak.	St	1883	G. W. Starcher.....	189	2,507	293	3,027 C
North Dakota Agric. College, Fargo, N.Dak.	St	1889	F. S. Hultz.....	126	2,127	272	2,565 C
North Dakota State Sch. of Sci., Wahpeton, N.Dak.	St	1903	G. W. Havery.....	50	868	...	918 C
North Dakota State Teach. Coll., Minot, N.Dak.	St	1913	C. P. Lura.....	75	730	7	737 C
North Dakota St. Teach. Coll., Valley City, N.Dak.	St	1889	R. L. Lokken.....	38	502	...	502 C
North Georgia College, Dahlonega, Ga.	St	1873	M. E. Hoag.....	36	640	...	640 C
North Park Coll. & Theol. Sem., Chicago, Ill.	EMC	1891	C. A. Nelson.....	56	668	110	1,221 C
North Texas State College, Denton, Texas	St	1890	J. Matthews.....	238	4,394	159	7,016 C
Northeast Louisiana State College, Monroe, La.	St	1931	L. C. Slater.....	65	1,564	...	1,564 C
Northeast Mississippi Jr. Coll., Booneville, Miss.	St	1948	B. W. Jones.....	27	645	...	815 C
Northeast Missouri St. Teach. Coll., Kirksville, Mo.	St	1867	W. H. Ryle.....	85	1,970	479	2,458 C
Northeastern Okla. A. & M. Coll., Miami, Okla.	St	1919	B. G. Carter.....	30	545	...	874 C
Northeastern State College, Tahlequah, Okla.	St	1909	H. Garrison.....	62	1,780	202	2,095 C
Northeastern University, Boston, Mass.	Pri	1898	C. S. Ell.....	200	4,500	...	13,000 C
Northern Baptist Theol. Seminary, Chicago, Ill.	Bapt	1913	C. W. Koller.....	18	169	188	357 C
Northern Illinois State Coll., DeKalb, Ill.	St	1899	L. A. Holmes.....	185	2,835	619	3,454 C
Northern Michigan College, Marquette, Mich.	St	1899	H. A. Tape.....	35	785	25	810 C
Northern Montana College, Havre, Mont.	St	1901	V. Brockmann.....	37	487	...	487 C
Northern Oklahoma Jr. Coll., Tonkawa, Okla.	St	1902	W. Easterling.....	21	525	...	633 C
Northern State Teach. Coll., Aberdeen, S.Dak.	St	1902	W. Lovinger.....	54	840	20	1,260 C
Northrop Aeronautical Inst., Inglewood, Calif.	Pri	1942	J. McKinley.....	70	950	...	950 M
Northwest Christian College, Eugene, Oreg.	DC	1895	R. Griffith.....	17	367	...	432 C
Northwest Missouri State College, Maryville, Mo.	St	1906	J. W. Jones.....	81	1,427	37	1,464 C
Northwest Nazarene College, Nampa, Idaho.	Naz	1913	J. E. Riley.....	35	426	14	491 C
Northwestern College, Minneapolis, Minn.	Pri	1902	R. A. Elvess.....	40	555	56	611 C
Northwestern State College, Natchitoches, La.	St	1884	J. S. Kyser.....	152	1,682	...	2,115 C
Northwestern State College, Alva, Okla.	St	1897	S. Perefull.....	150	555	...	707 C
Northwestern Univ., Evanston and Chicago, Ill.	Pri	1851	J. R. Miller.....	522	6,082	2,398	21,706 C
Norwich University, Northfield, Vt.	Pri	1819	E. N. Harmon.....	46	713	...	713 M
Notre Dame Du Lac, Univ. of, Notre Dame, Ind.	RC	1842	T. Hesburgh.....	435	4,850	556	5,443 M
Notre Dame of Maryland, Coll. of, Baltimore, Md.	RC	1873	Sr. M. Mary.....	37	288	...	470 W
Nova Scotia Technical College, Halifax, N.S.	Prov	1909	A. Cameron.....	21	192	...	192 M
Oberlin College, Oberlin, Ohio.....	Pri	1833	W. Stevenson.....	183	1,770	107	2,059 C
Occidental College, Los Angeles, Calif.	Pri	1887	A. G. Coons.....	69	1,155	30	1,392 C
Odessa College, Odessa, Texas.....	Dst	1946	M. H. Fly.....	36	2,700	...	2,700 C
Ohio Northern University, Ada, Ohio.....	Meth	1871	F. McIntosh.....	69	857	...	900 C
Ohio State University, Columbus, Ohio.....	St	1870	H. L. Bevis.....	1,438	15,542	4,353	23,530 C
Ohio University, Athens, Ohio.....	St	1804	J. C. Baker.....	319	5,097	209	5,604 C
Ohio Wesleyan University, Delaware, Ohio.....	Meth	1842	F. J. Prouit.....	142	1,938	22	2,006 C
Oklahoma, University of, Norman, Okla.	St	1890	G. L. Cross.....	490	10,272	2,635	12,907 C
Oklahoma A. & M. College, Stillwater, Okla.	St	1890	O. S. Whigham.....	549	8,688	2,244	10,932 C
Oklahoma Baptist University, Shawnee, Okla.	Bapt	1911	J. W. Raley.....	67	...	...	1,417 C
Oklahoma City University, Oklahoma City, Okla.	Meth	1904	C. Q. Smith.....	105	2,092	...	3,841 C

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
Oklahoma College for Women, Chickasha, Okla..	St	1908	C. D. Procter.....	52	814	8	822 W
Olivet Nazarene College, Kankakee, Ill.....	Naz	1907	H. W. Reed.....	48	750	...	750 C
Olympic College, Bremerton, Wash.....	St	1946	L. J. Elias.....	46	816	...	6,300 C
Omaha, University of, Omaha, Nebr.....	Mun	1908	M. Bail.....	74	2,235	...	5,454*C
Ontario Agricultural College, Guelph, Ont.....	Prov	1874	J. MacLachlan.....	232	728	43	2,247 C
Ontario College of Art, Toronto, Ont.....	Prov	1912	L. Panton.....	30	300	...	550†C
Ontario Veterinary College, Guelph, Ont.....	Prov	1862	T. L. Jones.....	55	294	...	294 C
Orange Coast College, Costa Mesa, Calif.....	Dst	1947	B. Peterson.....	54	1,299	...	8,794 C
Orange County Community College, ² Middletown, N.Y.	St	1950	E. H. Miner.....	44	586	...	1,863 C
Oregon, University of, Eugene & Portland, Oreg..	St	1872	O. M. Wilson.....	239	4,248	1,564	7,227 C
Oregon College of Education, Monmouth, Oreg..	St	1856	R. Lieualen.....	44	808	...	845 C
Oregon State College, Corvallis, Oreg.....	St	1868	A. L. Strand.....	540	5,186	546	5,732 C
Oregon Tech. Inst., Oretech, Oreg.....	St	1947	W. Purvine.....	68	1,109	...	1,109 C
Osgoode Hall Law School, Toronto, Ont.....	Pri	1873	C. Carson.....	7	...	...	869 C
Osteopathic Physicians and Surgeons, College of, Los Angeles, Calif.....	Pri	1896	W. Henley.....	25	339	...	339 C
Ottawa University, Ottawa, Kans.....	Bapt	1865	A. B. Martin.....	23	532	...	551 C
Ottawa, University of, Ottawa, Ont.....	RC	1848	R. Normandin.....	436	944	548	4,821 C
Otterbein College, Westerville, Ohio.....	EUB	1847	J. G. Howard.....	48	656	...	672 C
Quachita Baptist College, Arkadelphia, Ark.....	Bapt	1886	R. A. Phelps.....	41	642	...	678 C
Our Lady of Cincinnati College, Cincinnati, Ohio..	RC	1935	Sr. M. Grace.....	34	470	...	548 W
Our Lady of the Elms, College of, Chicopee, Mass..	RC	1928	C. Weldon.....	28	275	...	410 W
Our Lady of the Lake College, San Antonio, Texas.	RC	1912	J. McMahon.....	54	250	24	520 W
Pace College, New York, N.Y.....	Pri	1906	R. S. Pace.....	42	576	...	5,840 C
Pacific, College of the, Stockton, Calif.....	Meth	1851	R. E. Burns.....	72	946	66	1,815 C
Pacific Lutheran College, Parkland, Wash.....	Luth	1894	S. Eastwood.....	49	931	7	1,376 C
Pacific Union College, Angwin, Calif.....	SDA	1882	H. L. Sonnenberg.....	45	844	55	899 C
Pacific University, Forest Grove, Oreg.....	Pri	1849	C. Armstrong.....	35	541	108	649 C
Paine College, Augusta, Ga.....	Meth	1883	E. C. Peters.....	22	277	...	277 C
Pan American College, Edinburg, Texas.....	Dst	1927	R. P. Ward.....	50	850	...	2,028 C
Panhandle A. & M. College, Goodwell, Okla.....	St	1909	M. E. McKee.....	38	937	...	937 M
Paris Junior College, Paris, Texas.....	Mun	1924	J. R. McLemore.....	26	561	...	804 C
Park College, Parkville, Mo.....	Pres	1875	R. E. Long.....	32	345	...	345 C
Parsons School of Design, New York, N.Y.....	Pri	1896	P. Bédard.....	30	486	...	634 C
Pasadena City College, Pasadena, Calif.....	Mun	1924	W. Langsdorf.....	215	...	...	7,000 C
Pasadena College, Pasadena, Calif.....	Naz	1902	W. Purkiser.....	42	702	19	950 C
Paul Quinn College, Waco, Texas.....	AME	1872	F. R. Veal.....	43	743	...	743 C
Peabody Conservatory of Music, Baltimore, Md.....	Pri	1868	R. D. Stewart.....	54	178	21	411 C
Pearl River Junior College, Poplarville, Miss.....	St	1917	G. Johnston.....	30	357	...	745 C
Pennsylvania, University of, Philadelphia, Pa.....	Pri	1790	G. Harnwell.....	997	5,884	2,997	15,795 C
Pennsylvania College for Women, ⁷ Pittsburgh, Pa.	Pri	1869	P. Anderson.....	44	424	...	426 W
Pennsylvania Military College, Chester, Pa.....	Pri	1821	E. MacMorland.....	40	577	...	720 M
Pennsylvania State Teach. Coll., Bloomsburg, Pa.	St	1839	H. A. Andrus.....	39	882	...	882 C
Pennsylvania State Teach. Coll., California, Pa.....	St	1852	C. H. Grose.....	57	1,010	5	1,125 C
Pennsylvania State Teach. Coll., Cheyney, Pa.....	St	1837	J. H. Duckrey.....	29	510	...	570 C
Pennsylvania State Teach. Coll., Clarion, Pa.....	St	1867	P. Chandler.....	40	550	...	600 C
Pennsylvania State Teach. Coll., East Stroudsburg, Pa.....	St	1893	J. F. Noonan.....	56	910	...	1,016 C
Pennsylvania State Teach. Coll., Edinboro, Pa.....	St	1861	T. R. Miller.....	32	461	...	796 C
Pennsylvania State Teach. Coll., Indiana, Pa.....	St	1875	W. E. Pratt.....	111	1,757	...	2,154 C
Pennsylvania State Teach. Coll., Kutztown, Pa.....	St	1866	Q. Rohrbach.....	53	871	...	871 C
Pennsylvania State Teach. Coll., Lock Haven, Pa.....	St	1870	R. T. Parsons.....	41	648	...	648 C
Pennsylvania State Teach. Coll., Mansfield, Pa.....	St	1862	J. G. Morgan.....	70	575	...	600 C
Pennsylvania State Teach. Coll., Millersville, Pa.....	St	1855	D. Biemesderfer.....	68	896	...	896 C
Pennsylvania State Teach. Coll., Shippensburg, Pa.....	St	1871	H. L. Kriner.....	44	771	...	771 C
Pennsylvania State Teach. Coll., Slippery Rock, Pa.....	St	1889	D. W. Houk.....	72	865	...	870 C
Pennsylvania State Teach. Coll., West Chester, Pa.....	St	1871	C. S. Swope.....	96	1,744	...	1,931 C
Pennsylvania State University, University Park, Pa.....	St	1855	M. Eisenhower.....	1,400	13,669	515	15,680 C
Perkinson Jr. Coll., Perkinson, Miss.....	Mun	1925	J. Hayden, Jr.....	24	351	...	351 C
Pestalozzi Froebel Teach. Coll., Chicago, Ill.....	Pri	1896	H. H. Hegner.....	28	190	...	390*C
Philadelphia Bible Institute, Philadelphia, Pa.....	Pri	1913	W. A. Mierop.....	17	424	...	424 C
Philadelphia Coll. of Osteopathy, Philadelphia, Pa.	Pri	1899	W. E. Brandt.....	13*	385	147	532 C
Philadelphia Coll. of Pharm. & Sc., Philadelphia, Pa.	Pri	1821	I. Griffith.....	33	667	30	667 C
Philadelphia Museum Sch. of Art, Philadelphia, Pa.	Pri	1876	R. S. Ingersoll.....	92	623	...	1,300 C
Philadelphia Textile Institute, Philadelphia, Pa.....	Pri	1884	B. W. Hayward.....	31	350	...	350 C
Philander Smith College, Little Rock, Ark.....	Meth	1868	M. L. Harris.....	35	665	...	665 C
Phillips University, Enid, Okla.....	DC	1906	E. S. Briggs.....	61	799	124	1,162 C
Phoenix College, Phoenix, Ariz.....	Dst	1920	R. J. Hannelly.....	60	1,584	...	1,584 C
Pierce School of Agriculture, Canoga Park, Calif.....	Mun	1947	J. B. Shepard.....	37	900	...	900 C
Pittsburgh, University of, Pittsburgh, Pa.....	Pri	1787	R. Fitzgerald.....	572	5,746	2,004	21,475 C
Plymouth Teachers College, Plymouth, N.H.....	St	1871	H. E. Hyde.....	45	303	11	614 C
Pomona College, Claremont, Calif.....	Pri	1887	E. W. Lyon.....	96	1,048	...	1,053 C
Port Huron Jr. Coll., Port Huron, Mich.....	Mun	1923	A. MacLaren.....	20	556	...	556 C
Portland, University of, Portland, Oreg.....	RC	1901	H. J. Kenna.....	102	1,007	96	1,269 C
Prairie View A. & M. Coll., Prairie View, Texas..	St	1876	E. B. Evans.....	177	3,018	1,183	4,201 C
Pratt Institute, Brooklyn, N.Y.....	Pri	1887	F. H. Horn.....	93	1,501	39	3,253 C
Presbyterian College, Clinton, S.C.....	Pres	1880	M. W. Brown.....	32	511	...	511 C
Prince of Wales College, Charlottetown, P.E.I.....	Prov	1860	F. MacKinnon.....	28	512	...	512*C
Princeton Theol. Seminary, Princeton, N.J.....	Pres	1812	J. A. MacKay.....	32	...	484	484 C
Princeton University, Princeton, N.J.....	Pri	1746	H. W. Dodds.....	466	2,900	600	3,500*M
Principia College, Elmhurst, Ill.....	Pri	1898	W. E. Morgan.....	41	452	...	452 C
Providence College, Providence, R.I.....	RC	1917	R. J. Slavin.....	115	1,266	...	2,114 M
Providence-Barrington Bible College, Providence, R.I.....	Pri	1900	H. W. Ferrin.....	23	482	...	502 C
Provincial Inst. of Tech. & Art, Calgary, Alta.....	Prov	1916	E. W. Wood.....	88	2,035	...	4,019 C
Pueblo Junior College, Pueblo, Colo.....	St-Dst	1933	M. C. Knudson.....	45	595	...	1,678 C
Puerto Rico, Catholic Univ. of, Ponce, P.R.....	RC	1948	W. Ferré.....	96	1,198	...	2,902 C

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
Puerto Rico, Polytechnic Inst. of, San Germán, P.R.	Pres	1912	E. G. Seel.....	43	687	...	687 C
Puerto Rico, University of, Río Piedras, P.R.	St	1903	J. Benítez.....	780	12,200	297	17,861 C
Puget Sound, College of, Tacoma, Wash.	Meth	1888	R. F. Thompson....	63	1,196	39	1,803 C
Purdue University, Lafayette, Ind.	St	1869	F. L. Hovde.....	1,187	9,634	2,603	12,429 C
Queens College, Flushing, N.Y.	Mun	1937	J. Theobald.....	230	3,659	...	4,631 C
Queens College, Charlotte, N.C.	Pres	1857	E. R. Walker.....	36	523	...	523 W
Queen's University, Kingston, Ont.	Pri	1841	W. MacKintosh....	157	2,243	85	2,331 C
Quincy College, Quincy, Ill.	RC	1860	J. Woods.....	47	496	...	652 C
Quinnipiac College, Hamden, Conn.	Pri	1929	S. W. Tator.....	23	466	...	875 C
RCA Institutes, Inc., New York, N.Y.	Pri	1909	G. F. Maedel.....	42	780	...	2,500* C
Radcliffe College, Cambridge, Mass.	Pri	1879	W. K. Jordan.....	8	1,022	444	1,466 W
Radford College, Radford, Va.	St	1913	C. K. Martin, Jr....	58	1,515	105	1,620 W
Randolph-Macon College, Ashland, Va.	Meth	1891	J. Moreland.....	33	438	...	446* M
Randolph-Macon Woman's Coll., Lynchburg, Va.	Meth	1891	W. Quillian, Jr....	73	647	...	647 W
Redlands, University of, Redlands, Calif.	Bapt	1907	G. Armacost.....	92	976	44	1,307 C
Reed College, Portland, Oreg.	Pri	1911	F. L. Griffin.....	56	632	10	686 C
Reedley College, Reedley, Calif.	St	1926	S. E. Epler.....	16	685	...	685 C
Regis College, Denver, Colo.	RC	1888	R. F. Ryan.....	39	539	...	735 M
Regis College, Weston, Mass.	RC	1927	Sr. M. Alice.....	63	582	...	582 W
Rensselaer Polytechnic Institute, Troy, N.Y.	Pri	1824	L. Houston.....	247	2,749	290	3,039 M
Rhode Island, University of, Kingston, R.I.	St	1892	C. Woodward.....	251	2,084	232	2,316 C
Rhode Island Coll. of Educ., Providence, R.I.	St	1854	W. C. Gaige.....	32	...	...	506 C
Rhode Island School of Design, Providence, R.I.	Pri	1877	J. R. Frazier.....	78	642	...	642 C
Rice Institute, Houston, Texas	Pri	1912	W. V. Houston.....	133	1,574	223	1,797 C
Richmond, University of, Richmond, Va.	Bapt	1830	G. M. Modlin.....	98	1,453	175	3,474* C
Ricks College, Rexburg, Idaho	LDS	1888	J. L. Clarke.....	35	908	...	1,241 C
Rider College, Trenton, N.J.	Pri	1865	F. F. Moore.....	64	938	...	1,546 C
Ripon College, Ripon, Wis.	Pri	1850	F. O. Pinkham.....	42	551	...	551* C
Riverside College, Riverside, Calif.	St	1916	O. W. Noble.....	48	1,139	...	1,139 C
Roanoke College, Salem, Va.	Luth	1842	H. S. Oberly.....	29	621	...	652 C
Rochester, University of, Rochester, N.Y.	Pri	1850	C. de Kiewiet.....	433	2,369	480	6,357 C
Rochester Inst. of Technology, Rochester, N.Y.	Pri	1829	M. Ellington.....	109	1,379	...	6,195 C
Rockford College, Rockford, Ill.	Pri	1847	L. H. Carlson.....	32	206	...	732 C
Rockhurst College, Kansas City, Mo.	RC	1910	M. VanAckeren.....	40	554	...	1,534 M
Rollins College, Winter Park, Fla.	Pri	1885	H. F. McKean.....	72	567	...	620 C
Roosevelt University, Chicago, Ill.	Pri	1945	E. Sparling.....	123	2,350	190	4,513 C
Rosary College, River Forest, Ill.	RC	1901	Sr. M. Timothea....	71	602	71	1,239 W
Rosary Hill Coll., Buffalo, N.Y.	RC	1847	Sr. M. Angela.....	21	255	...	308 W
Rose Polytechnic Inst., Terre Haute, Ind.	Pri	1874	F. Wilkinson, Jr....	38	368	3	371 M
Rosemont College, Rosemont, Pa.	RC	1921	Moth. Chrysostom..	53	395	...	399 W
Royal Military Coll. of Canada, Kingston, Ont.	Fed	1876	D. Bradshaw.....	70	400	...	400 M
Russell Sage College, Troy, N.Y.	Pri	1916	L. A. Froman.....	46	640	3	654 W
Rust College, Holly Springs, Miss.	Meth	1866	L. McCoy.....	27	223	...	499 C
Rutgers University, New Brunswick, Newark, & Camden, N.J.	St-Pri	1766	L. W. Jones.....	840	5,499	325	14,857 C
Sacramento Junior College, Sacramento, Calif.	Mun	1916	J. P. Mohr.....	118	2,806	...	2,806 C
Sacramento State College, Sacramento, Calif.	St	1947	G. A. West.....	107	1,725	196	6,649 C
Sacre-Coeur, Université du, West Bathurst, N.B.	RC	1899	H. Cormier.....	34	396	...	396 M
Sacred Heart Dominican Coll., Houston, Texas	RC	1945	Sr. M. Bertrand....	22	169	...	346 W
St. Ambrose College, Davenport, Iowa	RC	1908	A. J. Burke.....	62	650	...	950 M
St. Anselm's College, Manchester, N.H.	RC	1889	B. C. Dolan.....	43	550	...	707 C
St. Augustine's College, Raleigh, N.C.	PE	1867	J. A. Boyer.....	35	477	...	477 C
St. Benedict's College, Atchison, Kans.	RC	1857	C. McDonald.....	52	564	...	568 M
St. Bernard's Sem. & College, Rochester, N.Y.	RC	1893	W. T. Craugh.....	18	346	...	346 M
St. Bernardine of Siena College, Loudonville, N.Y.	RC	1937	E. F. Christy.....	76	827	11	1,478 M
St. Bonaventure University, St. Bonaventure, N.Y.	RC	1856	B. Lhota.....	105	1,206	243	1,565 C
St. Catherine, College of, St. Paul, Minn.	RC	1905	Sr. M. W. Brady....	73	1,918	7	2,175 W
St. Charles Borromeo Sem., Overbrook, Phila., Pa.	RC	1832	F. J. Furey.....	32	340	161	501 M
St. Dunstan's College, Charlottetown, P.E.I.	RC	1854	R. MacKenzie.....	20	147	...	147 C
St. Edward's University, Austin, Texas	RC	1885	E. Bransby.....	34	400	...	400 M
St. Elizabeth, College of, Convent Station, N.J.	RC	1899	Sr. H. Mahoney....	46	486	...	487 W
St. Francis College, Joliet, Ill.	RC	1920	Sr. M. Elvira.....	49	698	...	834 W
St. Francis College, Brooklyn, N.Y.	RC	1858	Bro. Jerome.....	21	504	...	629 M
St. Francis College, Loretto, Pa.	RC	1847	X. Crowley.....	29	480	...	505 C
St. Francis Xavier University, Antigonish, N.S.	Pri	1853	H. J. Somers.....	63	1,041	29	1,070 C
St. Jerome's College, Kitchener, Ont.	RC	1864	C. Siegfried.....	8	150	...	150 C
St. Jerome's College, Cleveland, Ohio	RC	1928	R. B. Navin.....	47	357	...	719 W
St. John Fisher Coll., Rochester, N.Y.	RC	1951	J. F. Murphy.....	26	373	...	446 M
St. John's College, Winfield, Kans.	Luth	1893	C. Munding.....	27	294	...	325 C
St. John's University, Collegeville, Minn.	RC	1857	B. Dworschak.....	86	1,111	117	1,228 M
St. John's University, Brooklyn, N.Y.	RC	1870	J. A. Flynn.....	182	1,467	2,009	6,856 C
St. Joseph College, West Hartford, Conn.	RC	1932	Moth. M. Ethelreda	39	352	...	352 W
St. Joseph on the Rio Grande, College of, Albuquerque, N.Mex.	RC	1940	Sr. M. V. Schuller..	20	209	...	488 C
St. Joseph Jr. Coll., St. Joseph, Mo.	Mun	1915	G. Blackwell.....	19	456	...	456 C
St. Joseph's College, Collegeville, Ind.	RC	1889	R. H. Gross.....	48	710	...	710 M
St. Joseph's College, Philadelphia, Pa.	RC	1851	E. G. Jacklin.....	56	1,064	40	1,104 M
St. Joseph's College for Women, Brooklyn, N.Y.	RC	1916	F. Fitzgibbon.....	41	288	...	288 W
St. Joseph's University, St. Joseph, N.B.	RC	1864	T. Gallant.....	45	520	6	960 M
St. Lawrence University, Canton, N.Y.	Pri	1856	E. G. Bewkes.....	90	1,300	10	1,310 C
St. Louis University, St. Louis, Mo.	RC	1818	P. C. Reinert.....	380	5,233	1,637	9,517 C
St. Mary College, Xavier, Kans.	RC	1923	A. M. Murphy.....	58	1,020	...	1,282 W
St. Mary of the Lake Seminary, Mundelein, Ill.	RC	1844	M. P. Foley.....	20	166	168	398 M
St. Mary-of-the-Woods College, St. Mary-of-the-Woods, Ind.	RC	1840	Sr. F. Joseph.....	51	313	...	313 W
St. Mary's College, St. Mary's, Calif.	RC	1863	Bro. W. Thomas....	33	383	...	392 M
St. Mary's College, Notre Dame, Ind.	Pri	1844	Sr. M. Madeleva....	52	676	17	807 W
St. Mary's College, Winona, Minn.	RC	1912	Bro. J. Ambrose....	51	662	...	662 M
St. Mary's Sem. and Univ., Baltimore, Md.	RC	1791	L. McDonald.....	48	400	400	800 M

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
St. Mary's University, Halifax, N.S.	RC	1841	F. J. Lynch	23	300	...	300 M
St. Mary's University, San Antonio, Texas	RC	1852	W. J. Buehler	52	935	145	1,672 M
St. Meinrad Seminary, St. Meinrad, Ind.	RC	1861	B. Knaebel	45	173	204	377 M
St. Michael's College, Winooski, Vt.	RC	1904	F. Moriarty	47	660	...	660 M
St. Norbert College, West De Pere, Wis.	RC	1898	D. M. Burke	44	946	...	946 C
St. Olaf College, Northfield, Minn.	Luth	1874	C. Granskov	103	1,634	...	1,647 C
St. Paul Bible Institute, St. Paul, Minn.	CMA	1916	G. D. Strohm	14	402	...	402 C
St. Paul Seminary, St. Paul, Minn.	RC	1896	R. G. Bandas	25	123	250	373+M
St. Paul's Polytechnic Inst., Lawrenceville, Va.	PE	1888	E. McClenney	...	362+	...	...
St. Peter's College, Jersey City, N.J.	RC	1872	J. Shanahan	87	1,577	...	1,721 C
St. Petersburg Jr. Coll., St. Petersburg, Fla.	St	1927	M. M. Bennett	42	754	...	1,763 C
St. Rose, College of, Albany, N.Y.	RC	1920	Sr. C. Francis	54	498	1	807 W
St. Scholastica, College of, Duluth, Minn.	RC	1912	Moth. M. Martina	35	287	...	460 W
St. Teresa, College of, Winona, Minn.	RC	1907	Sr. M. Bowe	49	891	...	903 W
St. Teresa, College of, Kansas City, Mo.	RC	1940	Sr. M. B. O'Neill	33	202	81	726 W
St. Thomas, College of, St. Paul, Minn.	RC	1885	V. J. Flynn	80	1,383	119	1,502 M
St. Vincent College, Latrobe, Pa.	RC	1846	D. Strittmatter	62	673	128	801 M
St. Xavier College, Chicago, Ill.	RC	1846	Moth. M. Huberta	54	268	...	1,154 W
Salem College, Winston-Salem, N.C.	Mor	1772	D. H. Gramley	30	314	...	349 W
Salem College, Salem, W. Va.	SDB	1888	K. D. Hurley	19	406	...	634 C
Salmon P. Chase College, Cincinnati, Ohio	YMCA	1893	R. Hutchens	7	...	...	1,410 C
Sam Houston State Teach. Coll., Huntsville, Texas	St	1879	H. Lowman	95	1,867	44	2,353 C
San Angelo College, San Angelo, Texas	Mun	1928	R. W. Cauness	29	680	...	1,120+C
San Antonio College, San Antonio, Texas	Dst	1925	J. O. Loftin	60	...	...	7,026 C
San Bernardino Valley College, San Bernardino, Calif.	St	1926	J. Lounsbery	97	1,565	...	12,008 C
San Diego Junior College, San Diego, Calif.	Mun	1914	W. Thatcher	138	1,823	...	6,287 C
San Diego State College, San Diego, Calif.	St	1897	M. A. Love	250	...	...	9,469 C
San Francisco, City Coll. of, San Francisco, Calif.	Mun	1935	L. G. Conlan	209	5,777	...	5,777 C
San Francisco, Univ. of, San Francisco, Calif.	RC	1855	J. Connolly	87+	2,177	370	2,547 M
San Francisco College for Women, San Francisco, Calif.	RC	1921	Moth. E. Teegarden	35	...	...	756 W
San Francisco State College, San Francisco, Calif.	St	1899	J. P. Leonard	221	4,093	664	6,715 C
San Jose Jr. Coll., San Jose, Calif.	Mun	1921	H. Buchser	50	1,666	2,673	4,398 C
San Jose State College, San Jose, Calif.	St	1857	J. Wahlquist	332	7,751	574	14,681 C
San Mateo College of, San Mateo, Calif.	St-Dst	1922	E. Hildreth	92	3,013	...	3,567+C
Santa Barbara Jr. Coll., Santa Barbara, Calif.	Dst	1908	L. L. Bowman	27	833	...	1,121 C
Santa Clara, University of, Santa Clara, Calif.	RC	1851	H. J. Hauck	96	972	50	1,270 M
Santa Monica City College, Santa Monica, Calif.	St	1929	W. F. Thomas	190	4,482	...	15,688 C
Santa Rosa Junior College, Santa Rosa, Calif.	St	1918	F. P. Bailey	65	1,265	...	4,130 C
Sarah Lawrence College, Bronxville, N.Y.	Pri	1928	H. Taylor	44	365	7	373 W
Saskatchewan, University of, Saskatoon, Sask.	Prov	1907	W. Thompson	225	2,550	115	6,678 C
Savannah State College, Savannah, Ga.	St	1890	W. K. Payne	75	...	...	1,161 C
Scranton, University of, Scranton, Pa.	RC	1888	J. J. Long	113	1,044	123	2,136 M
Seattle Pacific College, Seattle, Wash.	FM	1891	C. H. Watson	45	...	...	1,112 C
Seattle University, Seattle, Wash.	RC	1891	A. A. Lemieux	77	1,928	3	3,054 C
Seneca, Colleges of the: Hobart and Wm. Smith Colleges, Geneva, N.Y.	Pri	1822	A. W. Brown	59	896	3	899 C
Sequoias, College of the, Visalia, Calif.	St	1926	I. Crookshanks	51	1,394	...	1,394 C
Seton Hall University, South Orange, N.J.	RC	1856	J. McNulty	299	2,475	151	7,107 C
Seton Hall College, Greensburg, Pa.	RC	1883	W. G. Ryan	56	422	...	832 W
Shasta College, Redding, Calif.	St	1950	G. A. Collyer	29	664	...	732 C
Shaw University, Raleigh, N.C.	Bapt	1865	W. Strasser	35	511	3	648 C
Shepherd College, Shepherdstown, W. Va.	St	1872	O. Ikenberry	35	672	...	1,794 C
Shurtleff College, Alton, Ill.	Bapt	1827	R. E. Turnbull	28	384	...	394 C
Siena Heights College, Adrian, Mich.	RC	1919	Moth. M. Gerald	43	383	3	386 W
Sierra College, Auburn, Calif.	St	1936	H. Weaver	27	643	...	673 C
Simmons College, Boston, Mass.	Pri	1899	W. E. Park	96	1,237	132	1,614 W
Simpson College, Indianola, Iowa	Meth	1860	W. Kerstetter	33	536	...	540 C
Sinclair College, Dayton, Ohio	YMCA	1887	C. C. Bussey	35	54	...	1,205 C
Sir George Williams College, Montreal, P.Q.	YMCA	1929	K. E. Norris	32	703	...	5,028 C
Skidmore College, Saratoga Springs, N.Y.	Pri	1911	H. T. Moore	90	1,035	...	1,060 W
Smith College, Northampton, Mass.	Pri	1871	B. F. Wright	225	2,225	38	2,312 W
South, University of the, Sewanee, Tenn.	Epis	1857	E. McCrady	56	449	61	515 M
South Carolina, University of, Columbia, S.C.	St	1801	D. Russell	255	3,489	380	4,218 C
South Carolina State College, Orangeburg, S.C.	St	1896	B. C. Turner	181	1,157	103	1,260 C
South Dakota, University of, Vermillion, S.Dak.	St	1882	I. D. Weeks	135	1,609	127	1,736 C
South Dakota School of Mines & Tech., Rapid City, S.Dak.	St	1876	F. L. Partlo	65	639	10	715 C
South Dakota State College, Brookings, S.Dak.	St	1881	J. W. Headley	285	2,452	88	2,625 C
South Georgia College, Douglas, Ga.	St	1907	W. S. Smith	20	447	...	447 C
South Texas College, Houston, Texas	YMCA	1923	W. Randolph	9	125	15	750 C
Southeast Missouri State College, Cape Girardeau, Mo.	St	1873	W. W. Parker	62	1,548	...	1,548 C
Southeastern Bapt. Theol. Sem., Wake Forest, N.C.	SB	1951	S. Stealey	16	394	18	412+C
Southeastern Louisiana College, Hammond, La.	St	1925	L. H. Dyson	107	1,175	...	1,232 C
Southeastern State College, Durant, Okla.	St	1909	A. E. Shearer	65	1,701	295	1,996 C
Southeastern University, Washington, D.C.	YMCA	1909	L. J. Maas	...	...	...	590+C
Southern Baptist Theol. Seminary, Louisville, Ky.	Bapt	1859	D. K. McCall	38	106	1,147	1,253 C
Southern California, Univ. of, Los Angeles, Calif.	Pri	1880	F. Fagg, Jr.	480	6,475	2,498	24,500 C
Southern Illinois University, Carbondale, Ill.	St	1869	D. W. Morris	289	4,881	300	7,890 C
Southern Methodist University, Dallas, Texas	Meth	1911	W. M. Tate	281	...	...	7,290 C
Southern Missionary College, Collegedale, Tenn.	SDA	1893	K. A. Wright	45	600	...	600 C
Southern Oregon Coll. of Educ., Ashland, Oreg.	St	1926	E. Stevenson	50	1,345	75	1,420 C
Southern State College, Magnolia, Ark.	St	1909	D. Camp	57	1,410	...	1,410 C
Southern University, Baton Rouge, La.	St	1880	F. G. Clark	214	3,673	8	3,681 C
Southwest Baptist College, Bolivar, Mo.	Bapt	1878	J. W. Dowdy	23	542	...	594 C
Southwest Missouri State Coll., Springfield, Mo.	St	1906	R. Ellis	110	3,766	...	3,766 C
Southwest Texas St. Teach. Coll., San Marcos, Texas	St	1899	J. Flowers	113	1,905	213	2,118 C
Southwestern at Memphis, Memphis, Tenn.	Pres	1848	P. N. Rhodes	46	532	...	638 C
Southwestern Baptist Theol. Sem., Ft. Worth, Texas	Bapt	1908	J. Williams	40	...	2,375	2,375 C

COLLEGES AND UNIVERSITIES, 1954-55

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
Southwestern Bible Institute, Waxahachie, Texas.	AG	1927	M. E. Collins	30	450	10	490 C
Southwestern College, Winfield, Kans.	Meth	1885	C. O. Strohl	31	381	...	489 C
Southwestern Louisiana Inst., Lafayette, La.	St	1898	J. Fletcher	245	3,315	...	3,845 C
Southwestern State College, Weatherford, Okla.	St	1901	R. H. Burton	67	1,189	...	1,738 C
Southwestern University, Georgetown, Texas.	Meth	1840	W. C. Finch	40	450	...	509 C
Spelman College, Atlanta, Ga.	Bapt	1881	A. E. Manley	35	499	...	499 W
Spring Garden Institute, Philadelphia, Pa.	Pri	1850	L. Ramsey	28	310	...	1,300 C
Spring Hill College, Spring Hill, Ala.	RC	1830	A. C. Smith	63	1,400	...	1,400 C
Springfield College, Springfield, Mass.	Pri	1885	D. C. Stone	90	797	125	1,243 C
Stanford University, Stanford, Calif.	Pri	1885	J. Sterling	571	4,950	2,358	7,308 C
Stephen F. Austin State Coll., Nacogdoches, Texas	St	1923	P. L. Boynton	70	1,095	262	1,357 C
Stephens College, Columbia, Mo.	Pri	1833	T. A. Spragens	219	1,504	...	1,535 W
Stetson University, DeLand, Fla.	Bapt	1883	J. O. Edmunds	96	1,315	69	1,572 C
Steubenville, College of, Steubenville, Ohio	RC	1946	D. W. Egan	22	485	...	931 C
Stevens Institute of Technology, Hoboken, N.J.	Pri	1870	J. H. Davis	82	819	...	1,613 M
Stockton College, Stockton, Calif.	Mun	1935	J. Bortolazzo	178	1,368	...	1,610 C
Stout State College, Menomonie, Wis.	St	1903	V. Fryklund	48	896	211	1,107 C
Strayer College of Accountancy, Washington, D.C.	Pri	1904	E. Dohono	...	483†	...	C
Suffolk University, Boston, Mass.	Pri	1906	R. J. Munce	30	547	328	936 C
Sul Ross State College, Alpine, Texas.	St	1920	B. Wildenthal	45	823	105	928 C
Susquehanna University, Selinsgrove, Pa.	Luth	1858	G. M. Smith	38	404	...	414 C
Swarthmore College, Swarthmore, Pa.	Pri	1864	C. C. Smith	108	909	5	925 C
Sweet Briar College, Sweet Briar, Va.	Pri	1901	A. Pannell	58	472	...	472 W
Syracuse University, Syracuse, N.Y.	Pri	1871	W. P. Tolley	455	...	...	16,674 C
Talladega College, Talladega, Ala.	Pri	1867	A. D. Gray	29	305	...	319 C
Tampa University of, Tampa, Fla.	Pri	1931	E. C. Nance	45	895	23	1,671 C
Tarleton State College, Stephenville, Texas.	St	1899	E. J. Howell	69	722	...	722 C
Taylor University, Upland, Ind.	Pri	1846	E. H. Bergwall	28	521	...	542 C
Temple Jr. College, Temple, Texas.	Mun	1926	N. Smith	17	381	...	381 C
Temple University, Philadelphia, Pa.	Pri	1884	R. L. Johnson	560	4,900	6,400	18,200 C
Tennessee, University of, Knoxville, Tenn.	St	1794	C. E. Brehm	1,105	7,856	4,231	12,087 C
Tennessee A. & I. State Coll., Nashville, Tenn.	St	1912	W. S. Davis	188	2,452	111	2,563 C
Tennessee Polytechnic Inst., Cookeville, Tenn.	St	1915	E. Derryberry	120	2,261	...	2,524 C
Texarkana College, Texarkana, Texas.	Mun	1927	H. W. Stilwell	23	623	...	900 C
Texas, A. & M. College of, College Station, Texas	St	1876	D. H. Morgan	517	6,192	514	6,706 M
Texas, University of, Austin, Texas.	St	1881	L. Wilson	1,172	...	...	21,206 C
Texas Christian University, Fort Worth, Texas.	DC	1873	M. E. Sadler	166	2,726	243	5,798 C
Texas College, Tyler, Texas.	ME	1894	D. R. Glass	41	750	39	789 C
Texas College of Arts & Ind., Kingsville, Texas.	St	1925	E. H. Potet	110	1,890	387	2,267 C
Texas Lutheran College, Seguin, Texas.	Luth	1891	E. A. Sagebiel	28	452	...	452 C
Texas Southern University, Houston, Texas.	St	1947	R. O. Lanier	166	3,267	277	5,610 C
Texas Southmost College, Brownsville, Texas.	St	1926	C. J. Garland	18	494	...	1,639 C
Texas State College for Women, Denton, Texas.	St	1901	J. A. Guinn	155	2,089	589	3,078 W
Texas Technological College, Lubbock, Texas.	St	1923	E. N. Jones	283	7,037	1,211	8,248 C
Texas Wesleyan College, Fort Worth, Texas.	Meth	1891	L. Sone	43	604	72	1,388 C
Texas Western College, El Paso, Texas.	St	1913	D. E. Holcomb	112	3,242	179	4,498 C
Thiel College, Greenville, Pa.	UL	1866	F. B. Irvin	36	593	...	593 C
Thornton Junior College, Harvey, Ill.	Dst	1927	E. M. Hanson	24	464	...	464 C
Toledo, University of, Toledo, Ohio.	Mun	1872	A. S. Knowles	180	3,001	31	7,797 C
Toronto, University of, Toronto, Ont.	Prov	1827	S. E. Smith	1,535	8,167	1,975	10,831 C
Transylvania College, Lexington, Ky.	Pri	1780	F. A. Rose	32	449	...	449 C
Trinity College, Hartford, Conn.	Pri	1823	A. C. Jacobs	86	925	5	1,275 M
Trinity College, Washington, D.C.	RC	1897	Sr. M. Patrick	51	487	...	487 W
Trinity University, San Antonio, Texas.	Pres	1869	J. W. Laurie	76	1,189	163	2,927 C
Tri-State College, Angola, Ind.	Pri	1884	T. T. Wood	50	1,400	...	1,400 C
Tufts University, Medford, Mass.	Pri	1852	N. Y. Wessell	187	2,436	1,024	4,249 C
Tulane University, New Orleans, La.	Pri	1834	R. C. Harris	593	3,142	1,114	8,429 C
Tulsa, University of, Tulsa, Okla.	Pri	1895	C. I. Pontius	150	2,104	509	5,276 C
Tuskegee Institute, Tuskegee Institute, Ala.	Pri	1881	L. H. Foster	202	1,676	121	1,943 C
Tyler Junior College, Tyler, Texas.	Dst	1926	H. E. Jenkins	45	1,039	...	1,112 C
Union College, Barboursville, Ky.	Meth	1879	C. Boatman	25	486	...	840 C
Union College, Lincoln, Nebr.	SDA	1891	H. C. Hartman	42	780	...	1,078 C
Union College and University, Schenectady, N.Y. ¹⁰	Pri	1795	C. Davidson	376	100	1,200	2,500 C
Union Junior College, Cranford, N.J.	Pri	1933	K. C. MacKay	15	281	...	547 C
Union Theol. Seminary, New York, N.Y.	Pri	1836	H. Van Dusen	34	...	538	640 C
Union University, Jackson, Tenn.	Bapt	1825	W. F. Jones	30	600	...	600 C
United College, Winnipeg, Man.	UCC	1871	W. C. Lockhart	39	837	...	1,079 C
U.S. Coast Guard Academy, New London, Conn.	Fed	1876	R. J. Mauerman	51	517	...	517 M
U.S. Dept. of Agric. Grad. School, Washington, D.C.	Fed	1921	T. R. Reid	300	...	...	4,761 ¹¹ C
U.S. Merchant Marine Acad., Kings Point, N.Y.	Fed	1938	G. McLintock	67	820	...	820 M
U.S. Military Academy, West Point, N.Y.	Fed	1802	B. M. Bryan	330	2,370	...	2,370 M
U.S. Naval Academy, Annapolis, Md.	Fed	1845	W. F. Boone	472	3,702	...	3,702 M
U.S. Naval Postgrad. School, Monterey, Calif.	Fed	1909	F. Moosbrugger	169	481	442	923 C
Upper Iowa University, Fayette, Iowa.	Pri	1857	E. E. Garbee	21	275	...	471 C
Upsala College, East Orange, N.J.	Luth	1893	E. B. Lawson	70	1,650	...	1,880 C
Ursinus College, Collegeville, Pa.	ER	1869	N. McClure	45	700	...	800 C
Ursuline College, Louisville, Ky.	Pri	1938	Moth. Columba	23	209	...	568 W
Utah, University of, Salt Lake City, Utah.	St	1850	A. R. Olpin	472	7,413	2,037	16,684 C
Utah State Agric. Coll., Logan, Utah.	St	1888	D. Chase	304	3,430	428	3,858 C
Valdosta State College, Valdosta, Ga.	St	1906	J. Thaxton	30	...	...	573 C
Vallejo Junior College, Vallejo, Calif.	Dst	1945	H. D. Wiser	35	615	...	639 C
Valparaiso Tech. Inst., Valparaiso, Ind.	Pri	1909	J. Hershman	12	350	...	350 C
Valparaiso University, Valparaiso, Ind.	Luth	1859	O. Kretzmann	118	1,989	...	2,342 C
Vanderbilt University, Nashville, Tenn.	Pri	1872	H. Branscomb	456	2,231	1,064	3,378 C
Vassar College, Poughkeepsie, N.Y.	Pri	1861	S. G. Blanding	206	1,423	4	1,433 W
Ventura College, Ventura, Calif.	Dst	1929	H. G. Price	63	1,302	...	1,740 C
Vermont, University of, Burlington, Vt.	Pri	1791	C. Borgmann	340	2,462	232	2,782 C
Victoria College, Victoria, B.C.	Mun	1902	W. H. Hickman	19	329	...	337 C
Victoria College, Victoria, Texas.	Dst	1925	J. D. Moore	28	428	...	734 C
Victoria University, Toronto, Ont.	UCC	1836	A. B. Moore	38	982	128	1,191 C

COLLEGES AND UNIVERSITIES, 1954-55

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Villa Madonna College, Covington, Ky.....	RC	1921	J. F. Murphy.....	30	568	...	853 C
Villa Maria College, Erie, Pa.....	RC	1925	Moth. M. Aurelia..	22	157	...	300*W
Villanova University, Villanova, Pa.....	RC	1842	J. A. Donnellon....	165	2,675	92	5,819 M
Vincennes University, Vincennes, Ind.....	Pri	1806	I. K. Keckes.....	15	345	...	427 C
Virginia, Medical College of, Richmond, Va.....	St	1838	W. T. Sanger.....	239	...	...	1,107 C
Virginia, University of, Charlottesville, Va.....	St	1819	C. Darden, Jr.....	477	3,252	1,762	4,940 M
Virginia Military Institute, Lexington, Va.....	St	1839	W. H. Milton, Jr....	88	917	...	917 M
Virginia Polytechnic Institute, Blacksburg, Va.....	St	1872	W. S. Newman.....	360	3,475	218	5,052 C
Virginia State College, Petersburg, Va.....	St	1882	R. P. Daniel.....	220	2,963	462	5,142 C
Virginia Union University, Richmond, Va.....	Bapt	1899	S. D. Proctor.....	37	934	39	973 C
Wabash College, Crawfordsville, Ind.....	Pri	1832	F. H. Sparks.....	43	568	...	568 M
Wagner Lutheran College, Staten Island, N.Y.....	Luth	1883	D. M. Delo.....	64	876	141	1,517 C
Wake Forest College, Wake Forest, N.C.....	Bapt	1834	H. W. Tribble.....	154	1,313	442	1,778 C
Walla Walla College, College Place, Wash.....	SDA	1892	P. Christian.....	53	860	56	1,106 C
Wartburg College, Waverly, Iowa.....	AL	1852	C. H. Becker.....	41	683	...	702 C
Washburn University, Topeka, Kans.....	Mun	1865	B. S. Stoffer.....	80	1,100	150	2,229 C
Washington, State College of, Pullman, Wash.....	St	1890	C. C. French.....	338	5,215	1,025	6,240 C
Washington, University of, Seattle, Wash.....	St	1861	H. Schmitz.....	900	...	...	18,263 C
Washington and Jefferson College, Washington, Pa.....	Pri	1781	B. Patterson.....	51	540	...	714 M
Washington and Lee University, Lexington, Va.....	Pri	1749	F. P. Gaines.....	81	1,047	...	1,047 M
Washington College, Chestertown, Md.....	Pri	1782	D. Z. Gibson.....	36	418	...	423 C
Washington Missionary Coll., Takoma Park, Md.....	SDA	1904	W. H. Shephard....	33	562	...	855 C
Washington University, St. Louis, Mo.....	Pri	1853	E. A. Shepley.....	561	3,166	2,036	11,400 C
Wayland Baptist College, Plainview, Texas.....	Bapt	1909	A. H. Owen.....	28	624	...	624 C
Wayne University, Detroit, Mich.....	Mun	1868	C. B. Hilberry.....	692	5,674	965	15,333 C
Waynesburg College, Waynesburg, Pa.....	Pres	1849	P. R. Stewart.....	26	889	...	889 C
Weber College, Ogden, Utah.....	St	1889	W. P. Miller.....	77	1,856	...	5,518 C
Webster College, Webster Groves, Mo.....	RC	1915	Sr. M. Collins.....	35	328	...	727 W
Wellesley College, Wellesley, Mass.....	Pri	1870	M. Clapp.....	157	1,709	25	1,734 W
Wells College, Aurora, N.Y.....	Pri	1868	L. J. Long.....	43	353	2	355 W
Wenatchee Valley College, Wenatchee, Wash.....	Dst	1939	J. M. Starr.....	19	245	...	481 C
Wentworth Institute, Boston, Mass.....	Pri	1904	H. R. Beatty.....	64	750	...	1,451 M
Wesleyan College, Macon, Ga.....	Meth	1836	B. J. Martin.....	60	451	...	673 W
Wesleyan University, Middletown, Conn.....	Pri	1831	V. Butterfield.....	97	755	57	898 M
West Contra Costa Junior College, Richmond, Calif.....	Dst	1950	J. P. Cosand.....	80	2,159	...	5,435 C
West Georgia Coll., Carrolton, Ga.....	St	1933	I. S. Ingram.....	22	447	...	447 C
West Liberty State College, West Liberty, W.Va.....	St	1837	P. N. Elbin.....	35	711	...	1,392 C
West Texas State College, Canyon, Texas.....	St	1910	J. P. Cornette.....	93	4,088	496	4,417 C
West Virginia Inst. of Tech., Montgomery, W.Va.....	St	1895	W. B. Axtell.....	49	598	...	646 C
West Virginia State College, Institute, W.Va.....	St	1891	W. Wallace.....	84	1,003	...	1,295 C
West Virginia University, Morgantown, W.Va.....	St	1867	I. Stewart.....	432	4,554	562	5,511 C
West Virginia Wesleyan College, Buckhannon, W.Va.....	Meth	1890	W. Scarborough....	32	607	...	840 C
Westchester Community College, White Plains, N.Y.....	Dst	1946	P. C. Martin.....	38	556	...	1,562 C
Western Carolina Coll., Cullowhee, N.C.....	St	1889	P. A. Reid.....	43	990	166	1,150 C
Western Illinois State Coll., Macomb, Ill.....	St	1899	F. A. Beu.....	127	1,723	24	2,147 C
Western Kentucky State Coll., Bowling Green, Ky.....	St	1906	E. Thompson.....	110	1,906	44	1,950 C
Western Maryland College, Westminster, Md.....	Pri	1867	L. S. Ensor.....	57	642	9	651 C
Western Michigan Coll., Kalamazoo, Mich.....	St	1904	P. V. Sangren.....	338	4,735	49	5,750 C
Western Ontario, University of, London, Ont.....	Prov	1878	G. E. Hall.....	365	2,252	175	3,635 C
Western Reserve University, Cleveland, Ohio.....	Pri	1826	J. S. Millis.....	785	1,918	1,653	11,287 C
Western State College of Colo., Gunnison, Colo.....	St	1901	P. P. Mickelson....	98	706	268	974 C
Western Wash. Coll. of Educ., Bellingham, Wash.....	St	1899	W. W. Haggard....	98	1,633	51	2,110 C
Westmar College, Le Mars, Iowa.....	EUB	1890	D. O. Kime.....	39	411	...	435 C
Westminster College, Fulton, Mo.....	Pres	1851	R. Davidson.....	32	327	...	327*W
Westminster College, New Wilmington, Pa.....	UP	1852	W. W. Orr.....	68	818	7	1,115 C
Westminster College, Salt Lake City, Utah.....	Inter	1875	J. R. Palmer.....	24	374	...	390 C
Westmont College, Santa Barbara, Calif.....	Pri	1940	R. Voskuyl.....	22	356	...	356 C
Wharton County Junior College, Wharton, Texas.....	Dst	1946	J. M. Hodges.....	33	510	...	596 C
Wheaton College, Wheaton, Ill.....	Pri	1860	V. R. Edman.....	107	1,647	60	1,857 C
Wheaton College, Norton, Mass.....	Pri	1834	A. H. Menely.....	75	530	...	530 W
Wheelock College, Boston, Mass.....	Pri	1889	F. Mayfarth.....	25	351	...	385 W
Whitman College, Walla Walla, Wash.....	Pri	1859	C. C. Maxey.....	44	713	...	724 C
Whittier College, Whittier, Calif.....	Pri	1904	P. S. Smith.....	68	1,816	32	3,002 C
Whitworth College, Spokane, Wash.....	Pres	1890	F. F. Warren.....	43	945	10	1,075 C
Wichita, Municipal University of, Wichita, Kans.....	Mun	1895	H. F. Corbin.....	170	5,395	450	5,845 C
Wiley College, Marshall, Texas.....	Meth	1873	J. S. Scott.....	39	638	...	1,204 C
Wilkes College, Wilkes-Barre, Pa.....	Pri	1933	E. S. Farley.....	43	721	...	1,621 C
Willamette University, Salem, Oreg.....	Meth	1842	G. H. Smith.....	82	1,008	23	1,116 C
William and Mary, College of, Williamsburg, Va.....	St	1693	A. D. Chandler.....	123	1,705	78	1,783 C
William Jewell College, Liberty, Mo.....	Bapt	1849	W. P. Binns.....	45	798	...	830 C
William Woods College, Fulton, Mo.....	Pri	1890	T. Swearingen.....	28	320	...	320 W
Williams College, Williamstown, Mass.....	Pri	1793	J. P. Baxter, 3rd....	137	1,064	8	1,072 M
Willamantic State Teach. Coll., Willamantic, Conn.....	St	1889	J. E. Smith.....	50	230	...	462 C
Wilson College, Chambersburg, Pa.....	Fr	1871	S. D. Marble.....	21	599	...	629 C
Winston-Salem Teach. Coll., Winston-Salem, N.C.....	Pri	1869	P. S. Havens.....	43	347	...	347 W
Winthrop College, Rock Hill, S.C.....	St	1892	F. L. Atkins.....	50	837	...	837 C
Wisconsin, University of, Madison, Wis.....	St	1886	H. R. Sims.....	123	1,047	...	1,099 W
Wisconsin State College, Eau Claire, Wis.....	St	1848	E. B. Fred.....	2,297	14,649	3,804	32,400 C
Wisconsin State College, LaCrosse, Wis.....	St	1915	W. R. Davies.....	68	1,144	...	1,678 C
Wisconsin State College, Milwaukee, Wis.....	St	1909	R. Mitchell.....	78	1,166	...	1,179 C
Wisconsin State College, Oshkosh, Wis.....	St	1880	J. M. Klotzsche....	130	2,800	100	2,900 C
Wisconsin State College, Platteville, Wis.....	St	1871	F. R. Polk.....	62	977	...	1,422 C
Wisconsin State College, River Falls, Wis.....	St	1866	C. O. Newlun.....	65	776	...	776 C
Wisconsin State College, Stevens Point, Wis.....	St	1874	E. Kleinpell.....	60	825	...	825 C
Wisconsin State Coll., Superior, Wis.....	St	1894	W. C. Hansen.....	65	841	...	1,773 C
Wisconsin State College, Whitewater, Wis.....	St	1893	J. D. Hill.....	65	1,043	...	1,043*W
Wittenberg College, Springfield, Ohio.....	UL	1868	R. Williams.....	70	1,469	...	1,469 C
Wofford College, Spartanburg, S.C.....	Meth	1845	C. Stoughton.....	75	...	...	2,514 C
		1854	F. Gaines, Jr.....	32	664	...	823 M

Institution and location	Control or affiliation	Year founded	Chief executive	Full-time faculty	Full-time students		Total Students Enrolled
					Under-graduate	Graduate	
Wooster, College of, Wooster, Ohio.....	Pres	1866	H. F. Lowry.....	91	1,050	4	1,068 C
Worcester Junior College, Worcester, Mass.....	YMCA	1905	H. Bentley.....	30	534	...	1,327 C
Worcester Polytechnic Institute, Worcester, Mass.....	Pri	1865	A. Bronwell.....	88	782	7	829 M
Wyoming, University of, Laramie, Wyo.....	St	1887	G. Humphrey.....	312	2,375	218	2,762 C
Xavier University, New Orleans, La.....	RC	1925	Sr. M. Josephina....	87	949	...	1,113 C
Xavier University, Cincinnati, Ohio.....	RC	1831	P. O' Connor.....	99	...	...	3,509 C
Yakima Valley Junior College, Yakima, Wash....	St	1928	H. A. Hoeglund....	29	565	...	570 C
Yale University, New Haven, Conn.....	Pri	1701	A. Griswold.....	820	3,990	3,135	7,555 M
Yeshiva University, New York, N.Y.....	Jew	1886	S. Belkin.....	72	1,877	141	2,817 C
Youngstown University, Youngstown, Ohio.....	Pri	1908	H. W. Jones.....	152	1,976	...	3,846 C
Yuba College, Marysville, Calif.....	Dst	1927	J. J. Collins.....	36	650	...	1,900 C

(COLLIER—Continued from Page 154)

barked on a series of plays that won her unqualified praise. On Sept. 12, 1923, she appeared as the Duchesse de Surrénées in W. Somerset Maugham's *Our Betters*, which played for 548 performances, the longest run of her career. In 1925, at the Haymarket Theatre, she staged a brilliant production of *Hamlet*, in which she played the queen to John Barrymore's Hamlet. In February 1928, she revived *Our Betters* in New York, repeating her London success. Her last New York appearance came in 1939 at the John Golden Theatre as Madame Bernardi in *Aries Is Arising*.

In 1915, Miss Collier went to Hollywood to make her first motion picture, *Intolerance*. Usually playing *grande dame* roles, she subsequently appeared in *Girls' Dormitory* (1936); *Thunder City* (1937); *Kitty* (1946); *The Perils of Pauline* (1947); *An Ideal Husband* (1948); and *Whirlpool* (1950). She was co-author, with Ivor Novello, of *The Rat* (produced 1924) and *Down Hill* (1926), and published *Harlequinade: The Story of My Life* (1930). In her later years she became a dramatic coach, and numbered among her students such diverse personalities as Katharine Hepburn, Shelley Winters, and Marilyn Monroe.

COLOMBIA. The fifth largest country in Latin America (439,829 square miles), Colombia has a population of 12,657,000 (1955 estimate), consisting of approximately 65% mestizos, 20% persons of European descent, 8% Negroes, and 6% Indians. Principal cities, with May 1951 census counts, are Bogotá, the capital (648,324); Medellín (358,189); Cali (284,186); Barranquilla (279,627); Cartagena (128,877); Manizales (126,201); Bucaramanga (112,252); and Cúcuta (95,110).

Government.—The constitution of 1886, as revised in 1936 and 1945, was in effect during 1955, but a National Constituent Assembly existed. Under the 1886 document, executive power is vested in a president elected directly for 4 years and ineligible for re-election until 4 years after serving a term. He is assisted by a 13-man cabinet and a 10-member advisory Council of State. Legislative authority resides in a bicameral Congress of 63 senators and 131 deputies, elected proportionately for 4- and 2-year terms, respectively. Senators are chosen by direct vote of the electorate (1 for each 190,000 persons), and representatives are chosen by the people in each department (1 for each 90,000 persons). An act of Aug. 25, 1954, gave women the right to vote. The judicial system is headed by a 16-member Supreme Court.

Lieut. Gen. Gustavo Rojas Pinilla, who had become president through a military coup on June 13, 1953, was elected president by the Constituent Assembly on Aug. 3, 1954.

Religion and Education.—Roman Catholicism, the dominant religion, has been disestablished since 1936, but on Aug. 3, 1954, the Constituent Assembly appointed two representatives of the church to its membership.

Education in Colombia is free, but not compulsory.

In 1953 there were 16,174 schools of all types in the country (14,223 public and private primary schools with 1,072,532 pupils out of a total of 1,225,130 students). There were 21 universities with 11,629 students enrolled in 1953. The illiteracy rate in 1952 was estimated at 37%.

Finance.—The national accounts for 1954 showed a surplus of 170 million pesos over the budget of 997,-386,500 pesos for that year. Of this surplus, 117 million pesos represented an excess of income over the estimate, and the remaining 53 million pesos resulted from a reduction in planned expenditures. The original 1955 budget of 939 million pesos was increased to 1,629 million pesos by the end of March. Current revenues in the first half of 1955 totaled 729 million pesos, or 55% more than one half of the original budget estimate for the year. The difference was partly the result of a different method used in the collection of income taxes.

Economy and Industry.—By mid-1955, Colombia's cost of living index was 161 (1948 = 100), a point higher than the 1954 average. With the fall of coffee prices toward the end of 1954, Colombia imposed import curbs. The break in the coffee market pointed up the country's "one-crop" economy and gave impetus to the study of means of promoting economic diversification.

Although manufacturing plays only a minor role in the Colombian economy, the industrial production capacity is constantly being expanded. A 1953 census of industry revealed that there were 47,112 manufacturing establishments employing a total of 171,871 persons. Gross production was valued at approximately 4 billion pesos (U.S.\$1.6 billion). Foodstuff processing constituted the most important single industry, with a gross production value of \$550 million, followed by beverages (160 million), textiles (145 million), shoes and apparel (\$108 million), chemicals (\$61 million), and nonmetallic minerals, not including petroleum and coal (\$59 million).

The Cauca Autonomous Regional Corporation, similar in constitution and purpose to the Tennessee Valley Authority in the United States, was created in 1955, and a 24,000-kw. hydroelectric plant was completed on the Anchicaya River near Cali. Construction of a 25,000-kw. transmission line (to connect Belénito, the site of the Paz del Rio steel mill, with the thermoelectric power plant at Paipa) was begun, and plans were completed for building two new cement plants (one each in Boyaca and Caldas departments).

Crude oil production totaled 5,532,000 metric tons in 1954. In the first 7 months of 1955, production fell to 22,592,000 barrels from approximately 24 million barrels in the like period of 1954. The government, however, encouraged new exploration by increasing petroleum depletion allowances. International Petroleum (Colombia), Limited, is constructing a 25,000-barrel refinery at Cartagena, which is expected to be in operation before the end of 1958. The output will supplement that of the plant at Barranca-

bermeja, so that the two will render Colombia self-sufficient in oil products. In 1955 final arrangements were made for construction of an oil products pipeline from Buenaventura, on the Pacific coast, to Cali.

Agriculture and Food Production.—Colombia's principal cash crop is coffee. Production in 1954-55 totaled 6.5 million bags (132.28 pounds each); 7.2 million bags, or 16% of the total expected world production, were forecast for the 1955-56 crop year. Colombia's rising coffee production reflects the ever greater acreages devoted to the crop. An average of 660,000 hectares were planted to coffee between 1946 and 1951, but by 1954 the figure was 30% greater.

In 1954 significant gains over 1953 were made in the production of cotton, rice, and sugar. Cotton production rose from 20,000 to 29,000 metric tons; rice, from 285,000 to 310,000 metric tons; and sugar, from 218,000 to 245,000 metric tons. The 65 million pounds of tobacco produced in 1955 was 16% greater than the 1954 crop. Barley production decreased considerably in 1954, with only 48,000 metric tons output, compared with the 1953 crop of 65,000 metric tons. The potato output fell from 610,000 metric tons in 1953 to 526,000 in 1954. Banana production remained stable. In 1954 there were 1,157,000 horses, 1,118,000 sheep, and approximately 15.5 million cattle in the country. Over two thirds of the latter had the foot-and-mouth disease.

Foreign Trade.—Colombia's foreign trade reached record heights in 1954, but dropped off in 1955. The 1954 imports amounted to 1,626.6 million pesos (1 peso equals U.S.-\$0.3984), and the exports for that year were valued at 1,640.9 million pesos. Imports valued at 879 million pesos in the first half of 1955 were 114 million pesos greater than in the first half of 1954. The exceptionally heavy import volume, in which motor vehicles were important, was due partly to importers' apprehension of increasingly severe import restrictions. Exports totaled 636 million pesos in the first half of 1955, or 258 million pesos less than in the same period of 1954. The reduction was mainly attributable to coffee, of which exports were 4,865,241 bags for the crop year ended June 30, 1955, a substantial reduction from the 6,923,647 bags exported in the coffee year ended June 30, 1954. The United States, Colombia's major customer, took only \$194 million worth of coffee during the first half of 1955, compared with \$307 million for the same period of 1954.

Transportation and Communication.—Colombia's 17 railway systems (2,154 miles of track) have been nationalized since 1954. In June 1955 a second International Bank loan of \$15.9 million was made for a 190-mile rail extension of the Magdalena Valley Railroad. In 1952 there were 11,200 miles of roads available for the country's 43,000 passenger cars and 34,000 commercial vehicles. In 1955 a 236-mile road from Medellín to Turbo, on the Gulf of Urabá, was inaugurated. In civil aviation, Colombia ranks third, after Brazil and Argentina, among South American countries. In 1953 the airlines carried 1,018,555 passengers and 117,953 metric tons of cargo. In September 1954, the government bought all the airfields in the country from Avianca, the leading civil airline. There were 128,970 telephones in operation in 1954.

Principal Events, 1955.—During 1955, President Gustavo Rojas Pinilla steadily gained power, and despite increasing opposition from Conservatives

as well as Liberals, it became ever more clear that his was becoming a dictatorial regime. By July 30, press censorship, previously imposed in isolated cases, was extended throughout the country and involved both opposition and pro-government newspapers. All copy, for foreign or domestic use, had to be approved by the army. Rojas, on May 13, blamed armed flare-ups in various parts of the country on Communists, but on June 2, a newspaper was subjected to censorship for violating a government ban on publication of reports about public disturbances. The paper had reported that outlaws wearing army uniforms had killed 27 persons in an attack on a community near Tolima. The highly respected Liberal paper, *El Tiempo*, was shut down completely by the government on August 4. On August 29 the government announced its intention to take control of the price and distribution of newsprint as a first step toward nationalizing Colombian publications.

Colombia's backlands feud between Liberals and Conservatives continues. Rojas stated that 2,000 or more lives had been lost in 1955, and other sources estimate that the six-year death toll in Colombia's "civil war" has reached 150,000.

On Aug. 21, 1954, a few days after making General Rojas president, the Constituent Assembly adopted a reorganization program that set July 20, 1955, as the date for a regular congress to take over. In June 1955, however, Rojas announced that the Constituent Assembly would not sit during the year, stating that "when (a parliament) becomes a tribune for libel, it must be closed." To strengthen his regime, he placed inexperienced army officers in many civilian posts.

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COLOMBO PLAN. See COMMONWEALTH OF NATIONS.

COLORADO. Western state, United States; admitted to the Union, Aug. 1, 1876. The "Centennial State" ranks 7th in area and 33d in population (1955) among the 48 states.

Area and Population.—Area: 104,247 square miles (land, 103,922; inland water, 325), divided into 63 counties. Population: (1950) 1,325,089; (est., July 1, 1955) 1,508,000. Places with 1950 populations above 10,000 are as follows:

Aurora.....	11,421	Fort Collins.....	14,937
Boulder.....	19,999	Grand Junction.....	14,504
Colorado Springs.....	45,472	Greeley.....	20,354
Denver (capital).....	415,786	Pueblo.....	63,685
Englewood.....	16,869	Trinidad.....	12,204

Executive.—Chief state officers in 1955:

Governor: Edwin C. Johnson (Democrat)
Lieutenant Governor: Stephen L. R. McNichols
Secretary of State: George J. Baker
Auditor: Homer F. Bedford
Treasurer: Earl E. Ewing
Attorney General: Duke W. Dunbar
Commissioner of Education: H. Grant Vest

Constitution and Judiciary.—The present constitution went into effect in 1876. The Supreme Court comprises 7 justices; chief justice in 1955: Wilbur M. Alter.

Legislature.—The General Assembly (Senate 35 members; House of Representatives, 65) meets annually commencing the first Wednesday after the first Tuesday in January—for regular sessions in odd-numbered years and for budget sessions in even-numbered years.

The 1955 regular session increased the state property tax levy from \$2.71 to \$3.66 per \$1,000 assessed valuation to finance a 10-year institutional building program; authorized anticipation warrants by cities and counties to defray construction or improvement costs on public projects; revised the gross ton-mile tax on trucks and set up a port of entry system to improve collection of such revenue; and increased the state highway patrol by 60

men. Authorization was given for the expenditure of \$12,365,000 for new construction at the University of Colorado, a \$35 million highway construction program, a \$16 million bond issue to finance a toll tunnel under the Continental Divide, and more than \$30 million in construction at state institutions. Other legislation produced a new narcotics code; permitted mineral claims to be located on state-owned lands; prohibited solicitation of absentee election ballots; provided for equal pay for equal work, regardless of sex; created an Antidiscrimination Commission and a commission for reorganizing the state government; set up a new state military code; and improved the teachers retirement plan.

Finances.—In the 1954-55 fiscal year, treasury receipts totaled \$238,549,617.84; expenditures, including transfers, \$232,619,123.38. On June 30, 1955, the treasury cash balance was \$58,752,804.56, and there was no state bonded indebtedness.

Taxation.—State tax revenue (1955 fiscal year): \$129,218,000, including \$74,630,000 from a 2% general sales tax and selective sales and gross receipt taxes; \$17,143,000 from licensing; \$18,092,000 from individual income taxes; \$5,677,000 from corporate income taxes; and \$8,127,000 from property taxes. Colorado does not levy a poll tax.

Banking.—As of Jan. 1, 1955, deposits in Colorado's 153 national and state banks reached an all-time high of \$1,551,278,133, representing an increase of 8.5% over Jan. 1, 1954. The Denver metropolitan area, with a total of \$66,489,634, accounted for more than half of the increase. As of June 30, 1955, there were 52 state and federal savings and loan associations with total resources amounting to \$378,792,000.

Education.—School attendance is compulsory for all between the ages of 8 and 16, inclusive. The estimated total income for public education in the 1954-55 fiscal year was \$86,250,000, including \$1,500,000 from the federal government, \$14,750,000 from the state, and \$70,000,000 from local school districts. Operating expenditures were estimated at \$77,400,000 (\$293.98 per pupil), and capital outlays for construction and improvement totaled an estimated \$28,000,000. During the school year 1954-55 there were an estimated 292,000 elementary and secondary students, and 12,676 teachers, whose salaries averaged \$3,530. Students attending higher institutions numbered 28,884.

Social Welfare.—Public assistance expenditures from state and federal funds in the calendar year 1954 amounted to \$69,277,220.73, including \$51,464,126.17 for old-age assistance, \$7,066,550.23 for dependent children, \$325,420.17 for the blind, \$3,093,089.03 for the needy disabled, and \$3,099,794.16 for general assistance. State and county office administration expenses totaled \$3,312,359.37. Monthly averages of persons receiving assistance were: aged, 54,016; dependent children, 16,072; blind, 336; and needy, 4,652. The 1955-56 budget for correctional institutions was \$2,311,704.

COLORADO WELFARE INSTITUTIONS (As of Aug. 31, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic . . .	2	1,044
Hospitals for the mentally ill	1	5,660
Schools for the deaf and blind	1	202
Homes for dependent children	1	223
Industrial schools for boys	1	221
Industrial schools for girls	1	104
Soldiers and sailors homes	1	50
Reformatories for boys	1	356
Prisons	1	1,452

Labor Force.—Nonagricultural employees for the calendar year 1954 averaged 400,600, and by July 1955 had increased to 419,600. Unemployment benefits paid to a monthly average of 19,100 insured workers in the first eight months of 1955 totaled \$2,504,704.

Manufacturing.—An estimated 1,791 establishments produced \$438,466,000 in value added by manufacture in 1954. Gross sales of manufac-

turers, traders, and jobbers were \$657,000,000. Weekly earnings for production workers averaged \$72.94 for 40.3 hours in 1954 (\$71.34 for 41 hours in 1953) and rose to \$78.47 for 41.3 hours in June 1955. Employees in manufacturing industries in June 1955 numbered 64,500.

Major manufactures include food and kindred products, which in 1953 paid \$52,207,000 in wages to 14,581 employees and added \$100,765,000 in value by manufacture; and primary metals, which paid \$33,704,000 to 7,938 employees and added \$76,284,000 in value. Investment in new plant and equipment totaled \$26,583,000 in 1953.

Mining.—Mineral production, excluding uranium, was 14% higher in value in 1954 than in 1953. Colorado ranked first in 1954 in the production of uranium, which with its vanadium by-products was valued at \$118 million. In 1953, the state ranked first in output of molybdenum, second in fluorspar, third in feldspar, and fourth in beryl, columbium-tantalum, lithium minerals, gold, lead, and tungsten. Colorado ranked 17th in value with its 1953 output, accounting for 1.47% of the United States total. There were 13,843 persons employed in the state's mineral industries in 1954.

COLORADO MINERAL PRODUCTION, 1954 (In short tons, except where noted)

Mineral	Quantity ¹	Value ¹
Petroleum (bbl.)	42,000,000	\$120,000,000
Molybdenum (pounds)	43,000,000	16,107,000
Coal	3,000,000	9,000,000
Sand and gravel	13,000,000	7,714,500
Zinc	34,750	4,814,400
Lead	17,700	3,325,000
Gold (troy ounces)	95,000	3,127,000
Fluorspar	58,000	3,077,172
Silver (troy ounces)	3,400,000	864
Tungsten concentrate (60% WO ₃)	4,400	2,613,600
Copper	34,000,000	1,911,000
Natural gas (1,000 cubic feet)	800,000	1,575,000
Stone ²	800,000	1,472,000
Clays	800,000	63,996,128
Other minerals ⁴	...	241,800,000
Total ⁴	...	...

¹ Preliminary figures. ² Value included in "Other minerals." ³ Excluding limestone used in making cement and lime. ⁴ Excluding uranium.

Agriculture.—Cash farm income in the first half of 1955 totaled \$172,555,000, and for the full year 1954 amounted to \$453,520,000, including \$284,267,000 from livestock and livestock products, \$158,038,000 from crops, and \$11,215,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle (\$192,250,000), dairy products (\$29,395,000), eggs (\$9,589,000), hogs (\$12,922,000), wheat (\$51,709,000), sugar beets (\$18,591,000), dry edible beans (\$12,725,000),

COLORADO CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	1,316	1,600	1,180
Barley (1,000 bu.)	14,215	7,020	6,400
Beans, dry (1,000 bags)	1,978	1,991	2,062
Broomcorn (tons)	10,620	4,000	8,000
Corn (1,000 bu.)	13,807	9,325	11,798
Hay (1,000 tons)	2,226	1,986	2,214
Oats (1,000 bu.)	6,051	3,614	4,390
Peaches (1,000 bu.)	1,751	2,230	2,110
Pears (1,000 bu.)	180	270	165
Rye (1,000 bu.)	374	276	156
Potatoes (1,000 bu.)	18,126	17,600	18,585
Sorghum grain (1,000 bu.)	2,666	2,210	3,894
Sugar beets (1,000 short tons)	1,897	1,654	1,522
Wheat (1,000 bu.)	42,430	16,500	14,425

(Source: U.S. Department of Agriculture.)

potatoes (\$12,603,000), and hay (\$13,398,000).

The 1954 federal census of agriculture (prelim.) shows that the state's 40,749 farms were worked by an estimated 98,611 persons. Farms covered 38,385,234 acres (harvested cropland, 5,219,689; irrigated land, 2,202,921), and averaged 942 acres and \$36,450 in value for land and buildings. Farms with electricity numbered 37,915; with telephones, 27,424. Livestock on farms (Jan. 1, 1955) included 2,054,000 cattle, 1,702,000 sheep, 190,000 hogs, and 2,546,000 chickens (excluding commercial broilers).

Tourists.—Tourist travel represents Colorado's fourth largest industry. In 1954, the income derived from 3,883,000 vacationists totaled \$298,408,000, or an increase of 12.5% over 1953. The 1955 estimate (as of Sept. 22, 1955) was 3,916,000 tourists, spending \$326,719,000.

Transportation and Communications.—Funds available for roads and highways in 1954 totaled \$32,050,463.33, and newly completed construction aggregated 525 miles of roads and 60 bridges.

Highways and roads on Jan. 1, 1955, totaled 74,282 miles. Registered *motor vehicles* (August 1954 est.) numbered 672,000. There were 14 *railroads* (1954) operating 3,995.04 line miles, 5 regularly scheduled *airlines*, and 121 civil and military *airports and airfields*, including 73 personal-use landing strips.

Communications media in 1955 included 44 AM and 4 FM *radio stations* and 10 operating *television outlets*; 26 daily and 130 weekly *newspapers*; and (Jan. 1, 1955) 170,859 business and 365,985 residential *telephones*.

Principal Events, 1955.—The U.S. Air Force Academy was dedicated at its temporary campus at Lowry Air Force Base in Denver on July 11, and a first class of 306 students was sworn in. Plans went forward for construction of the permanent academy buildings at Colorado Springs (see also AIR FORCE, U.S.).

Denver became the center of world interest on September 24 when President Dwight D. Eisenhower suffered a heart attack at the summer White House and began a long convalescence at Fitzsimmons General Hospital, also in Denver.

Republican State Sen. Will Nicholson was elected mayor of Denver by a narrow margin over District Attorney Bert Keating, his Democratic opponent, in a run-off election on June 21. He took office on July 1 for a four-year term, succeeding Quigg Newton, a Democrat.

Denver's five-year building boom, which began in 1950 and rose to a \$100 million-plus mark in 1954, with a total of 26,665 new dwelling units erected since Jan. 1, 1950, continued in 1955 with a \$50 million business construction program. Largest single unit was the Webb and Knapp \$35 million department store-hotel complex being built at Courthouse Square.

Southeastern Colorado was plagued alternately by dust storms and floods, the former, during March, blowing away or damaging 60% of the new wheat crop. During May, floods in the same area caused damage to Trinidad and Starkville.

PEARL ANOE,
Colorado Feature and Literary Service.

COLUMBITE. See MINERAL PRODUCTION.

COMIC BOOKS. See Index entry.

COMMERCE. See INTERNATIONAL TRADE.

COMMODITY CREDIT CORPORATION. See Index entry.

COMMONWEALTH OF NATIONS. This group of eight freely associated, independent countries (Australia, Canada, Ceylon, Great Britain, India, New Zealand, Pakistan, and South Africa) and their dependencies is linked only by a common recognition of the British sovereign as "Head of the Commonwealth" and symbol of their association. All except India, which is a republic, owe allegiance to Queen Elizabeth II. Although there are no other constitutional links between Commonwealth countries and no central executive, there is often a similarity of approach to world problems, as well as a common legislative pattern, an inheritance of British law, and inter-Commonwealth tariff preferences. Each country defines its own citizens, and the sum total of such citizens are British subjects or Commonwealth citizens. The component parts of the Commonwealth are shown in Table 1.

TABLE 1—COMMONWEALTH OF NATIONS

Component	Area (sq. mi.)	Population	Status
EUROPE			
Great Britain and islands of the British Seas ¹ . . .	94,504	50,887,000	
Cyprus	3,572	517,000	Colony
Gibraltar	2	24,921	Colony
Malta	122	320,613	Internally self-governing colony
<i>Total in Europe</i> . .	<i>98,200</i>	<i>51,749,534</i>	
AFRICA			
Anglo-Egyptian Sudan ²	967,500	8,900,000	Self-governing
Basutoland	11,716	583,000	Colony
Bechuanaland Protectorate	275,000	300,000	Protectorate
East Africa: Kenya	224,960	5,850,000	Colony and protectorate
Tanganyika Territory	362,688	7,965,000	Trusteeship
Uganda	93,981	5,425,000	Protectorate
Zanzibar	1,020	270,786	Protectorate
Mauritius	818	555,536	Colony
Northern Rhodesia	288,130	2,128,300	Protectorate
Nyasaland Protectorate	49,177	2,544,600	Protectorate
Saint Helena	47	4,878	Colony
Ascension	34	173	
Tristan da Cunha	38	294	
Seychelles	156	37,400	Colony
Somaliland Protectorate	68,000	640,000	Protectorate
South Africa: Union of	472,494	13,629,000	Sovereign state
South West Africa	317,725	430,354	Mandate
Southern Rhodesia	150,333	2,398,700	Internally self-governing colony
Swaziland	6,705	185,215	Protectorate
West Africa: Gambia	4,003	289,500	Colony and protectorate
Gold Coast	78,802	4,196,000	Colony and protectorate
Br. Togoland	13,041	423,000	Trusteeship
Nigeria	338,593	32,011,000	Colony and protectorate
Cameroons	33,931	1,500,000	Trusteeship
Sierra Leone	27,925	2,000,000	Colony and protectorate
<i>Total in Africa</i> . .	<i>3,786,817</i>	<i>92,267,736</i>	
AMERICA			
Bermuda	21	40,445	Colony
British Guiana	83,000	465,416	Colony
British Honduras	8,867	78,094	Colony
Canada	3,845,774	15,601,000	Sovereign state
Falkland Islands ³	4,618	2,212	Colony
West Indies: Bahamas	4,404	92,598	Colony
Barbados	166	222,942	Colony
Jamaica	4,674	1,531,933	Colony
Turks and Caicos Is.	170	7,000	
Cayman Islands	93	7,651	
Leeward Islands	422	126,251	Colony

COMMONWEALTH OF NATIONS, CONT'D

Component	Area (sq. mi.)	Population	Status
Trinidad and Tobago.....	1,980	698,000	Colony
Windward Islands.....	821	299,957	Four colonies
Total in America..	3,965,010	19,173,499	
ASIA			
Aden.....	112,132	790,000	Colony and protectorate
Bahrain ²	213	120,000	Protected state
Borneo:			
Brunei.....	2,226	52,600	Protected state
North Borneo...	29,387	355,000	Colony
Sarawak.....	47,071	602,000	Colony
Ceylon.....	25,332	8,103,648	Sovereign state
Hong Kong.....	391	2,300,000	Colony
India, Republic of ¹	1,176,880	376,750,000	Sovereign state
Kashmir.....	84,471	4,370,000	(In dispute)
Kuwait ²	6,000	200,000	Protected state
Malaya, Federation of.....	50,850	5,888,578	Nine protected states and two settlements
Maldives Islands...	115	95,000	Protected state
Qatar ²	5,000	20,000	Protected state
Pakistan ⁴	365,987	75,842,000	Sovereign state
Singapore ⁵	284	1,212,749	Colony
Trucial Oman ²	6,000	115,000	Protected state
Total in Asia	1,912,319	476,816,575	
AUSTRALASIA AND OCEANIA			
Australia, Commonwealth of.	2,974,581	9,090,738	Sovereign state
Nauru.....	8	3,503	Trusteeship
New Guinea:			
Territory of.....	93,000	1,206,799	Trusteeship
Norfolk Island...	13	942	External territory
Papua.....	90,540	494,709	External territory
Fiji.....	7,036	333,389	Colony
Rotuma.....	18	4,134	
New Zealand ⁶	103,939	2,109,858	Sovereign state
Western Samoa...	1,130	94,128	Trusteeship
Pitcairn.....	2	143	Colony
Tonga.....	270	52,575	Protected state
Western Pacific Islands:			
British Solomon Islands.....	11,500	100,297	Protectorate
Gilbert and Ellice Islands.....	375	37,832	Colony
New Hebrides ² ...	5,700	50,221	Condominium
Total in Australasia and Oceania..	3,288,112	13,579,268	
TOTAL, COMMONWEALTH OF NATIONS.....	13,040,458	653,586,612	

¹ Includes Northern Ireland, Channel Islands, and Isle of Man. ² Not an integral part of the Commonwealth. ³ Excluding dependencies. ⁴ Excluding Kashmir. ⁵ Including dependency. ⁶ Including insular territories.

Relations between the British government and the other Commonwealth governments are conducted through the Commonwealth Relations Office in London and the departments of external affairs in the other Commonwealth capitals. High commissioners, with functions similar to those of ambassadors, are exchanged; communication between corresponding ministers is frequent. The crown is represented in countries owing allegiance to it by a governor general. Most dependencies of Great Britain are administered through the Colonial Office; relations with condominiums and certain protected states not properly part of the Commonwealth are conducted through the Foreign Office, and certain territories come within the jurisdiction of the Commonwealth Relations Office.

International Relations.—All the sovereign states of the Commonwealth are members of the United Nations. Great Britain is a member of the Caribbean Commission (q.v.), and Australia,

New Zealand, and Great Britain are members of the South Pacific Commission. Great Britain and Canada are members of the North Atlantic Treaty Organization (q.v.); Great Britain is a member of the Western European Union (q.v.); Great Britain, Australia, New Zealand, and Pakistan are members of the Southeast Asia Treaty Organization (q.v.); and Australia and New Zealand are members of the Pacific or ANZUS Council (q.v.).

Colombo Plan.—The Colombo Plan for Co-operative Economic Development in South and Southeast Asia, a series of coordinated development plans which envisages an expenditure of \$5,288.4 million in 1951–57, is designed to raise living standards in the area. There is a Bureau for Technical Cooperation in Colombo but no central secretariat, and the development plans of the countries concerned are coordinated through a Consultative Committee. Membership includes all the independent Commonwealth countries except South Africa, the British dependencies in the area, South Viet-Nam, Cambodia, Laos, Burma, Nepal, Indonesia, Thailand, Japan, the Philippines, and the United States. A close liaison is maintained with the International Bank for Reconstruction and Development (IBRD) and United Nations technical assistance agencies.

The annual report of the Consultative Committee, published after its seventh meeting held at Singapore on Sept. 29–Oct. 22, 1955, which extended the life of the plan until June 1961, showed that there had been a noticeable increase in industrial and mineral production (steel production, for example, increased 12%) and power generation during the year. The expanding world economy had promoted economic progress, though some countries had been adversely affected by a fall in export prices. Increases in the world supply of capital equipment and greater world demand for primary products had resulted in an expansion of the foreign trade of countries in the area, making it easier for them to finance development programs. Total development expenditure was estimated at £827 million for 1955–56, as compared with £724.6 million for 1954–55 and £541.9 million for 1953–54. Of the total expenditure during the past two years, over two fifths had been devoted to agriculture, irrigation, and multipurpose projects; one fourth to transportation; and one fourth to public health, education, and housing.

Many of the targets laid down in the original report now seem likely to be reached. Since 1951 the plan's technical assistance program has provided 3,715 experts for the area and has made 7,159 training awards. In spite of this progress, however, living standards are still below the pre-World War II level, and the next stage of development will require a still greater effort on the part of the countries concerned.

Commonwealth Relations.—There is a close relationship between the members of the Commonwealth. With the exception of Canada, all the Commonwealth members and their dependencies are members of the sterling area.* There is considerable cooperation in defense; weapons and equipment are often standardized, and personnel exchanged for training purposes. A number of technical organizations meet regularly; some, such as the Commonwealth Economic Committee, the Executive Council of the Commonwealth Agricultural Bureaux, and the Commonwealth

* The sterling area includes, besides members of the Commonwealth (except Canada), Burma, Iceland, Iraq, Ireland, Jordan, and Libya.



BRITISH INFORMATION SERVICES

Commonwealth prime ministers, with Queen Elizabeth II at Buckingham Palace on Feb. 14, 1955, are (l. to r.): Huggins (Rhodesia and Nyasaland), Mohammad Ali (Pakistan), Menzies (Australia), Swart (representing South African Prime Minister Strijdom), Churchill (Great Britain), Holland (New Zealand), St. Laurent (Canada), Nehru (India), and Kotelawala (Ceylon).

Shipping Committee, maintain permanent headquarters.

Ministers of the Commonwealth countries meet periodically to discuss matters of common concern. A meeting of prime ministers was held in London on Jan. 31-Feb. 8, 1955, at which the international situation, economic progress of the Commonwealth, nuclear energy, disarmament, and regional defense were discussed. At the same time, it was announced that when Pakistan became a republic, she would remain a member of the Commonwealth on the same terms as India.

Commonwealth External Trade.—The value of exports from the sterling area in the first six months of 1955 was 6% higher than in the same period of 1954. United Kingdom exports rose by nearly 4%, and those from the rest of the sterling area (excluding oil from Iraq and the Persian Gulf) by 7%. Imports for the sterling area as a whole showed an increase of 15%, as compared with the first half of 1954. United Kingdom imports rose by 14% in value and 9% in volume. A 13% rise in the exports of sterling countries to each other was accounted for largely by greater exports of wheat and rice to India and increased value of the entrepôt trade in rubber and tea. There was little change in the proportion of total sterling exports to nonsterling countries in the first half of the year. Imports of nonsterling goods by the sterling area rose by 22% and dollar purchases by 35% in the same period, although the momentum of the inroads into Commonwealth trade made by West Germany and Japan seemed to be slowing down.

Slightly less than half of the trade of Commonwealth countries is still with each other, however, while the remainder is closely integrated with the general pattern of world trade. Trade figures for the sterling Commonwealth are shown in Table 2. (For Canadian figures see CANADA.)

Colonial Affairs.—Britain's main contribution to colonial economic development and social progress is made through the Colonial Development and Welfare Acts, and a new act, extending their life to March 31, 1960, and authorizing the expenditure of an additional £80 million, was passed on March 29, 1955. Since £40 million remained unspent from earlier authorizations, £120 million was available for development purposes in the period 1955-60.

During 1954-55, expenditure on development and welfare projects was £15.6 million, making

a total of £100 million since 1945. The total expenditure from British taxation on the colonial territories in 1954-55 was £41,483,000, including £33,376,000 for specific purposes or as

TABLE 2—STERLING COMMONWEALTH TRADE
(In £ million)

	Imports (c.i.f.)		Exports (f.o.b.)	
	1954	1st half 1955	1954	1st half 1955
United Kingdom...	3,379	1,909	2,774	1,450
West Africa.....	201	116	269	134
East Africa.....	125	69	106	62
Far Eastern territories.....	648	361	590	331
British West Indies..	127	70	116	68
Australia.....	601	359	593	326
Ceylon.....	104	55	131	69
Rhodesia and Nyasaland, Federation of	126	66	147	73
India.....	446	248	421	214
New Zealand.....	246	140	243	142
Pakistan.....	117	54	127	74
South Africa, Union of.....	440	246	305	163

grants-in-aid, and loans raised on the London market by colonial territories amounted to £16 million. The IBRD made a loan of \$24 million for the East African Railways and Harbours Administration on March 15, 1955, and \$5 million from United States foreign aid funds will finance economic projects in British African territories. Gross capital formation in the colonial territories totaled about £400 million in 1954, and was expected to be about the same in 1955.

During the year 1954-55 the Colonial Development Corporation, a government-created agency designed to supplement private capital, sanctioned capital commitments of £4.5 million. At the end of 1954 the corporation had 56 projects and investigations in hand, with a total capital commitment of £47.8 million, of which £28.5 million was already employed. Expenditure on the Overseas Food Corporation's experimental agricultural scheme in East Africa since its inception in 1951 amounted to £3.8 million by March 1955. This project was taken over by the Tanganyika Agricultural Corporation, which came into being on March 30, 1955.

During the year 1954-55 a number of colonial governments, notably Nigeria, Jamaica, and British Honduras revised their development plans following reports by IBRD missions. Among the most important projects under way are the Owen Falls hydroelectric project in Uganda, the development of Tema harbor in the Gold Coast, and the Volta River project, also in the Gold Coast, which is still in the preparatory stage.

The volume of colonial production and exports was about 5% higher in 1954-55 than in 1953-54. The value of imports fell by about 2%, or £16 million, and the colonial territories as a whole showed a favorable trade balance of about £25 million. Colonial revenues totaled £422.3 million and expenditures £416.5 million in 1954, as compared with £390 million and £389 million, respectively, in 1953. Major exports from the colonial territories in 1953 and 1954 are shown in Table 3.

Political progress or proposals looking toward greater self-government were made in no less than 22 territories in the first nine months of 1955. Elections were held in Malaya, Singapore, Nigeria, and Gambia, resulting in the virtual control of their governments by elected local representatives, and in Jamaica the People's National Party replaced the Jamaica Labour Party, taking over the government for the first time. (See also

TABLE 3—MAJOR COLONIAL EXPORTS

Commodity	1953 (thousand long tons)	1954
Bauxite.....	3,589	4,509
Calcium phosphate.....	539	609
Copper.....	388	400
Diamonds (thousand carats).....	2,787	2,962
Gold (thousand fine ounces).....	912	987
Iron ore.....	2,219	1,938
Manganese ore.....	748	466
Petroleum products.....	9,777	9,500
Pyrites.....	695	813
Tin.....	74	81
Cocunut oil.....	84	101
Copra.....	108	124
Palm kernels.....	495	558
Palm oil.....	249	259
Peanuts (shelled).....	417	553
Whale oil (thousand barrels).....	134	300
Bananas.....	287	320
Cacao.....	358	328
Sugar.....	1,494	1,579
Cotton (raw).....	100	117
Sisal.....	208	201
Rubber (raw).....	633	633

BRITISH WEST AFRICA; JAMAICA; MALAYA, FEDERATION OF; SINGAPORE.)

Constitutional progress in Cyprus (q.v.) was again hampered by the movement for *enosis* (union with Greece) and by local disturbances, which resulted in the proclamation of a state of emergency on November 26, but a constitution affording the island increased self-government was offered to it in August. A Greek-Turkish-British conference held in London on August 29–September 7 was suspended without result, and Greek efforts to place the future of Cyprus on the agenda of the tenth session of the U.N. General Assembly failed on September 23.

In Uganda, following constitutional changes and modification of the 1900 agreement, Kabaka Mutesa II returned to the throne of Buganda on Oct. 17, 1955. A royal commission investigating land and population problems in East Africa submitted a comprehensive report on June 9, after nearly three years' work. The emergency situation in Kenya, which was costing the territory £16 million a year, improved to such an extent that security forces were progressively reduced from July on. Tanganyika had been visited by a United Nations mission in August–September 1954; its report, issued in January 1955, was not acceptable to the British government. (See also BRITISH EAST AFRICA.) In Malaya, where the emergency situation had improved immeasurably, an amnesty offer was made on September 8 to the remaining terrorists if they surrendered.

On Feb. 1–March 2, 1955, Princess Margaret undertook an official tour of the British West Indies (q.v.).

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COMMUNICATIONS. See Index entry.

COMMUNISM. By the end of 1955, Moscow-dominated Communist governments were in control in 16 countries: the Soviet Union, Estonia, Latvia, Lithuania, Poland, the German Democratic Republic (East Germany), Czechoslovakia, Rumania, Hungary, Bulgaria, Albania, the Mongolian People's Republic (Outer Mongolia), the Korean Democratic People's Republic (North Korea), the Chinese People's Republic, Tibet, and North Viet-Nam. Communist-led guerrilla forces fought against the legal governments in Laos, Malaya, and the Philippines. In addition, Yugoslavia continued to be controlled by an independent league of Communists, friendly but not subservient to Moscow. Thus more than half

of Europe and over half of Asia lived under Communist rule. Altogether, nearly one third of the world's population was governed by Communist regimes.

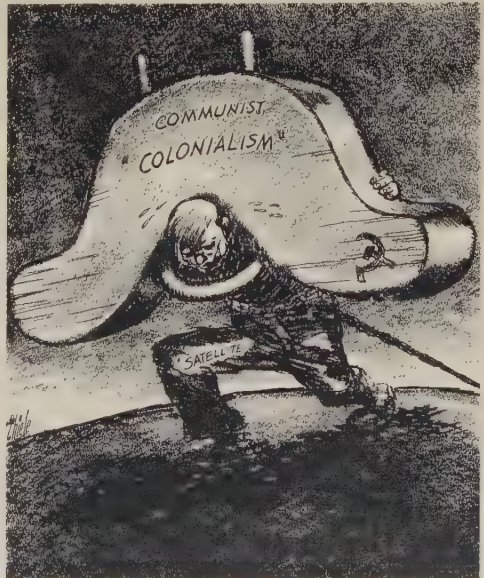
World Strategy and Tactics.—In 1955 the major question concerning international communism was whether the replacement of the Malenkov government in the USSR by the new ruling team of Bulganin and Khrushchev would change world Communist policies. By the end of the year, it was clear that the goals of international communism remained the same as before.

The Soviet Union's first deputy premier, Lazar M. Kaganovich, in a major policy speech delivered in Moscow on Nov. 6, 1955, on the occasion of the 38th anniversary of the Russian Revolution, asserted that revolutionary ideas travel "throughout the world without visas and fingerprints," and that "the twentieth century is a century of the triumph of socialism and communism." Nikita Khrushchev, first secretary of the Communist Party of the USSR, openly expressed the hope that Communists would eventually gain control of the governments of all countries in the free world. He and other Communist spokesmen throughout the world also continued to advocate colonial revolution. The more immediate aims of dividing and disarming both free Europe and non-Communist Asia were pursued with the same Communist vigor as in the past.

Thus, all Communist parties demanded that the West destroy its stockpile of atomic and hydrogen bombs, and end further manufacture of these weapons of mass destruction. Communists everywhere insisted that the United States armed forces must withdraw from Europe and Asia, and that all United States military bases on foreign soil should be abandoned. European Communists opposed the North Atlantic Treaty Organization (NATO) and rearmament of the German Federal Republic (West Germany). The Austrian and Greek Communist parties urged their respective countries to remain neutral in the East-West cold war. In the Far East, all Communist parties opposed the Southeast Asia Treaty Or-

"ASK THE MAN WHO WEARS ONE!"

THIEF IN THE LOS ANGELES MIRROR



ganization (SEATO), as well as any United States influence in the Pacific area. Near Eastern Communists condemned the Baghdad defense pact signed by Iraq, Turkey, Pakistan, and Iran. Throughout the free world, Communist parties urged that the embargo on shipments of war-potential machinery to the Soviet orbit be removed.

Although there was no change in the basic strategy of international communism, some moderation of tactics occurred in 1955. In general, most Communist parties of the free world avoided violence, tried to act like legal political organizations, and strove for united fronts with socialist and liberal groups. Both the Japanese and United States parties abandoned much of the clandestine underground existence which they had practiced for the past several years. Instead of threatening conquest of Formosa by force, the Chinese Communist Party asked for negotiations with the United States aimed at the peaceful transfer of Formosa to the Chinese People's Republic. The North Korean Labor Party (the Communist-front party of North Korea) urged disarmament of both North and South Korea, and peaceful unification of the country. India's Communist Party has publicly renounced violence and openly tried to infiltrate the ruling Congress Party. These programs, of course, merely marked an intensification of the more subtle tactics pursued by world Communists since Stalin's death in March 1953.

In 1955 the French Communist Party supported nationalistic elements in Algeria, Morocco, Tunisia, and Indochina. However, the party demanded autonomy rather than independence for these colonial areas, and expressed the hope that they would remain within the French Union. In Indochina, the Viet-Nam Labor Party (North Viet-Nam Communist-front) was evidently confident of winning control of South Viet-Nam peaceably. The party was eager that the all-Vietnamese elections planned for 1956 be held on schedule. Much less confident was the German Communist Party, which seemed in no hurry for all-German elections. The main Communist slogans in South Africa were "equality for the Negroes," and "Africa for the Africans." In the Middle East, Communist parties were pro-Arab, anti-West, and anti-Israel. The parties urged Arab countries to purchase their arms from the Soviet bloc. Communist propaganda in Latin America during 1955 was much the same as before, demanding an end of United States political and economic influence. The Brazilian Communist Party supported the successful candidacy of non-Communist Dr. Juscelino Kubitschek in the presidential elections of Oct. 3, 1955.

Within the Soviet orbit, Communist parties abandoned the so-called "new course" inspired by former Soviet Premier Georgi Malenkov, which stressed expansion of consumer goods output. Instead, during 1955 there was a return to emphasis on heavy, war-potential industry; and collectivization of agriculture was accelerated. The latter was particularly stressed in Communist China, where one sixth of its vast rural population is already in producer cooperatives and collective farms.

Most satellite parties escaped major purges during the year, although several Hungarian Communist leaders were demoted, and the Chinese Communist Party appeared to be commencing widespread punishment of party members who live too luxuriously. An unusual event in 1955 was the visit of Soviet leaders Bulganin

and Khrushchev to Marshal Tito of Yugoslavia, resulting in an unprecedented Moscow admission that a foreign Communist party could pursue policies independent of the USSR. This, however, seems to be a Soviet gesture of friendship toward Yugoslavia alone. Elsewhere in the world, Moscow tried to make all Communist parties follow the orders originating in the Kremlin.

World Communist Strength.—In 1955 there were approximately 26 million members of Communist or Communist-front labor and socialist parties throughout the world. Of these, 21.5 million lived in the Soviet orbit. The largest single concentration of Communists in the free world was located in western Europe, where about 4 million party members resided. Elsewhere the number of party members was very small. There were only 119,000 Communists in the free countries of the Far East, 90,000 in the Middle East (including India and Ceylon), and 28,000 in all Africa. The entire Western Hemisphere contained less than a third of a million members, with the vast majority located in Latin America. The largest Communist parties in the Soviet orbit in 1955 were those of the USSR and Communist China. Outside that orbit, the biggest parties were those of Italy and France.

The membership of western European Communist parties in 1955 was approximately as follows: Italy, 2,576,000; France, 506,000; West Germany, 125,000; Austria, 60,000; Great Britain, 35,000; the Netherlands, 33,000; Belgium, 30,000; Finland, 30,000; Sweden, 30,000; Greece, 20,000; Denmark, 16,000; Switzerland (Swiss Labor Party), 8,000; Norway, 7,500; Spain, 5,000; and Portugal, 3,500. Communist parties were illegal in Greece, Spain, and Portugal. The Communist Party of Great Britain entered 17 candidates in the May 26 general elections to the British House of Commons; all lost, and the total vote for the Communist candidates was only 33,144.

The membership of the Communist parties of the eastern European Soviet satellites in 1955 was approximately as follows: Czechoslovakia, 1,677,000; Poland (United Polish Workers' Party), 1,297,000; East Germany (Socialist Unity Party), 1,230,000; Hungary (Hungarian Workers Party), 1,000,000; Rumania, 720,000; Bulgaria, 368,000; and Albania (Albanian Workers Party), 44,000. The Communist Party of the Soviet Union totaled 6,882,000. The independent League of Communists of Yugoslavia had a membership of 709,000.

In the Far East, membership in the Communist parties was roughly as follows: Chinese People's Republic, 6,500,000; Korean Democratic People's Republic (North Korean Labor Party), 1,000,000; Indochina (Labor Party), 721,000; Japan, 60,000; Mongolian People's Republic (Mongolian People's Revolutionary Party), 28,000; Burma, 24,000; Indonesia, 15,000; Australia, 6,000; the Philippines, 5,000; Thailand, 5,000; and Malaya, 4,000. Communist parties are illegal in Burma, Formosa, southern Indochina, South Korea, Malaya, Nepal, the Philippines, and Thailand. In the 1955 elections to the Indonesian Parliament, beginning on September 29, the candidates of the Indonesian Communist Party polled more than 6 million votes.

In the Middle East and Africa, Communist party membership was approximately as follows in 1955: India, 40,000; Iran (Tudeh Party), 20,000; Algeria, 15,000; Syria, 10,000; Lebanon, 8,000; Pakistan, 5,000; Morocco, 4,000; Tunisia, 4,000; Israel, 3,700; Egypt, 3,000; Union of

South Africa, 2,000; Ceylon, 2,000; and Iraq, 1,000. Communist parties were illegal in Iran, Iraq, Jordan, Lebanon, Pakistan, Syria, Turkey, Egypt, French North Africa, the Union of South Africa, and the Anglo-Egyptian Sudan, while in India, Communists were under strong governmental restriction. In the July 26, 1955 elections to the Israeli Knesset (Parliament), Communists won only 6 of the total 120 parliamentary seats.

In Latin America, the Communist parties are outlawed in Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Panama, Paraguay, Peru, San Domingo, and Venezuela. Party membership in 1955 was approximately as follows: Brazil, 60,000; Argentina, 40,000; Chile, 40,000; Cuba (People's Socialist Party), 30,000; Venezuela, 20,000; Uruguay, 15,000; Peru, 10,000; Colombia, 5,000; Costa Rica, 5,000; Ecuador, 5,000; Mexico, 5,000; Bolivia, 2,000; Paraguay, 2,000; El Salvador, 1,000; Panama, 1,000; Honduras, 500; and Nicaragua, 500. In 1955, Communists controlled the majority of Ecuadoran trade unions, and the Mexican electrical workers' union. The Brazilian Communist Party, although illegal, published 6 newspapers openly and was believed to control approximately half a million Brazilian voters.

Canada.—The Canadian Labour-Progressive Party, headed by its secretary general, Tim Buck, is, in effect, the Communist party of Canada. In 1955, it opposed Canada's alliance with the United States, and urged that Canadian trade with the United States be reduced. Other propaganda of the party demanded recognition of Communist China, more trade between Canada and the Soviet orbit, and the reduction of Canadian armaments. The party had approximately 16,000 members.

United States.—The Communist Party of the United States in 1955 had no more than 25,000 members, of whom one third to one half resided in the area of Greater New York. The remainder were located mainly in the industrial cities of the North Atlantic states, the Great Lakes region, and the Pacific coast. Despite all efforts, the party in 1955 remained almost entirely urban, with virtually no influence in even the poorest rural areas.

In August the U.S. Communist Party announced its 1955 goals, as follows: (1) All atomic and hydrogen bombs in the United States should be destroyed, and the United States must conduct no further nuclear bomb tests. (2) The United States should reduce its conventional armaments, trade heavily with the Soviet orbit, and have close cultural relations with Communist countries. (3) Formosa must be surrendered to Communist China, which should be admitted to the United Nations. (4) West Germany must not arm, and should be converted into a "people's democracy" of the Communist satellite type. (As usual, the United States party simply parroted Soviet foreign policy, demonstrating once again that it functions as a tool of the USSR.)

During 1955 the United States government continued its legal prosecution of the Communist Party leadership. On January 10 the U.S. Supreme Court refused to review the conviction on Jan. 21, 1953, by a federal district court in New York City, of 13 secondary party leaders¹ for

violating the Smith Act, which declares it a crime to teach or advocate the overthrow of the United States government by force or violence.

On Jan. 26, 1955, Claude M. Lightfoot, a Communist Party leader in Chicago, became the first person in the United States convicted under a hitherto unused section of the Smith Act, making it a crime to belong to an organization while knowing that it conspires against the United States government. On February 15, a federal district court sentenced Lightfoot to 5 years' imprisonment and a \$5,000 fine. If this type of conviction is upheld by higher federal courts, to which he has appealed, mere membership in the party will be sufficient grounds for prosecution of an individual by the government, which heretofore has concentrated on indicting party leaders.

Also on February 15, the Subversive Activities Control Board ruled that the Labor Youth League is a Communist-front organization led by known Communists. Thus, according to the Subversive Activities Control Act of 1950, the league must announce its list of officers and reveal its finances to the Department of Justice. Also, no league member can work in the government or a defense plant, or obtain a passport to travel abroad. The league must now stamp its mail with a notation that it is a Communist organization. This is the first Communist front ordered to reveal itself by the Subversive Activities Control Board. The league refused to comply, and appealed the board decision to the federal courts.

In February and March 1955, seven national Communist leaders² were released from federal penitentiaries, after serving 5-year sentences for advocating sedition. All but two (Benjamin Davis, Jr., who was taken to Philadelphia to serve a 60-day sentence for contempt of court in an earlier trial; and Irving Potash, who was given permission to leave the country) were promptly rearrested and indicted for membership in a Communist Party which they knew to be seditious (the same charge on which Lightfoot had been convicted).

On April 21, a federal district court in North Carolina convicted Junius Irving Scales for membership in a Communist Party which he knew to be seditious. He had been a party leader in Tennessee and the Carolinas.

In the late spring of 1955, however, the Communist Party was successful in one legal battle. On April 22, a federal judge in New York ordered the retrial of secondary Communist leaders Alexander Trachtenberg and George Blake Charney, on the grounds that they had been convicted for advocating sedition on perjured testimony of Harvey M. Matusow, an ex-Communist who turned government witness, then later denied he had told the truth in court. Matusow subsequently appealed his own conviction for perjury by a Texas state court.

On June 20, a federal district court in Philadelphia convicted the following Communist lead-

sedition range from a year and a day of imprisonment plus a \$2,000 fine to 3 years' imprisonment and a \$6,000 fine.

¹ These 13 Communists are: Elizabeth Gurley Flynn, Pettis Perry, Claudia Jones, Alexander Bittelman, Alexander Trachtenberg, Victor Jeremy Jerome, Albert Francis Lannon, Arnold Samuel Johnson, Betty Gannett, Jacob Mindel, William Wolf Weinstone, George Blake Charney, and Louis Weinstock. Their sentences for

² These seven and their former party posts are: Irving Potash (national committeeman), John B. Williamson (national labor secretary), Jacob A. Stachel (educational director), John Gates (*Daily Worker* editor), Eugene Dennis (secretary general), Carl Winter (Michigan state chairman), and Benjamin Davis, Jr. (national committeeman). Potash agreed to deportation to Poland (he sailed on March 4), and Williamson to Britain (May 4), rather than face retrial; both were immigrants who had never become United States citizens.

ers of western Pennsylvania for advocating sedition: Sam Gobeloff (also known as Joseph Roberts), Joseph Kuzma, David Dubensky (David Davis), Thomas Nabried, Sherman Marion Labovitz, Walter Lowenfels (William Lerner), Irvin Katz, Robert Klonsky (Robert Kirby), and Benjamin Weiss. The first four received sentences of 3 years' imprisonment, and the remaining five, prison terms of 2 years.

With these convictions, the United States government since 1949 had convicted 89 national and local leaders of the Communist Party for advocating sedition or for Communist Party membership. Forty-one other Communists were awaiting trial on similar charges.

On July 1, 1955, the Subversive Activities Control Board ruled that the Jefferson School of Social Science in New York City was a Communist front, and ordered it to reveal its officers and finances to the Justice Department. The board stated that this school had trained Communists in subversive tactics.

On July 29, an old court case involving communism was finally settled. A federal judge in California ruled that the United States government had failed to prove Harry R. Bridges, a longshoreman union leader on the Pacific coast, to be a Communist.

In the same month, the Internal Security Committee of the U.S. Senate declared that the following five labor unions in the United States are dominated by Communists: International Union of Mine, Mill and Smelter Workers; United Electrical, Radio and Machine Workers; International Fur and Leather Workers; International Longshoremen's and Warehousemen's Union; and the American Communications Association. The committee requested the Subversive Activities Control Board to rule that these unions are Communist-front organizations.

In August the Un-American Activities Committee of the U.S. House of Representatives held hearings in New York City to investigate alleged Communist infiltration into radio, television, and theatrical entertainment. Of the 23 witnesses called and questioned about possible past membership in the Communist Party, 13 actors, 2 musicians, 2 producers, 2 theatrical press agents, 1 singer, 1 artist, and 1 stage manager refused to answer the committee's questions. One witness, an actor, admitted he formerly was a Communist.

(For further references, see articles on the countries named herein, and the Index entry, *Communism*.)

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COMMUNITY CHESTS. See Index entries, *Community Chests* and *Community Chests and Councils of America, Inc.*

COMMUNITY TRUSTS. Community trusts are administrative media for the application of multiple charitable funds, each managed unit retaining its separate identity within the group. A distinguishing feature of these trusts is their power to amend the uses for which particular funds may be employed if, in changing conditions, originally designated charitable purposes become obsolete.

The aggregate resources of community trusts in the United States and Canada rose to \$141,-276,907 at the beginning of 1955 from \$127,-395,738 a year earlier. Holdings of some of the larger community foundations include: New York

Community Trust, \$24,508,837; Cleveland Foundation, \$18,309,356; Boston Permanent Charity Fund, \$13,633,839; Chicago Community Trust, \$12,133,225; and California Community Foundation, Los Angeles, \$9,521,235.

Grants of these composite charitable foundations aggregated \$6,099,181 in 1954, compared with \$5,761,506 in 1953. Among community trusts making the largest disbursements were those in New York, with outpayments of \$1,140,-977; Cleveland, \$746,490; Chicago, \$639,753; and Boston, \$598,863. Funds newly received by community trusts in 1954 totaled, in Indianapolis, \$3,070,140; in New Haven, \$2,098,997; in Hartford, \$1,821,676; and in Winston-Salem, \$1,127,-673.

A total of 1,256 separate funds were under administration by community trusts in 1954, compared with 1,198 a year earlier. Winnipeg had 113 of these; New York, 105; Rochester, 99; Cleveland, 68; Winston-Salem, 67; and Buffalo, 59. Upward of 87 per cent of the reported resources of community trusts are already in hand, the remainder being deferred pending the completion of current "life uses."

RALPH HAYES,

Director, The New York Community Trust.

COMORO ISLANDS. A French territory comprising four main islands (Grande Comore, Mayotte, Anjouan, and Mohéli) and several islets, situated between Africa and Madagascar. Area, 834 square miles (of which Grande Comore comprises 444); pop. (est. 1954), 169,000, including 889 nonindigenous persons, mainly French. The natives are Moslems of mixed Arab, Makwa, and Malagasy descent. Dzaoudzi (3,000), on Mayotte, is the capital. The French superior administrator is aided by a nominated privy council and a 24-member elected general council. The 1954 budget totaled 393 million francs CFA. In 1953 there were 32 primary schools (2,494 pupils); 1 secondary school (109); and 3 technical schools (95).

Food crops are chiefly manioc, corn, bananas, and rice. Chief cash crops and 1954 exports (in metric tons) were: vanilla, 82; essential oils (ilang-ilang and lemon-grass), 34; copra, 1,599; and sisal, 2,134. Industry consists of a coconut oil refinery, a sugar refinery, an essence distillery, and a few sisal and soap factories. Exports in 1954 totaled 558.8 million francs CFA (of which vanilla accounted for 260.9 million); imports, 559.9 million. The road network totaled 268 miles in 1953.

CONCILIATION SERVICE, U.S. See FEDERAL MEDIATION AND CONCILIATION SERVICE.

CONFECTIONERY. Sales of confectionery and competitive chocolate products in the United States were estimated at \$978,649,000 in 1954, compared with \$978,780,000 in 1953, according to the Bureau of the Census, U.S. Department of Commerce; sales in the first 10 months of 1955 were estimated at \$780,063,000. A selected group of large-scale manufacturer-wholesalers and chocolate manufacturers, reporting their sales for the first 10 months of 1955 to the Bureau of the Census, sold 961,454,000 pounds of confectionery valued at \$376,574,000. Of this total, packaged goods made to retail at \$1 or more per pound amounted to 25,845,000 pounds valued at \$28,-319,000; packaged goods made to retail at 50 cents to 99 cents per pound, 92,189,000 pounds valued at \$49,805,000; packaged goods made to retail at less than 50 cents per pound, 150,785,-

000 pounds valued at \$39,174,000; bar goods, 435,407,000 pounds valued at \$182,262,000; bulk goods, 167,267,000 pounds valued at \$42,523,000; and 5- and 10-cent specialties, 89,961,000 pounds valued at \$34,671,000.

CONGO, Belgian. See **BELGIAN CONGO.**

CONGREGATIONAL CHRISTIAN CHURCHES. The Congregational Christian Churches includes the Congregational Churches, established at Plymouth, Mass., in 1620, and the Christian Church, established in Virginia, Ohio, and New England in the Revolutionary War period. The two denominations united in 1931. Currently the united church is planning a further merger with the Evangelical and Reformed Church. Approval of this action is expected at a meeting of the Congregational Christian Churches in Omaha, Nebr., in June 1956, and the actual merger is expected a year later. The new denomination will be known as the United Church of Christ.

During 1955 the denomination worked to complete the raising of \$5 million for assisting in the building of much-needed new churches. To meet the need for new pastors, a carefully planned recruiting program has been developed by the denomination's Department of the Ministry. More students have been enrolled in the various seminaries than for many years. The church schools are also in need of additional teachers, and the Educational Division of the Board of Home Missions has greatly widened its program of recruiting and training church school teachers and educational directors.

Statistics for 1954: number of churches, 5,536, organized in 39 conferences; church membership, 1,310,572 (gain of 26,818 during the year); membership in church school and other study groups, 743,532; number of ministers, 5,879 (including 3,346 pastors and 91 chaplains); legacies, \$3,700,977, received by 832 churches; contributions of churches for home expenses, \$43,024,538; contributions for benevolences, \$9,525,437; total value of church property, \$437,888,284.

FREDERICK L. FAGLEY,
*Secretary, Congregational Christian
Historical Society.*

CONGRESS, Library of. See **LIBRARY OF CONGRESS.**

CONGRESS, U.S. For a list of members of Congress, see **UNITED STATES.** For a discussion of legislation, see under **UNITED STATES**, and articles on specific subjects, such as **HOUSING**, **TAXATION**, etc.

CONGRESS OF INDUSTRIAL ORGANIZATIONS. Under the leadership of President Walter P. Reuther, the CIO made steady progress during 1955 as it worked to complete plans for a merger with the American Federation of Labor (q.v.).

The merger, creating a 15-million member organization called the American Federation of Labor and Congress of Industrial Organizations, succeeded on December 5 in bringing to an end a 20-year split in the ranks of organized labor in the United States. Following the signing of the merger agreement at Miami Beach, Fla., on Feb. 9, 1955, CIO leaders devoted much of their attention to working out procedural and technical details of the merger and agreeing upon policies and principles for the new organization.

In May the AFL-CIO Unity Committee, headed by AFL President George Meany and CIO President Walter Reuther, agreed upon a

new constitution for the merged AFL-CIO, which they said would bring about "honorable, organic labor unity," which "will contribute to the strength and effectiveness of the trade union movement . . ." and "will materially benefit the entire nation. . . ."

The CIO met in its final convention at New York City on Dec. 1-2, 1955, and the merger was completed at a convention of delegates from CIO and AFL unions in New York starting December 5. Under the merger agreement, it was stipulated that AFL President Meany and AFL Secretary-Treasurer William Schnitzler would be unopposed, and they were thus elected to similar offices in the newly formed AFL-CIO.

During 1955 the affiliated unions of CIO made substantial progress in collective bargaining. For the first time the principle of Guaranteed Annual Wages (GAW) was incorporated into contracts covering up to a million workers.

The CIO United Automobile Workers, in negotiations with the Ford Motor Company (June 6), General Motors (June 16), and other auto manufacturers, achieved acceptance of the GAW principle through a guarantee of partial wages for unemployed workers for a maximum of half a year. Elsewhere at the collective bargaining table, the CIO United Steelworkers of America achieved a 15-cent-an-hour wage increase. The steel contracts were open only for a discussion of wages, but the union made it clear that it would seek the GAW in 1956. Underscoring that determination, the steelworkers won a full GAW contract from the American Can and Continental Can companies on August 13.

The International Union of Electrical Workers, CIO, won a 40-cent hourly raise to be achieved during a five-year contract with General Electric, while the Rubber Workers and other CIO affiliates scored impressive victories. The CIO National Maritime Union, in an industry beset by layoffs, also achieved supplemental unemployment compensation for the first time in history.

During 1955 the CIO waged an active fight for a number of important progressive legislative proposals. Much energy went into the successful campaign to amend the Fair Labor Standards Act by raising minimum wages and extending the act's protection.

The CIO played a prominent role at the Vienna meeting (May 20-28) of the International Confederation of Free Trade Unions (q.v.) and at the Geneva sessions (June 1-23) of the International Labor Organization (q.v.). CIO representatives were also active at the Geneva atoms-for-peace conference; and the congressional Atomic Energy Committee named CIO President Reuther as a public adviser on atomic energy policies.

Throughout 1955 the CIO continued to sponsor a nightly radio news commentary, featuring John W. Vandercook, over the American Broadcasting Company network. The CIO Community Services Committee was unusually active during 1955. Following the late summer floods in the Northeast, caused by Hurricane Diane, the CIO established a special Flood Relief Committee and raised more than \$300,000 from its members for distribution to welfare organizations in the flood-stricken areas.

The CIO maintained headquarters at 718 Jackson Place, NW, Washington 6, D.C. (See also **AUTOMOBILES**; **IRON AND STEEL**; **LABOR**.)

JAMES B. CAREY,
Secretary-Treasurer, CIO.

CONNECTICUT

CONNECTICUT. New England state, United States; one of the original 13 states. The "Nutmeg State" ranks 46th in area and 25th in population (1955) among the 48 states.

Area and Population.—Area: 5,009 square miles (land, 4,899; inland water, 110), divided into 8 counties. Population: (1950) 2,007,280; (est., July 1, 1955) 2,233,000. Towns (defining civil divisions) and urban places (in some instances coextensive with and hence also designated as towns) with 1950 populations above 10,000 are as follows:

Ansonia.....	18,706	New Haven.....	164,443
Bradford town.....	10,944	New London.....	30,551
Bridgeport.....	158,709	Norwalk.....	49,460
Bristol.....	35,961	Norwich.....	61,062
Danbury town.....	30,337	Shelton.....	12,694
Danbury city.....	22,067	Southington town..	13,061
Darien town.....	11,767	Stamford.....	74,293
Derby.....	10,259	Stonington town.....	11,801
East Hartford town..	29,933	Stratford town.....	33,428
East Haven town.....	12,212	Torrington.....	27,820
Enfield town.....	15,464	Vernon town.....	10,115
Fairfield town.....	30,489	Wallingford town..	16,976
Greenwich town.....	40,835	Wallingford boro..	11,994
Groton town.....	21,896	Waterbury.....	104,477
Hamden town.....	29,715	Watertown town.....	10,699
Hartford (capital)...	177,397	West Hartford town..	44,402
Killingly town.....	10,015	West Haven town.....	32,010
Manchester town.....	34,116	Westport town.....	11,667
Mansfield town.....	10,008	Wethersfield town..	12,533
Meriden.....	44,088	Willimantic.....	13,586
Middletown.....	29,711	Winchester town.....	10,535
Milford town.....	26,870	Windham town.....	15,884
Naugatuck.....	17,455	Windsor town.....	11,833
New Britain.....	73,726		

¹ Norwich town and city consolidated, July 18, 1955; pop. shown, 1950.

Executive.—Chief state officers in 1955:

Governor: Abraham A. Ribicoff (Democrat)

Lieutenant Governor: Charles W. Jewett

Secretary of State: Mildred P. Allen

Treasurer: John Ottaviano, Jr.

Attorney General: John J. Bracken

Commissioner, State Board of Education: Finis E. Engleman

Constitution and Judiciary.—The present constitution went into effect in 1818. The highest tribunal, the Supreme Court of Errors, comprises five justices; chief justice in 1955 was Ernest A. Inglis.

Legislature.—The General Assembly (Senate, 36 members; House of Representatives, 279) meets in odd-numbered years commencing the first Wednesday after the first Monday of January.

The regular biennial session met on Jan. 5, 1955, amid a political situation in which the governor was a Democrat and all other major elective officials were Republican and in which the Senate was Democratic, 20 to 16, and the House was Republican, 185 to 94. The regular session adjourned in some confusion on June 8 without having passed essential tax measures. Consequently the governor called a special session for June 22 which adjourned June 24.

Three proposed constitutional amendments were adopted for action at the next session. Two would relieve the legislature of many local bills by giving towns a greater measure of home rule, and the third provides for budget sessions of the General Assembly in even-numbered years.

A biennial appropriation of \$332,890,000 from general funds was approved, the largest on record. State aid to towns for education, estimated at \$19 million, was increased by \$21 per pupil. A Hartford Bridge Authority was established to build five new bridges across the Connecticut River in the Hartford area. A \$20 million bond issue was authorized to provide a bonus for Korean War veterans. Raffles and bazaars for nonprofit organizations under local option were legalized. Other appropriations totaling many millions of dollars were approved for additions to the humane and welfare institutions and the state university, and for the building of a new Hartford Regional Technical School and a new state prison in Enfield.

To finance these expenditures, including the extensive highway program, the 3% sales and use tax was continued for the biennium, the gasoline tax was raised from 4 to 6 cents per gallon, fees on toll roads were increased, and the 3½% corporation business tax and the unincorporated business tax were continued.

At a second special session called by the governor for November 9, agreement was reached by political leaders on December 15 for temporary tax increases to finance a flood-relief program of \$36,453,000.

Finances.—State treasury receipts (1954-55 fiscal year): \$1,088,198,723.54; expenditures, \$1,088,125,575.74; treasury balance, \$26,811,719.14; long-term indebtedness, \$207,545,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$164,046,738.06, including \$93,229,474.81 from a 3%

general sales tax and selective sales and gross receipts taxes; \$16,178,571.73 from licensing; and \$23,216,777.58 from corporate income taxes. The state has no individual income, property, or poll taxes.

Banking.—As of June 30, 1955, the state's 41 national banks had \$1,115,235,000 in assets, \$803,304,000 in demand deposits, and \$218,552,000 in time deposits; the state's 134 other banks had \$3,094,756,421 in assets, \$2,065,636,157 in demand deposits, and \$715,457,890 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for the 1953-54 school year totaled \$91,086,059 (\$256.36 per pupil) for public elementary and secondary education, consisting of \$75,402,180 from local school districts and \$15,683,879 from the state. Expenditures for construction and improvements totaled \$28,774,899. Teachers' salaries averaged \$4,093 (elementary school teachers, \$3,940; high school teachers, \$4,403).

CONNECTICUT SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-6 or k-8)...	729	8,710	268,524
Public junior high (7-9).....	42	1,025	21,432
Public senior high (7-12; 9-12)...	99	3,258	68,069
Private and parochial elementary and secondary.....	226	2,808	71,070
Vocational and special.....	14	313	5,241
State teachers colleges.....	4	385	2,674
Colleges and universities.....	25	...	16,983

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$34,996,947, including \$17,038,824 for old-age assistance, \$7,770,980 for dependent children, and \$344,646 for the needy blind; a monthly average of 39,536 persons received public assistance. Expenditures for correctional and penal institutions totaled \$3,840,034; for health and welfare institutions, \$28,317,934.

CONNECTICUT WELFARE INSTITUTIONS

(As of July 1, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic..	2	3,034
Hospitals for the mentally ill.....	3	8,860
Sanatoriums for the tubercular.....	4	926
Schools for the deaf.....	1	110
Soldiers and sailors homes.....	1	934
Training schools for delinquent boys.....	1	223
Training schools for delinquent girls.....	1	129
Reformatories for males.....	1	244
Prisons.....	2	1,057*
Rehabilitation facilities for chronically ill, aged, and infirm.....	2	301

* Including prison farms.

Labor Force.—The labor force in June 1955 numbered 1,040,200, including 37,000 agricultural workers. Nonagricultural employment of wage and salary workers totaled 855,700 in June 1955, and for the 12 months ending in June 1955 averaged 852,000. There were 30,700 unemployed workers in June 1955, not including 8,700 involved in labor-management disputes. A total of \$35,400,490 in unemployment insurance claims was paid to workers during 1954.

Manufacturing.—Establishments numbering 4,327 had 417,107 employees in 1954, and paid \$1,754,385,000 in salaries and wages, as compared with \$1,914,279,000 to 457,583 employees in 1953. Value added by manufacture in 1953 was \$3,192,556,000; investment in new plant and equipment totaled \$134,353,000. Earnings of production workers in manufacturing averaged \$72.76 for an average work week of 40.2 hours in 1954, and \$77.19 for 41.5 hours in the first six months of 1955.

MAJOR CONNECTICUT MANUFACTURES, 1953

Product or Industry	No. of employ-ees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
Nonelectrical machinery . . .	81,744	\$380,782	\$629,858
Transportation equipment . . .	62,597	294,790	458,709
Fabricated metal products . . .	51,098	207,213	372,300
Primary metal products . . .	29,706	136,945	274,378
Electrical machinery . . .	36,170	141,858	266,787
Textile mill products . . .	34,464	122,511	186,063
Instruments and related products . . .	17,261	68,946	117,031
Chemicals and allied products . . .	9,140	42,534	107,873
Rubber products . . .	14,029	55,225	88,624
Apparel and related products . . .	17,632	49,625	75,063
Food and kindred products . . .	7,359 ³	27,261 ³	56,481 ³
Paper and allied products . . .	7,612	32,405	51,054
Printing and publishing . . .	6,497 ³	25,477 ³	40,596 ³
Stone, clay, glass products . . .	4,521	19,983	32,688

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. ³ 1952 figures. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—The mineral products of Connecticut are confined almost exclusively to nonmetallic building materials. In 1953 the state ranked 45th in value of output, which comprised 0.06% of the United States total.

CONNECTICUT MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays . . .	438,200	\$ 448,260
Feldspar (long tons) . . .	9,829	63,049
Sand and gravel . . .	3,025,840	2,347,750
Stone* . . .	2,826,568	4,235,327
Other minerals . . .	...	823,074
Total . . .	...	7,917,460

* Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Fisheries.—The commercial fish and shellfish catch in 1953 was valued at \$1,276,000 for 17,482,000 pounds, including \$319,932 for 71,831 bushels of oysters. In 1954, 2,620 persons were engaged in Connecticut's commercial fisheries.

Agriculture.—Cash farm income in the first half of 1955 totaled \$86,921,000, and for the full year 1954 comprised \$111,009,000 from livestock and livestock products, \$57,224,000 from crops, and \$398,000 from government payments.

In 1954, receipts from principal livestock categories included: dairy products (\$42,818,000), eggs (\$29,710,000), and broilers (\$21,324,000).

The state's 12,753 farms (1,137,894 acres; harvested cropland, 285,886) had 89.2 acres and a value in land and buildings of \$23,670 per farm in 1954. Some 11,882 farms had telephones and 12,579 had electricity. Livestock on farms on Jan. 1, 1955, included 188,000 cattle and 4,632,000 chickens (not including commercial broilers). During the week of Sept. 26–Oct. 2, 1954, there were 30,657 family and hired workers engaged in farming.

CONNECTICUT CROP INCOME

	Cash receipts	
	1953	1954
Apples . . .	\$ 3,531,000	\$ 3,852,000
Corn . . .	1,512,000	1,531,000
Hay . . .	788,000	1,018,000
Potatoes . . .	3,539,000	3,906,000
Tobacco . . .	25,022,000	24,479,000
Tomatoes . . .	1,836,000	1,956,000

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways



WIDE WORLD

Smoldering ruins of magnesium plant at Putnam, Conn., destroyed by fire and flood on Aug. 19, 1955.

in the 1954–55 fiscal year totaled \$32,870,000, and newly completed construction of state highways in 1954 aggregated 10.3 miles.

Highways and roads on Dec. 31, 1954, totaled 15,251 miles (13,454.6 surfaced). Registered motor vehicles numbered 874,724 on June 30, 1955, including 721,560 passenger cars. There were 3 railroads (1954) operating 830.85 line miles, and (1955) 4 regularly scheduled airlines and 67 airports and airfields (21 commercial and municipal and 26 private fields; 7 heliports; and 6 commercial and 7 private seaplane bases).

Communications media (1955) included 25 AM and 6 FM radio stations and 5 operating television outlets (4 UHF and 1 VHF); 25 daily newspapers (circulation, 566,931) and 65 other newspapers; and (Jan. 1, 1955) 267,251 business and 698,961 residential telephones.

Principal Events, 1955.—On August 19, Hurricane Diane caused floods throughout the state which brought about the worst disaster in its history. The hurricane itself caused little damage, but the torrential rains wrought devastation. Small streams in the northeastern, north central, and northwestern areas became raging torrents with the approximately 16 inches of rain which fell on the 18th and 19th. Over 250 factories in the heavily industrialized Naugatuck Valley were temporarily paralyzed. The cities in that section

Receding waters of raging Mad River left chaos along Main Street, Winsted, Conn., following flood in August 1955.



WIDE WORLD

suffering greatest losses were Waterbury, Winsted, Naugatuck, Ansonia, and Torrington. In the eastern part of the state the rampaging Quinebaug River caused heavy loss. Governor Ribicoff immediately called on President Eisenhower to declare Connecticut a disaster area. The president at once complied and flew from Denver, Colo., to Windsor Locks, where on August 23 he conferred with the governors of six states affected by the floods.

The state was struck by a new flood on October 15 and 16. Heavy rains again caused rivers to overflow in 39 communities, 28 of which had escaped the first flood. Stamford and Norwalk were the chief sufferers, and Waterbury, Naugatuck, Ansonia, Derby, and Danbury were hit a second time. The toll of the two floods included 91 persons known dead, 12 missing, 86,000 unemployed, over 1,100 families homeless, 2,300 families temporarily without shelter, and the homes of nearly 20,000 families suffering flood damage. The Connecticut Flood Recovery Committee listed the total damage of the first flood as \$202,800,000 and the damage from the second flood at about one tenth of this total.

On July 21 the second atomic submarine, the *Seawolf*, was launched at Groton. Immediately afterward the keel of a third nuclear-powered submarine was laid.

A distinguished audience attended the opening of the American Shakespeare Festival Theatre and Academy at Stratford on July 12. The octagonally shaped theater, costing about \$1 million, opened with a two-week run of *Julius Caesar*.

As of Dec. 19, 1955, 650 cases of poliomyelitis had been reported, with 19 deaths, but there had been no deaths and only 10 cases of very mild paralysis among the 116,000 children who had received the Salk vaccine.

On November 8 the Connecticut General Life Insurance Company announced the purchase of the National Fire Insurance Company in a stock exchange deal involving about \$80 million.

Legislature and Principal Events by:

JAMES BREWSTER,

State Librarian, Connecticut State Library.

CONSERVATION. See FORESTRY; SOIL CONSERVATION; and Index entry, *Conservation*.

CONSTRUCTION. See ARCHITECTURE; BUILDING AND CONSTRUCTION; HOUSING.

CONSUMER CREDIT. During the first three quarters of 1955, consumer credit in the United States was increased by approximately \$4.2 billion. This increase brought the total of such credit to a record high for the postwar period of \$34.3 billion—an increase of about 14% from the level at the end of 1954.* A moderate decline in consumer credit outstanding occurred in the first two months of the year, but thereafter it steadily increased. Although consumer credit declined more than a half billion dollars in 1954, it increased at an average rate of more than \$2 billion during the previous postwar years.

The significance of changes in consumer credit must be judged in relation to other variations in the economy. One of the most important

* The consumer credit statistics published in the monthly *Federal Reserve Bulletin* include short and intermediate credit extended to consumers through regular business channels—commercial banks, other financial institutions, retail stores and service establishments. Although the consumer credit concept logically includes real estate mortgage credit on owner-occupied houses, this kind of credit is usually long-term and traditionally has been excluded from consumer credit. Statistics of this kind of credit are also published in the *Federal Reserve Bulletin*.

variables to be considered is disposable personal income, which has also increased in the postwar years. In the two years prior to 1942, consumer credit was about 11% of disposable personal income; in September 1955 it was about 12%—a record high for the postwar period.

This increase in consumer credit in 1955, and the substantial increase in long-term mortgage debt on houses (the total outstanding for both in September was about \$120 billion) were largely responsible for the government's anti-inflationary measures in the latter part of the year (for example, higher interest rates of the Federal Reserve banks, less liberal extension of credit to veterans as house-buyers, and severe restriction of credit by the Federal Home Loan Bank to savings and loan associations). For the first time since the end of 1953, new contracts for residential construction were lower in September 1955 than in the same month of the previous year.

Consumer credit, expanded mainly by the increase in installment credit for purchasing automobiles, showed little tendency to decline in the third quarter of the year. However, in order to meet outstanding obligations, consumers were expected to save more and to spend less in 1956.

Status of Consumer Credit, December 1954.—At the end of December 1954, the major portion of the \$30.1 billion of consumer credit was installment credit, namely, \$22.5 billion. It consisted of \$10.4 billion of installment sale credit on automobiles provided by sales finance companies, commercial banks, and automobile dealers. Installment credit for other consumer goods, secured by the items purchased, amounted to \$5.7 billion and was provided by commercial banks, department stores, mail-order houses, furniture stores, and other retail outlets. Repair and modernization installment loans for owner-occupied dwellings totaled \$1.6 billion, which was extended mainly by commercial banks. Other personal loans of an installment type totaled \$4.8 billion, which was granted mainly by commercial banks and other financial institutions.

The minor portion of the \$30.1 billion of consumer credit was noninstallment credit, namely, \$7.6 billion. It consisted of \$2.4 billion of single-payment loans, extended mainly by commercial banks. Charge accounts at stores amounted to \$3.5 billion. Service credit, the amount owed by individuals to professional practitioners and service establishments, totaled \$1.7 billion.

Trend in Consumer Credit, 1955.—At the end of September 1955, consumer credit had increased from the December 1954 level by approximately \$4.2 billion, or 14%; installment credit increased about 18%, and noninstallment credit decreased about 1%. Of the four groups constituting installment credit, automobile credit increased 33%; other durable goods credit and repair and modernization loans remained practically unchanged; and personal loans increased about 10%. In terms of the sources supplying the increase in installment credit during the first three quarters of 1955, the sales finance companies and commercial banks (the major suppliers of installment credit) were the main ones, with increases of 36% and 17%, respectively.

Of the three groups constituting noninstallment credit, single-payment loans during the first three quarters increased about 10%; charge accounts decreased about 11%; and service credit increased about 6%. Commercial banks were the source of the increase in single-payment loans.

The most important changes in the foregoing analysis of consumer credit were the spectacular

increases in installment credit for the purchase of automobiles and the relative stability of noninstallment credit. These changes were largely the result of an increase in disposable personal income, an increase in spending relative to saving, and an increase in demand for consumer durable goods (particularly automobiles). Because of the favorable change in economic conditions in 1955, the increase in demand for automobiles, and the maintenance of demand for housing facilities, consumer credit was substantially increased. However, consumer expenditures were being restrained by the government's restriction of credit; and the probability of more saving and less spending in order to meet past debt obligations, together with a decrease in demand for automobiles relative to other consumer goods, were expected to lower the level of consumer credit in 1956. (See also BANKS AND BANKING; FEDERAL RESERVE SYSTEM.)

CLIFFORD L. JAMES,

Professor of Economics, The Ohio State University.

CONTRACT BRIDGE. See SPORTS, GAMES, AND SHOWS.

COOPERATIVES. United States.—Cooperatives in the United States have kept pace with the nation's growing economy, and are continuing to handle about 2% of the retail trade. A study made by the Cooperative League of the USA, a national federation of consumer, service, and purchasing cooperatives, shows that the number of consumer and farm supply cooperatives has slowly dwindled since World War II, but that more people have joined existing cooperatives. Combined sales have jumped 20%. In 1954, retail sales approached \$3 billion; wholesale sales stood at more than \$800 million.

Cooperatives are groups of people organized together to provide goods and services for themselves at cost.* More than 12 million families in the United States share ownerships in these non-profit enterprises.

The year 1954 was a year of expansion for many cooperatives. The largest consumer cooperative in the United States opened a million-dollar food and variety-drug store on the outskirts of Washington, D.C. Other operations were expanded in Falls Church, Va., Natick, Mass., Chicago, Stafford Springs, Conn., Ridgewood, N.J., and Palo Alto, Calif.

Farm cooperatives market about one fifth of United States farm products. Two thirds of all farmers are members who own and control these facilities. Latest available figures show that in 1953, 7.5 million memberships were held by 3 million farmers. Marketing cooperatives handled about \$7.5 billion worth of products. Farm supply (or purchasing) groups sold farmers \$2 billion worth of merchandise, seed, feed, fertilizer, and oil. Rural electric cooperatives were serving 4 million members with \$400 million worth of electricity.

Probably the nation's best-known cooperative is CARE, popular name for the Cooperative for

American Remittances to Everywhere, which provides a means for Americans to send food, clothing, and other specialized packages to stricken countries abroad.

Canada.—A cooperative credit society organized to serve banking needs of cooperatives throughout the Dominion, and the merger of Manitoba and Saskatchewan cooperatives highlighted the progress of these self-help groups in 1954. Preliminary government figures provided by the Cooperative Union, the federation of Dominion cooperatives, indicate that sales of all cooperatives topped \$1 billion. The number of member-families exceeded 1½ million. A possible pattern for future consumer goods distribution was developed by the Regina (Sask.) society, which planned to open a larger supermarket and variety store in the downtown section early in 1955. Planned as a two-level store, it was to be the largest consumer cooperative store in Canada and possibly in North America.

Most of Canada's cooperatives are rural, and perform both marketing and purchasing services for members. There were more than 2,000 of these in 1954. Marketing was responsible for about three fourths of the total business. Eighty-six fishermen's cooperatives handled more than \$17 million in business, while service cooperatives did another \$12 million in sales.

Great Britain.—Cooperatives continued to operate about two thirds of the self-service shops in Great Britain. Membership gained more than a quarter-million in 1954 to a record high of about 11.5 million. Total retail sales jumped to £793 million, due partly to price increases and partly to greater sales. Twelve cooperative societies had more than 100,000 members, and 30 cooperatives had between 50,000 and 100,000 members. Greatest gains for the year were shown in Scotland, both for membership and sales.

Other Countries.—Sweden's consumer cooperatives led in the number of supermarkets. In 1954 they opened 307 such outlets for a total of 1,140. Membership stood at more than 1 million, with sales of \$500 million. In France, consumer cooperatives opened 200 new shops in 1954. All 880 French societies had retail sales of \$365 million and membership of 2.7 million.

The International Cooperative Alliance, worldwide federation of cooperatives, claimed a total 1954 membership of 117 million in 35 countries.

JACK T. JENNINGS,

Cooperative League of the USA.

COPPER. Figures compiled by the U.S. Bureau of Mines for production of copper (smelter output) in the world and in the United States are shown in the following table (in thousands of metric tons).

Year	World	U.S.	% in U.S.	Year	World	U.S.	% in U.S.
1945	2,165	701.1	32.4	1950	2,645	914.9	34.6
1946	1,860	552.2	29.7	1951	2,800	940.4	33.6
1947	2,260	857.0	37.9	1952	2,815	929.3	33.0
1948	2,340	839.6	35.9	1953	2,970	950.6	32.0
1949	2,360	779.8	33.0	1954	2,970	858.1	28.9

United States.—Mine production of recoverable copper was 926,448 short tons in 1953, 836,251 in 1954, and 630,010 in the first 8 months of 1955 (542,300 tons for the same period of 1954). The corresponding figures for smelter output were 1,047,810, 945,899, and 686,452 tons, respectively. Refinery output was 1,293,117 tons in 1953, 1,211,919 in 1954, and 826,361 during the first 8 months of 1955. Secondary recoveries

* In the United States, cooperatives include consumer retail and service cooperatives, farm purchasing and marketing cooperatives, telephone and electric cooperatives, and mutual insurance companies which operate on cooperative principles. Farm loan cooperatives and credit unions are also included. Through cooperatives, Americans also own oil wells, radio stations, flour mills, paint plants, coffee roasting establishments, and chick hatcheries. Other cooperatives provide educational services, compound drugs and medicines, market handicrafts, and handle travel abroad. Still others furnish low-cost burials, housing, hospital care, and insurance.

from old scrap added 429,388 tons in 1953 and 422,000 tons in 1954.

Total imports dropped from 677,069 tons in 1953 to 590,274 in 1954, and imports of refined copper in these respective totals declined from 274,777 tons in 1953 to 215,047 tons in 1954. Exports of refined copper (bars and ingots) increased from 109,510 tons in 1953 to 215,952 in 1954. Total consumption of refined copper declined from 1,494,215 tons in 1953 to 1,251,398 in 1954 (935,370 tons during the first 8 months of 1955).

Canada.—Primary copper production reached 183,180 tons in the first 6 months of 1955, as compared with 170,858 tons in the same period of 1954 (302,732 tons in the full year 1954). Corresponding figures for refined copper were, respectively, 159,802, 138,381, and 252,643. Exports through July 1955 were 21,680 tons of copper content in ore concentrates and matte, and 83,691 tons in ingots, bars, and billets. Consumption of refined copper in the first half of 1955 was 80,511 tons, as compared with 54,714 tons in the same period of 1954 (102,536 tons in the full year 1954). (See MINERAL PRODUCTION for output of major countries.)

OLIVER BOWLES, *Former Chief, Nonmetals Division, U.S. Bureau of Mines*; and BERENICE B. MITCHELL, *Foreign Minerals Staff, U.S. Bureau of Mines.*

COPYRIGHTS. The outstanding copyright event during the past year was the coming into force of the Universal Copyright Convention on Sept. 16, 1955, among the following countries: Andorra, Cambodia, Chile, Costa Rica, German Federal Republic, Haiti, Israel, Laos, Monaco, Pakistan, Spain, and the United States. The convention also came into force in Luxembourg, the Holy See, and the Philippines later in the year, and indications were that a number of additional countries would ratify in 1956.

The amendment to the United States copyright law implementing this convention also became effective on Sept. 16, 1955. Foreign authors and composers who are nationals of countries adhering to the Universal Copyright Convention or whose works are first published in such countries, are now entitled to the protection of the United States copyright law if at the time of first publication of their works a simple form of notice ("© 1955, John Doe") appears on the work in such manner and location as to give reasonable notice of copyright. Formalities of the domestic law, such as manufacture of English-language books in the United States and registration are waived as to such works. American authors who first publish their works with the same form of notice in the United States likewise receive the automatic protection of the law of the contracting states without formalities.

Considerable interest manifested itself during the year in a complete revision of the nearly 50-year-old United States copyright law. Bills were introduced in Congress (H.R. 2677 and H.R. 5366) to establish a presidential commission to study the problem and make recommendations, but neither bill was actively considered.

Preliminary steps were taken during the year toward the creation of a new law to protect useful designs. In January 1955 a Design Coordinating Committee appointed by the National Council of Patent Law Associations met in Washington to consider the form and content of a proposed bill to accomplish this purpose.

The annual report of the register of copyrights reveals that registrations during the fiscal year 1955 were at an all time high, as follows:

Books:	
(a) Printed in the United States:	
Books proper, pamphlets, leaflets, etc.....	49,142

Contributions to newspapers and periodicals..	3,746
Total.....	52,888
(b) Printed abroad in a foreign language.....	3,694
(c) English books registered for ad interim copyright.....	1,578
Total books.....	58,160
Periodicals (numbers).....	59,448
Lectures, sermons, addresses.....	813
Dramatic or dramatico-musical compositions.....	3,493
Musical compositions.....	57,527
Maps.....	2,013
Works of art, models or designs.....	3,456
Reproductions of works of art.....	900
Drawings or plastic works of a scientific or technical character.....	1,350
Photographs.....	1,105
Commercial prints and labels.....	10,505
Prints and pictorial illustrations.....	3,793
Motion picture photoplays.....	1,216
Motion pictures not photoplays.....	1,434
Renovals of all classes.....	19,519
Total.....	224,732

GEORGE D. CARY,
*Principal Legal Adviser, U.S.
Copyright Office.*

CORN. See AGRICULTURE; GRAINS.

CORSICA (Fr. CORSE). An island in the Mediterranean about 100 miles southeast of France, of which it is a department. Area, 3,367 square miles; pop. (1954 census), 246,995, a decline of 23.5% since 1936. Ajaccio (32,997) is the capital. Corsicans speak an Italian dialect. Exports include wine, olive oil, timber, and asbestos.

COSMIC RAYS. See Index entry.

COST OF LIVING. The general level of prices in 1955 remained stable in the United States, as in the two previous years. The cost of living as measured by certain retail prices continued practically unchanged during the first half of the year, but fluctuated moderately during the second half with a slight tendency to increase. Wholesale prices on the average fluctuated fractionally during the first half of the year, and increased slightly in the second half.

Although many prices remained practically unchanged during the year, general stability resulted in part from some moving upward and others downward. Wholesale prices, for example, of farm products and processed foods declined moderately, but those of a majority of industrial products increased, and only the prices of a few groups declined. Retail prices of consumer goods and services tended to remain unchanged or to increase slightly; only a few groups showed slight price declines.

Demand for nearly all consumers' and producers' items was maintained or increased during the year. This resulted largely from an increase in employment and personal income. Also, disposable personal income (personal income minus personal taxes and related payments), which is available for spending and saving, increased, and the rate of personal saving declined. In addition to these changes, which maintained or increased the demand for many items, there was an increase in the use of consumer credit (see CONSUMER CREDIT).

On the supply side of market adjustments, changes in output offset many of the changes in demand without appreciable changes in prices. However, the exceptions were important. In the second half of the year, output reached a level in a number of industries which approximated capacity rates. Among these were steel and non-ferrous metals (for example, copper and aluminum), a few chemicals, and certain paper products. The pressure on steel capacity resulted mainly from the record rate of automobile pro-

duction, a boom in the construction industry, a high level of investment in plant and equipment, and heavy orders by fabricators of machine tools and freight cars. Although industries producing durable goods, paper, and rubber products increased their production capacity during the year, the shortage of skilled labor and higher wage rates indicated the continuation of moderate price increases of these items in 1956.

The other important exception was farm products. Domestic consumption of these products increased, but foreign demand declined. Government price supports for some of them were lowered slightly, and the prices of nearly all farm products declined moderately during the year. Output continued at very high levels, however, and the lack of adjustment in supply resulted in large carry-over stocks of feeds, food grains, cotton, oil seeds, and other crops. An important part of these stocks was acquired by the government's Commodity Credit Corporation (q.v.) in maintaining price supports for some farm products. Prices of farm products were not expected to increase in 1956. (See also AGRICULTURE.)

In view of the varying economic situation, an expansion of credit for stimulating production was encouraged early in the year by low interest rates of the Federal Reserve banks. (See also BANKING; FEDERAL RESERVE SYSTEM.) Later, these were raised, and the Federal Housing Administration and the Veterans Administration increased downpayments for house-buying and shortened the pay-off period for loans. These measures and others were expected to check inflationary increases in prices. Thus, the general level of prices was expected to remain relatively stable in 1956.

Consumer Price Index and Retail Prices.—Changes in the cost of living in the United States are measured by the Consumer Price Index, which is published by the Bureau of Labor Statistics of the Department of Labor. The index, revised as of January 1953, measures only changes in prices of the goods and services bought by a representative group in the population; it does not measure changes in the qualities and quantities of items purchased by this group.¹ The latter changes reflect a higher or lower level of living, not a higher or lower cost for the same

level of living. Similar indexes are prepared in other countries.

In the United States the cost of living remained practically unchanged in 1955 until July, when the index moved to 114.7, as compared with 114.3 in January. It declined in August, but increased again in September to 114.9. These changes in the index occurred primarily because of fluctuations in the retail prices of foods. The cost of living in September was 14.9% above the average for 1947–49, and less than one half of 1% below the peak of October 1953 (115.4).

In September 1955 the Consumer Price Index was only fractionally higher than in the previous September. Although the food component of the index fluctuated appreciably, its level in September 1955 was 0.7% lower than in the previous September, and 4.3% below its August 1952 peak. Retail prices of meats, poultry, and fish were appreciably lower; fruits and vegetables were approximately the same. Retail prices of cereals and bakery products, and of dairy products were slightly higher. The housing component of the index was about 0.8% higher in September 1955 than in the previous September. Payments for rent, gas and electricity, fuels, and household operations were higher; for housefurnishings, lower. Of the remaining components of the index, prices of apparel, reading and recreation, and miscellaneous items (tobacco, alcoholic beverages, and minor services) were slightly higher; those of medical and personal care, appreciably higher; those of transportation, slightly lower. The total index of consumer prices was not expected to change appreciably during the fourth quarter of 1955.

Consumer Price Indexes for Ten Large Cities.—

Prices of goods and services customarily purchased by city wage-earner and clerical-worker families are included in the general index. These are collected in 46 cities which are representative of all cities in the United States. Separate indexes are calculated for each of the 20 largest cities. Ten of these, for cities in which prices are ascertained in August, are presented in the accompanying table. Comparison of city indexes shows only that prices in one city changed more or less than in another. City indexes do not measure differences in price level or cost of living between cities.

CONSUMER PRICE INDEX FOR TEN LARGE CITIES, AUGUST 1955 AND 1954 (1947–49 = 100)

City	Aug. 1955	Aug. 1954	Percent change, 1954 to 1955
Chicago.....	118.5	117.7	0.7
Cleveland.....	116.0	115.3	0.6
Detroit.....	116.5	116.8	-0.3
Houston.....	115.5	116.5	-0.8
Los Angeles.....	115.5	115.1	0.3
New York.....	111.9	113.0	-1.0
Philadelphia.....	115.8	116.2	-0.3
Scranton.....	111.5	112.4	-0.8
Seattle.....	116.6	116.2	0.3
Washington, D.C.....	113.8	114.1	-0.3

(Source: U.S. Department of Labor, Bureau of Labor Statistics.)

Among the ten cities in the table, the greatest increase in the cost of living between 1947–49 and August 1955 occurred in Chicago, namely, 18.5%. It also had the greatest increase between August 1954 and August 1955, namely, 0.7%. The smallest increase in the cost of living, 1947–49 to August 1955, occurred in Scranton (11.5%). However, the greatest decrease in the cost of living between August 1954 and August 1955 (–1.0%) occurred in New York. (These

¹ The index shows average changes in retail prices of selected goods and services (about 300 items—87 foods; 78 articles of apparel; 70 housing items including rent, fuel, and housefurnishings; and 61 other items, mainly services) which are important in the purchases of city wage-earner and clerical-worker families. Since these moderate-income families spend more, for example, on food than on apparel, a change in the price of food is of greater importance or weight in the cost of living than an equal change in the price of apparel. Consequently, based on their importance in 1952 expenditures, the 87 foods of the index have about 30% of total weight, and the 78 apparel items about 10% (housing items, 32%; other items, about 28%). An average price change on foods, therefore, has about three times as much influence in the index as an equal change on apparel items. The moderate-income families for which the 300 consumer items constitute important expenditures represent about 64% of all people living in urban areas, and about 40% of the total United States population. Hence, changes in the index do not reflect accurately changes in the cost of living of families at the lowest and highest extremes of the income scale. The average level of prices of the 300 items, weighted as indicated above, for the three years, 1947–49, is called the base period and is designated as 100. Averages of prices for other periods can then be related proportionately to the base period of 100. This procedure enables price changes to be expressed conveniently in percentage terms with reference to the base period. Thus, an index of 115 means a 15% increase in the cost of living as compared with the average level of consumer prices in 1947–49; an index of 95 means a 5% decrease.

changes do not indicate that the cost of living in August 1954 and 1955 was higher in Chicago than in Scranton and New York.)

Wholesale Commodity Prices.—Prices in primary markets of agricultural products, of other basic raw materials, and of important manufactured goods show rather quickly the effects of variations in crop yields, in industrial wage rates, and in other fundamental conditions of income flow and governmental policy. They also frequently indicate the future movements of retail prices and the cost of living. Recent declines, however, in wholesale prices sometimes have had little effect on the Consumer Price Index. A few consumer prices may fall, but others continue to rise, particularly rent and services which are not directly included in the wholesale index. In the United States, the monthly Wholesale Price Index, published by the Bureau of Labor Statistics, includes prices of nearly 2,000 basic commodities.²

The general level of wholesale commodity prices in the United States moved irregularly, but slightly upward, during the first three quarters of 1955. In September 1955 the index for all commodities was 111.7, or 11.7% above the average for the base period (1947-49), which was slightly more than 1% above the level for September 1954. Since the peak of February and March 1951, wholesale prices have generally declined. The index of 111.7 in September 1955 was 4% below this peak.

Although the wholesale index increased moderately during 1955, a few important commodity groups in the index showed a price decline. Farm products in September 1955 were 4% lower in price than during the previous September; processed foods were also about 4% lower. In the latter group, meats were approximately 6% lower in price. The prices of industrial commodities in September 1955 were 3.5% higher than in the previous September. Hides and leather products, fuel and power, rubber products, lumber and wood products, pulp and paper products, metals and metal products, machinery and motive products, furniture and household durables, and structural nonmetallic minerals were higher in price; textiles and apparel, chemicals, tobacco products and bottled beverages, and miscellaneous commodities remained about the same or declined in price. No substantial changes in the level of wholesale prices were expected in 1956.

Canada.—Stability of postwar prices, achieved recently by many countries, was characteristic of some important industrial nations in 1955. In Canada the cost of living remained practically unchanged. Retail prices of clothing and household operations declined moderately. Prices of shelter increased moderately; those of foods, other commodities and services increased slightly. The index of wholesale prices increased during the year, and in September 1955 it was approximately 3% higher than in the previous September. The prices of farm products in the index decreased moderately; those of raw and partly manufactured goods increased substantially; and

those of manufactured goods increased slightly.

United Kingdom.—The cost of living in the United Kingdom continued to rise in 1955. The index in September 1955 was about 5% above that of the previous September. Retail food prices during the same period increased approximately 8%. The index of wholesale prices increased during the year and reached a level in September 1955 which was about 4% above that of the previous September. Wholesale prices of foods during the same period increased about 1%. These figures reflected a moderate inflationary situation. A substantial increase in demand for industrial equipment, which occurred in 1954, continued unabated in 1955, and was not expected to lessen appreciably until late in 1956. Also, wage increases and the end of rationing (mid-1954) contributed to a moderate increase in the demand for consumers' items in 1955.

France.—The cost of living remained practically unchanged, and in September 1955 was approximately at the level of the previous September. Retail food prices increased moderately during the first part of the same period, but declined to a level approximately that of the previous September. Wholesale prices increased slightly, but declined later to a level in September 1955 which was about 1% above that of the previous September. Although prices of many commodities in France continued to be higher than in international markets, they have remained relatively stable for three years as the result of a substantial increase in output and productivity.

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COSTA RICA. A Central American republic covering an area of 19,653 square miles, Costa Rica is bordered on the north by Nicaragua, on the northeast by the Caribbean Sea, on the southeast by Panama, and on the southwest and west by the Pacific Ocean.

Population.—The estimated population as of March 31, 1955, was 942,000 (1950 census, 800,875), and the population density approximated 47 persons per square mile. Costa Rica is divided into seven provinces, of which six bear the same name as their respective capital cities. The latter, with their 1953 populations, are Alajuela (14,950), Cartago (14,239), Heredia (13,579), Limón (18,145), Puntarenas (17,472), and San José (93,229), the national capital. The seventh province is Guanacaste, whose capital is Liberia (5,422).

Most of Costa Rica's population is concentrated in the higher altitudes, particularly in the pleasant central plateau (44% of the total 1950 population), in which are located San José, Alajuela, Cartago, and Heredia. About 33.5% of the population is urban, and less than 5% is foreign born. The people are predominantly white (98% in 1950) and largely of Spanish descent. Spanish is the official language.

Government.—Costa Rica has a republican form of government based on the Constitution of 1949. This document provides for a president, two vice presidents, a unicameral legislature of 45 representatives, and a supreme court called the Sala de Casación, which is made up of 5 members. José Figueres is president, and Dr. Raúl Blanco Cervantes is first vice president. They took office on Nov. 8, 1953.

Religion and Education.—Most of the people are Roman Catholics, and Roman Catholicism is the state religion, although state and church are separate and the constitution guarantees freedom of worship.

In 1950 approximately 80% of all persons 10 years of age and older were literate. Great emphasis is placed on education, and primary school attendance is compulsory. In 1954 the public primary schools had an initial estimated enrollment of 131,589; private schools, 7,213. The University of Costa Rica in San José had an enrollment of about 1,900. Expenditures for education in 1954 amounted to more than 15% of all disbursements. The budget of the Ministry of Education was second only to that of the Ministry of Public Works.

Finance.—Effective government receipts in 1954 totaled 233,467,081 colones (U.S. \$1 = 5.60 colones at

² Beginning with 1952 the index is revised to include more than twice as large a sample of prices as formerly. They are prices charged by manufacturers or producers, or are prices prevailing on organized commodity exchanges. The monthly index is calculated from prices collected for a single day of the month, usually the Tuesday of the week containing the 15th. Since the different commodities priced are of different importance in relation to total trade, each price is multiplied by a weight determined by its sales in 1947. The average of prices for 1947 through 1949 is now the base period (100), instead of 1926.

the official rate, and 6.63 colones on the free market), the highest in the country's history. Expenditures totaled 219,226,620 colones, also a record figure. Indirect taxes produced 72.5% of the receipts; direct taxes, 16.8%; and income from government enterprises and public services, 6.3%. The internal debt at the end of 1954 was 186 million colones, a reduction of 6 million since the end of 1953, while the external debt amounted to 130.9 million colones, as compared with 135.4 million at the end of 1953. Foreign exchange reserves rose by \$8.2 million between the end of June 1954 and the end of June 1955, to \$28.8 million.

The cost of living in 1954 increased somewhat over that of 1953, from an index of 122 (1948 = 100) to 126; in July 1955 the index was 131. Prices of food were up slightly over 1%; rents, about 3%; and electric power, about 14%. The wholesale price index rose from 99 (1948 = 100) in 1953 to 104 in 1954, and to 106 by July 1955. In general, however, inflationary tendencies were held in check through government control of rents and the prices of certain commodities.

Agriculture.—Costa Rica is basically an agricultural country, with about 55% of its working population engaged in agriculture as of 1950. Although the diversification of agriculture is unequalled in Central America, coffee, with a total export value of \$35 million in 1954, is the principal export crop and source of dollar exchange. The record 1954-55 crop exceeded 740,000 quintals (1 quintal = 101.4 pounds), but that of 1955-56 was cut by drought. Bananas constitute a crop of about equal export value, and in 1954 banana exports amounted to \$32.7 million. Most of the bananas are produced by the Costa Rican Banana Company, a subsidiary of the United Fruit Company. Production in 1954 was about 10 million stems. Other important export crops are cacao (8,409 short tons shipped in 1954), abacá, and cattle (8,330 head shipped in 1954-55). Among the basic foodstuffs produced are corn, rice, beans, and sugar.

Manufacturing.—Industrial development in Costa Rica is limited and most factories are small, producing chiefly consumer goods. The country is heavily reliant on imported materials. In 1954 new can and edible oil factories were opened, and in 1955 a new pesticide plant. Margarine production in 1954 reached about 100,000 pounds monthly, and a new cacao processing plant produced about 115,200 pounds of cocoa powder and 76,800 pounds of cocoa butter during the year. The country's first National Industrial Fair was held in San José from Dec. 28, 1954, to Jan. 6, 1955.

Development is handicapped by a shortage of electric power, total installed power capacity being estimated at only 50,000 kw. in 1954. In 1955, however, two new thermal plants, with a combined capacity of 10,000 kw., were opened by the government, and a hydroelectric plant was scheduled for completion by 1957.

Foreign Trade.—Costa Rica's foreign trade in 1954 reached record levels, with imports valued at \$80.6 million, as compared with \$73.6 million in 1953, and exports at \$80.9 million (\$80.1 million in 1953). Coffee, bananas, and cacao together accounted for \$65.9 million of the total exports. The United States and western Germany were the chief coffee purchasers. Major imports included machinery, vehicles, metal products, textiles, chemicals, wheat flour, lard, petroleum products, and pharmaceuticals.

Transportation and Communications.—Despite economic and political problems, civil aviation in Costa Rica showed increases in passenger and cargo movement in 1954. International flights numbered more than 61,000, and domestic flights more than 129,000. Cargo movements reached 6,000 short tons to and from international points, and domestic cargo totaled about 20,000 tons.



UNITED PRESS

Costa Rica's deputy foreign minister, Fernando Fournier (l.) appeals to the Council of Organization of American States in Washington, Jan. 12, 1955, for aid against invasion by 'rebels' from Nicaragua. Venezuela's delegate is seated at right.

The new international airport at El Coco was opened in June 1955.

Costa Rica has about 350 miles of highways. Work on the Costa Rican section of the Inter-American Highway progressed in 1954, with operations concentrated in Guanacaste Province. The highway was advanced 25 miles, to within 10 miles of the Nicaraguan border. There are 411 miles of railways operated by the British-owned Northern Railway of Costa Rica and the government-owned Pacific Railway, both of which let contracts for additional locomotives to be delivered in 1955.

The Cía. Nacional de Fuerza y Luz installed a number of new telephones in 1954, bringing the country's total to 10,807, of which 9,406 are in San José.

Principal Events, 1955.—The outstanding event of the year was the outbreak of a rebellion in the northern part of the country, near the Nicaraguan border. On January 8, Costa Rica complained to the Organization of American States (OAS) that she was threatened by forces training in Nicaragua and planning invasion, and asked that body to investigate under the terms of the Inter-American Treaty of Reciprocal Assistance signed in Rio de Janeiro in 1947. Hostilities broke out on January 11, when rebel forces, reportedly advancing from Nicaragua, occupied a portion of the northern province of Guanacaste as well as the town of Villa Quesada, farther south. On the same day the OAS Council decided to dispatch an investigating committee, which arrived in San José on January 13. Meanwhile, rebel planes were active, one of them strafing San José. On January 16, acting under OAS authorization, the United States sold four F-51 fighter planes to Costa Rica. Actual fighting was of brief duration. The number of rebels was small, and by January 25 the last of them had fled to Nicaragua, where they were interned. (Some of them subsequently returned to Costa Rica, where there was a brief renewal of the fighting, from January 29 to February 5.)

On February 17, the OAS investigating committee, under the chairmanship of Luis Quintanilla of Mexico, made public its report, which implied that Nicaragua bore a large measure of responsibility for the revolt. It recommended that a commission be established to attempt to reconcile the two countries. Although there was a resumption of ill feeling in June and July, relations

eventually improved, and by September 8 the OAS was able to discontinue its consideration of the matter. (See also ORGANIZATION OF AMERICAN STATES.)

A three-week strike at the Laurel plantation of the United Fruit Company, for which Communist labor leaders were partly responsible, was settled amicably on October 1 after consultations among the strikers, the company, and the government, and a three-year wage contract was signed. A similar agreement for the Golfito area was signed on November 2.

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COTE, Alcide, Canadian government official: b. St. Jean (St. Johns), Quebec, May 19, 1903; d. Ottawa, Aug. 7, 1955. After receiving a law degree from the University of Montreal in 1928, Alcide Côté practiced law in St. Johns, where he was the founder and first president (1936-38) of the St. Johns and Iberville Junior Board of Trade. Mayor of St. Johns from 1945 to 1949, he was elected as a Liberal to the Canadian House of Commons from St.-Johns-Iberville-Napierville in the general election of 1945, and was re-elected in 1949. From 1952 until his death he was postmaster general in the cabinet of Prime Minister Louis St. Laurent.

COTTON. The supply of cotton in the United States for the August 1955-July 1956 marketing year was a record 25,726,000 running bales, according to the Agricultural Marketing Service. This was 2,263,000 bales more than in 1954-55 and above the previous record of 24,568,000 in 1939-40.

Farmers produced 14,476,000 running bales (14,663,000 bales of 500 pounds gross weight) in 1955, compared with 13,696,000 in 1954. Acreage allotments and marketing quotas were again in effect, and the crop was harvested from only 16,882,000 acres, 2,369,000 less than the year before. But yields set a new record for the third consecutive year, reaching an average of 416 pounds per acre, 75 pounds more than in 1955.

U.S. COTTON PRODUCTION, BY LEADING STATES (1,000 bales)

	Average 1944-53	1954	1955*
North Carolina.....	492	364	355
South Carolina.....	692	501	570
Georgia.....	695	612	705
Tennessee.....	565	548	610
Alabama.....	908	728	1,045
Mississippi.....	1,693	1,571	2,000
Missouri.....	358	450	405
Arkansas.....	1,386	1,351	1,650
Louisiana.....	591	572	585
Oklahoma.....	390	293	450
Texas.....	3,388	3,940	4,025
New Mexico.....	217	316	265
Arizona.....	481	911	700
California.....	1,048	1,487	1,250
Other states.....	47	52	48
United States.....	12,952	13,696	14,663

* Preliminary. Note—Bales are 500 pounds gross weight or about 480 net pounds of lint. (Source: Agricultural Marketing Service, U.S. Department of Agriculture.)

Cotton production has exceeded total use each year since 1951. As a result, carry-over stocks have built up rapidly, rising from the post-World War II low of 2,278,000 bales in 1951 to 11,100,000 on Aug. 1, 1955. Imports in 1955-56 were expected to total about 150,000 bales.

COTTON PRODUCTION BY LEADING COUNTRIES (EXCLUDING THE U.S.)

(1,000 bales)

	Average 1945-49	1954	1955*
India.....	2,304	4,250	4,200
Mexico.....	577	1,780	2,050
Egypt.....	1,456	1,598	1,806
Pakistan.....	1,024	1,300	1,400
Turkey.....	268	650	675
Peru.....	308	510	495
Syria.....	32	365	365
Iran.....	85	275	275
Greece.....	52	190	275
Nicaragua.....	7	205	250

* Preliminary. Note—Years shown refer to crop years, beginning August 1, in which major portion of crop was harvested. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

Cotton production in other countries in 1955-56 was estimated at 25,900,000 bales by the Foreign Agricultural Service. This was 1,200,000 bales higher than a year earlier, and marked a continuation of the upward trend in production abroad. Output in non-Communist countries abroad was estimated at 16,700,000 bales. Incomplete information indicated a total of 9,200,000 bales for areas under Communist domination.

(See also AGRICULTURE; TEXTILE INDUSTRY.)

WAYNE DEXTER,

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COUNCIL OF EUROPE. In 1955 the Consultative Assembly of the Council of Europe met twice in the Palais de l'Europe at Strasbourg, France. Guy Mollet, French Socialist leader, was re-elected president of the 132-man body on July 5.

In the first session, held on July 5-10, the subject of membership dominated the assembly's agenda. It was recommended that the council's membership statutes, which require that member nations be parliamentary democracies (as defined by Western criteria), be revised to extend admission to all European nations. Although the membership of excluded countries such as Yugoslavia, Spain, and Portugal is desired by the council in general, the proposals, which envision the inclusion of the Soviet Union's eastern European satellites, were protested by some delegations who felt that such an extension would compromise the council's democratic ideals. Despite both British Foreign Secretary Harold Macmillan's and French Foreign Minister Antoine Pinay's endorsement of the recommendations in speeches before the assembly (July 6), no action was taken at that time.

In the second meeting, held on October 16-27, the discussions were focused on the forthcoming Geneva Conference (q.v.) of foreign ministers. Believing that the West had too eagerly sought for some agreement with the Soviet Union at the summit conference in July, and fearing lest this eagerness carry over into the negotiations of the foreign ministers at the expense of the West, the General Affairs Committee of the Consultative Assembly adopted a report which urged the West to press firmly for the reunification of Germany and to oppose vigorously the status quo in eastern Europe. (For membership and structure of the Council of Europe, see EUROPEAN ORGANIZATIONS.)

COUNTERFEITING. See SECRET SERVICE, U.S.

CRANBERRIES. See FRUITS.

CREDIT, Consumer. See CONSUMER CREDIT.

CREDITS, Foreign. See Index entry.

CRETE. A mountainous island in the Mediterranean southeast of Greece, forming (together with offshore islands) a prefecture of Greece. Area (of the prefecture), 3,235 square miles; pop. (1951), 463,459. The capital is Canea (35,-237); and the chief city and port, Candia (54,-541). Exports include citrus fruits, wine, olive oil, soap, cheese, and almonds.

CRICKET. See SPORTS, GAMES, AND SHOWS.

CRIME. The following article is presented in two parts: (1) U.S. Crime Statistics, reviewing crime trends, the nature of arrests, and offenses cleared by arrest; and (2) Crime Prevention, reviewing current developments in that field. For data on crime trends in Canada, see the article CANADA; and for related material, see CHILD WELFARE; FEDERAL BUREAU OF INVESTIGATION; NARCOTICS; PRISONS.

U.S. CRIME STATISTICS

Crime figures for the United States in the first six months of 1955 indicate that, for the first time in seven years, there may be a decline in major crimes across the nation. The estimated number of major crimes committed during the first half of 1955 was 1,128,350, a decline of 7,790 from the 1,136,140 total for the same period in 1954, or a decrease of 0.7%.

Crime Trends.—Five of the eight major crime classes showed decreases during the first six months of 1955. There was a 15.1% decrease in robberies during the first six months of 1955, as compared with the same period for 1954; murders decreased 3.8%; burglaries, 3.3%; manslaughter by negligence, 0.3%; and auto theft, 0.2%.

The largest rise in crime was a 6.3% increase in rape offenses during the first six months of 1955 over the same period in 1954. Aggravated assault offenses increased 1.1% during this period, and larcenies increased 0.9%.

The 0.7% decrease in crime during the first half of 1955 occurred both in and out of cities. The total major crimes reported by city police decreased 1.4%. Sheriffs and other officers policing rural areas reported a decrease of three hundredths of 1%.

The direction of the trends coincided for urban and rural areas in five of the eight major crime classes—murders, robberies, and burglaries down; rapes and larcenies up. Negligent manslaughters and aggravated assaults were up in cities, down outside the cities. Auto thefts decreased in cities but rose in rural areas.

The decrease in total city crime, as well as in total rural crime, was led by a 15.3% and a 14.3% decrease, respectively, in robberies. Burglaries decreased 4%, and murders were down 3.4% in the cities, while rural burglaries decreased 1.7%, and murders were down 4.1%. Statistics reflect that rape offenses increased 10.4% in the urban areas and 1.5% in rural communities. In addition, larcenies were up 0.1% in the cities and 2.9% in the rural districts. Negligent manslaughter increased 5.7% in the urban areas, but decreased 7.2% in the rural communities; and aggravated assaults were up 2.9% in the cities and down 5.5% in the rural areas. Conversely, auto theft in the cities declined 0.4%, while rural auto thefts increased 0.4%.

Persons Arrested.—The following data relating to age, sex, and race of persons arrested are from special report forms sent to the Federal Bureau of Investigation by city police. The figures are for

arrests in 1,389 cities; however, the reporting area covers about 43% of the city population.

Sex.—Male arrests outnumbered female arrests 8 to 1 in 1954. Of the 1,688,555 persons arrested in 1,389 cities during 1954, 185,383, or 11%, were females. Male arrests numbered 1,503,172, or 89%, of the arrests in these cities.

Age.—Of the 1,688,555 arrests recorded by the 1,389 reporting cities during 1954, 9.7% were persons 17 years of age or less, and 16% were under 21.

Juveniles (under 18) represented 57.6% of all persons arrested for auto theft. They were also high in burglary and larceny arrests—49% and 43.6%, respectively, of the persons arrested in each category.

Over 51% of arrests for property crimes were of young persons under 21; however, young people represented only 14% of the arrests for crimes against the person.

Of the total persons arrested in 1954, 436,072, or 25.8%, were under 25 years of age. Of the remaining arrests, 212,689 involved persons who were 25 to 29 years of age. The age group 30 to 34 accounted for 210,239 of the arrests; the age group 35 to 39, for 196,724; the age group 40 to 44, for 186,122; and the age group 45 to 49, for 154,128. Persons who were aged 50 or older accounted for 291,811 arrests, and the age of persons involved in 770 arrests was not known.

On the basis of reports sent in by 253 large cities showing a combined population of 25,213,979, arrests of juveniles (under 18) rose 2.8% in 1954, while total arrests decreased 0.5%.

Race.—Over 97% of the 1,688,555 persons arrested in 1954 in 1,389 reporting cities were members of the white and Negro races. Arrests of members of the white race totaled 1,206,110, or 71.4%, of all arrests in the reporting cities, while 439,762, or 26%, were members of the Negro race. The remaining arrests, totaling 42,683, were made up of 33,212 Indians, 363 Chinese, 194 Japanese, and 8,914 others.

Offenses Cleared by Arrest.*—Police departments in 1,732 cities whose populations total 64,550,726 reported 333,631 clearances by arrest out of 1,208,844 known major offenses in 1954. These clearances resulted from the arrest and charging of 242,687 persons. Police reported 68,706 offenses against the person, and cleared 52,757 (15.8% of all clearances). They reported 1,140,138 crimes against property, and cleared 280,874 (84.2% of all clearances for the year 1954).

The difference in the rates of clearance for crimes against the person and property crimes is similar to that seen in other years. The personal crimes plus the property crime of robbery are generally considered the more vicious of the major crimes. Police possibly concentrate on these, and some clearances may be due to leads provided by the personal contact of the victim with the criminal.

Persons Found Guilty.—Of the persons charged with major crimes by police in 1954, 72.1% were found guilty. Based on reports of police in 201 cities whose populations total 24,662,474, persons charged with manslaughter by negligence were the least likely to be convicted (42.5% found guilty). Of the major offenses, the highest percentage of convictions resulted from trials of persons who were charged with robbery,

* The term "cleared by arrest" is used in those instances in which one or more of the offenders responsible for the commission of a particular offense were arrested and subsequently made available for prosecution.

with 80% of this group being found guilty.

J. EDGAR HOOVER,

Director, Federal Bureau of Investigation.

CRIME PREVENTION

With the number of juvenile delinquents brought into court rising steadily since 1949 to a new high in 1954, as reported by the U.S. Children's Bureau, and an increase of 5% in major crimes committed in 1954, as estimated by the Federal Bureau of Investigation, official and unofficial agencies intensified their crime prevention efforts throughout the United States.

The United Nations held its first World Congress on the Prevention of Crime and Treatment of Offenders, in Geneva, Switzerland, Aug. 22 to Sept. 3, 1955, attended by delegates and observers from 66 countries. Seventeen members appointed by the State Department represented the United States. One section of the congress dealt with the problem of reducing delinquency through preventive action in the community, and adopted recommendations on research pertaining to causation, prediction, and prevention. Other sections were concerned with measures to improve the penal systems of the world through better treatment of prisoners, training of personnel, improved prison industries, and extension of open and less repressive institutions. (See also PRISONS.)

This congress was followed in September by the Third International Congress on Criminology, which met in London to discuss recidivism and to propose measures to curtail repetition of criminal behavior.

The Children's Bureau of the U.S. Department of Health, Education, and Welfare created a new unit—the Division of Juvenile Delinquency Service—to aid states, territories, and local communities in improving their police, court, probation and institutional services. This unit, financed by a \$75,000 congressional grant, supplanted the bureau's three-year-old Special Juvenile Delinquency Project, which was supported by private funds and dissolved on June 30, 1955. Specialists from the new division will provide technical consultation to foster community planning for the prevention, control, and treatment of delinquency.

Congress appropriated \$154,000 to permit the Senate Subcommittee to Investigate Juvenile Delinquency to continue its public hearings in local communities throughout 1955. The subcommittee devoted special attention to the effect on youth of pornography and the depiction of crime and violence in the media of public communication. It also investigated the relationship between lack of suitable employment opportunities and youthful crime. Its chairman, Sen. Estes Kefauver of Tennessee, proposed that the federal government take an active part in crime prevention, but a bill he introduced in the Senate incorporating his proposals failed of passage.

Many official bodies, both state and local, strengthened their youth programs. The New York City Youth Board, with an appropriation of almost \$1 million, launched an "all-out attack" on delinquency by expanding its referral units for early detection, its group work with street clubs, and its recreational facilities, and planned further in-service training for its youth work personnel. The Community Research Association of New York, a nonprofit organization, undertook a \$2 million, five-year research in communitywide planning for reduction of major human problems, including delinquent and criminal behavior, to

be carried on in local areas in California, Minnesota, and Maryland, calling for a team approach that relates antisocial behavior to mental and emotional illness and family disintegration.

Comic books, of which approximately 100 million are said to be sold each month in the United States, continued to receive attention of state and municipal law-making bodies as well as numerous citizen groups. Many of the publishers, through their Comics Magazine Association of America, Inc., now conform to an established code, limiting or prohibiting depiction of crime, horror, excessive violence, and lurid sex (see also CENSORSHIP). Thirteen states enacted laws in 1955 curbing the sale to minors of books which might precipitate criminality in emotionally unhappy or unstable youths.

In at least one third of the states, the Children's Bureau reported, action at the state level took the form of legislation for improved court or probation facilities or of surveys or research studies related to crime prevention. Maryland opened a forestry camp for delinquents, such as California has had for many years. New York provided for similar camps for the 16-21-year-old offenders, and hostels for minors on probation or parole having no suitable home. Detroit police, faced with a "record high in youth crime" in 1954, reported a decrease in the first four months of 1955, following a preventive program planned jointly with church, school, business, and family groups. Training in the specialized field of police work with juveniles was stepped up in many localities. Hundreds of state and local conferences brought forth innumerable proposals. President Eisenhower sponsored a movement to get more youngsters into athletic contests; ex-President Hoover urged more boy's clubs for the nation's three million "pavement boys."

The National Probation and Parole Association, aided by a grant of over half a million dollars from the Ford Foundation, launched a five-year program to combat juvenile delinquency by strengthening courts and agencies dealing with juvenile offenders. Working at the outset in a few states, a "program of action" will be developed through the building of adequate services in courts, in probation and parole, and in correctional institutions. The association hopes that a pattern of prevention and rehabilitation will be worked out experimentally as a "citizen action program" that might be generally adopted if proved successful.

Public school systems increased their school counselor services for primary and elementary school children. On the assumption that the school is in a key position to detect the potential delinquent at an early stage, attention is being directed more and more to methods of "spotting" the future troublemaker before his problem becomes serious enough for court action. Two public schools in New York City are conducting an experiment to test out prediction techniques developed by Drs. Sheldon and Eleanor Glueck for use with the 5- and 6-year-old child. Teacher-training courses are emerging as a natural consequence of emphasis on the application of scientific techniques in meeting an old problem. The Boston public schools launched a training course for teachers to develop greater understanding of the school's responsibilities in the curbing of delinquent careers.

Although numerous panaceas were proposed for the prevention of crime, and many "causes" were pointed to, there was considerable agreement that the moral tone of a community and

its ethical and religious values are of paramount importance in efforts to achieve a significant reduction in the volume of crime that now constitutes a serious national problem. (See also *CHILD WELFARE*; *POLICE*.)

EDWIN POWERS,
*Director of Research and Correctional Education,
United Prison Association of Massachusetts.*

CROPS. See *AGRICULTURE*; *FRUITS*; *GRAINS*; *VEGETABLES*; and *Index* entry, *Farm*.

CROSS-COUNTRY. See *SPORTS*, *GAMES*, AND *SHOWS*.

CUBA. With an area of 44,208 square miles and a population (1953 census, revised in June 1954) of 5,823,187, Cuba is strategically and commercially the most important of the West Indian republics. The capital, Havana, which has a population (1953) of 783,162 (more than a million, counting the suburbs), is the governmental center for the island's six provinces. The six other largest cities, with urban area populations (1953 census) are: Holguín (226,644), Camagüey (204,254), Santa Clara (144,630), Santiago de Cuba (166,565), Sancti Spiritus (115,484), and (1943 census) Marianao (135,815). The government estimates that about 75% of the population is white, and 25% is colored and mixed.

Government.—Gen. Fulgencio Batista was inaugurated constitutional president on Feb. 24, 1955, after winning a *candidato único* (single candidate) election on Nov. 1, 1954. His inauguration automatically reinstated the Constitution of 1940, which provides for a unitary state organized along semiparliamentary lines. President Batista had been governing under a constitutional code of 275 articles since he seized power by force on March 10, 1952. The president receives a salary of \$60,000 a year.

Education and Religion.—Education is compulsory and free between the ages of 7 and 14. About 22% of the population above 15 years of age is illiterate, which gives Cuba one of the best records for literacy among the Latin American republics. In 1950 the teaching staff of public primary schools totaled 20,666 (546,984 students); secondary schools, 1,151; technical schools, 1,584; and teacher-training schools, 492. The University of Havana usually has about 17,000 students and 600 professors; there are three other universities. The budget of the Education Ministry for 1955–56 was 71,351,285 pesos, by far the largest amount placed at the disposal of any ministry. In 1954 Cuba had 685 priests in 203 parishes. The Roman Catholic Church also had 49,148 students in 187 schools.

Finance.—The ordinary and extraordinary budgets for 1955–56 totaled 312,874,826 pesos (the peso equals \$1 in U.S. currency). Although there was a deficit for 1954–55, it appears that budgetary operations for the 1956 fiscal year will be on a nearly balanced basis. The National Bank's statement of Aug. 31, 1955, showed official international reserves of \$519,900,000. Total deposits in commercial banks as of Aug. 22, 1955, were \$761,700,000.

Agriculture.—Cuba is the world's leading producer of sugar, with about 3.9 million acres devoted to sugarcane. The 1955 crop was controlled at 4,400,000 Spanish long tons (1 long ton equals 2,271 pounds), about 7% less than the 1954 crop. As of Aug. 15, 1955, Cuba had exported 2,991,588 long tons of sugar, of which approximately 1,482,000 tons had been shipped to the United States, where about 33% of the sugar market is supplied by Cuba. By the middle of 1955, the Soviet Union had purchased 500,000 tons of sugar. Production of high-test molasses from 1955 surplus sugarcane was 231,482,809 gallons. Leaf tobacco, cigars, cigarettes, and scrap tobacco accounted for about 5% of total exports. There was a reduction of about 10% in the 1955 tobacco crop. Cuba's coffee crop in 1954–55 amounted to 643,000 bags (132 pounds each). The estimated rice crop for 1954–55 was

340 million pounds; however, Cuba produces only about 40% of domestic rice requirements.

Industry.—In 1954 the government inaugurated a 350 million-peso economic and development plan, financed largely by a public bond issue. Allocations against the 100 million pesos authorized for the fiscal year 1955–56 totaled more than 41 million by the end of July. The major items were: 20 million pesos for construction and equipping of public schools; 8 million for port improvement; 6 million for construction and repair of tax, post, and telegraph offices; and 3 million for public hospitals. Business was slightly better in 1955 than in 1954. As of August 1955, cotton textile mills were operating at about 70% of capacity, rayon weaving mills at more than 80% (10–15% above the August 1954 rate), and rayon tire cord yarn, tire fabric, and rayon staple mills at full capacity.

Monthly mineral production in 1954 was: manganese, about 15,000 tons; nickel, 2,427,000 pounds; copper, about 3,100,000 pounds; refractory chrome ore, nearly 6,000 tons; and iron pyrites, 10,000 tons. Although production of nickel in 1955 was about the same as in 1954, the expansion of plant facilities at Nicaro is expected to increase the productive capacity by 75%. The production of copper concentrate up to August was 12% above that of 1954 for the same period, and manganese production was 20% above that of 1954 for the period up to August. Oil companies have committed \$15 million to \$20 million for research and exploration, not including a \$10 million exploration contract signed with the government in September 1955. However, domestic production of 1,200 barrels of oil per day is only about 2% of Cuba's daily petroleum requirements.

Hotels reported a 20–25% increase in the number of tourists in the summer months of 1955. About 234,200 tourists visited Cuba in 1954 and spent about \$50,849,000. The construction of the Havana Hilton Hotel, a 27-story, \$14 million project, was begun in June 1955.

Foreign Trade.—Cuba had an unfavorable balance of trade in 1954 of about \$82 million. Cuban exports to the United States in 1954 were valued at \$401,300,000, and imported goods were valued at \$428,200,000. Imports from the United States for the first half of 1955 were valued at \$226,400,000, and exports to the United States at \$220,900,000.

Transportation and Communications.—Cuba has 2,040 miles of major highways and 2,989 miles of railways. Private automobiles in 1954 numbered 106,159; telephones numbered 141,053, of which 104,290 were in Havana.

The official Bank of Economic and Social Development granted concessions in July to develop two major self-liquidating projects, to be financed by a bond issue: (1) a 30 million-peso maritime terminal on the state-owned, largely unused Cayo Cruz Peninsula in Havana harbor; and (2) a 22 million-peso 70-kilometer toll highway to link Matanzas with the Via Blanca leading into Havana. This road will open the coastal area for tourism.

Principal Events, 1955.—Although the administration of President Batista has achieved many successes in economic, social, and political areas since 1952, the increased number of bombings, assassinations, and political strikes in 1955 indicated growing political tensions. The political amnesty law of 1954 brought back to Cuba many enemies of the regime and encouraged the formation of anti-Batista parties. Former President

Carlos Príos Socarrás, who returned to the capital from exile on Aug. 11, 1955, stated that he intended to bring political opposition groups together and to persuade public opinion to force the government to restore complete political freedom.

On April 7, 1955, Dr. Jorge Mañach, journalist and well-known intellectual, announced the formation of a new political party called Movimiento de la Nación, the purpose of which is to oppose the government.

The killing of Jorge Agostini on June 9, 1955, made headlines in Cuban newspapers for days. Agostini, former naval commander and head of the secret police of the presidential palace under Presidents Grau San Martín and Príos Socarrás, had recently returned from asylum in Mexico.

In January, the Popular Socialist Party (Communist) was declared illegal. *La Calle*, a violently anti-Batista newspaper, was closed on June 17.

WILLIAM S. STOKES,
Professor of Political Science,
University of Wisconsin.

CULBERTSON, Ely, American bridge expert, lecturer, and author: b. Poyana de Vervilao, Rumania, July 22, 1891; d. Brattleboro, Vt., Dec. 27, 1955. One of the leading authorities on contract bridge, he devoted much of his time in later years to world peace.

The son of an American oil engineer, Culbertson was brought up in the Caucasus, where he was imprisoned for revolutionary activities. Subsequently he studied in Geneva and Paris, and in 1921 settled in the United States, where he became an expert bridge player. With his wife, the former Mrs. Josephine Murphy Dillon, to whom he was married in 1923 (they were divorced in 1938), he built up a highly successful career as an authority on contract bridge bidding. In 1929 he founded the *Bridge World*, which he continued to edit until his death. He won the Vanderbilt Cup in 1930, and his fame was assured after he defeated Sidney S. Lenz in a six-week match in 1931. With lecture and teaching fees, royalties from books and columns, and film and radio commitments, he soon became wealthy.

In 1940 he devised a plan for world peace through federation, arms limitation, and the establishment of an international police force. Elaborated in several books, his ideas were furthered by World Federation, Inc., founded in 1942, and, after the establishment of the United Nations, by the Citizens Committee for United Nations Reform, of which he was chairman. His second marriage, to Dorothy R. Baehne in 1947, ended in divorce in 1954.

In addition to his autobiography, *The Strange Lives of One Man* (1940), Culbertson's published works include *Contract Bridge Blue Book* (1930); *Contract Bridge Complete* (1936); *The World Federation Plan* (1942); and *Total Peace* (1943).

CURACAO. See NETHERLANDS ANTILLES.

CURLING. See SPORTS, GAMES, AND SHOWS.

CUSTOMS, Bureau of. Reflecting the upward surge of the United States economy, and expanding personal income figures, foreign trade and travel were at a high level during the fiscal year ended June 30, 1955. Customs activities increased accordingly, with the year constituting the busiest period in the history of the service.

Trend of Business.—Customs transactions involving total entries of merchandise into the United States set a new record of 5,247,000,

compared with 4,900,000 in the previous year, as the value of imports again exceeded \$10 billion. The increase in entries of merchandise subject to duties was particularly notable.

The volume of foreign travel again was at a peak level, with some 120,826,000 persons entering the United States, and passing through customs, during the year. While the total reflects increased to-and-fro border traffic, most types of substantial travel also showed marked increases. Air travel continued to make spectacular gains, with arrivals from abroad, including military planes, at a new high of 117,500, bringing in some 2,000,000 passengers, also a record. The respective figures for the previous year were 99,900 and 1,693,000. While vessel traffic held about the same as in 1954, passengers arriving by ship increased from 921,000 in 1954 to 975,000. Vehicles arriving totaled 30,957,000, compared with 29,536,000 in fiscal 1954, and brought in 89,713,000 passengers, compared with 85,493,000 in 1954.

Collections.—Total revenue collected by the Bureau of Customs (including collections for other agencies, such as internal-revenue taxes on imported liquors) was a record \$858,776,181, up sharply from the \$801,280,712 of the previous year. Included were customs duties and miscellaneous collections of \$611,239,572, somewhat below the record of \$629,967,772 established in 1951, but larger than the \$566,610,320 in fiscal 1954.

Administrative Developments.—The Bureau of Customs continued to press aggressively a program of simplification of procedures, both for the benefit of foreign traders, and to accomplish more economical and more efficient administration of the tariff and related laws. Numerous administrative changes were effected toward this objective. One was the elimination of the long-standing requirement for consular certification of invoices submitted by foreign shippers, which applied to a substantial portion of merchandise exported to the United States.

A major accomplishment was the achievement of a nationwide near-current basis in "liquidations," the audit process of making final determination of duties on merchandise importations. The large backlog of entries waiting such determination has been virtually wiped out by new procedures made possible by the Customs Simplification Act of 1953. This is a development of importance to importers who frequently had experienced delays in learning the exact amount due on goods moving into commerce on the basis of estimated duties.

A further simplification measure, revising methods prescribed for determining value of merchandise imports for customs purposes, was passed by the House of Representatives in 1955 but was not acted upon by the Senate.

Enforcement.—During the 1955 fiscal year, the Bureau of Customs was confronted with five major enforcement problems: the smuggling into the country of (1) narcotic drugs, (2) diamonds, (3) watch movements, and (4) psittacine birds; and (5) the smuggling out of the country of arms, ammunition, and implements of war.

Total seizures of contraband drugs, including marihuana, were 24,811 ounces in fiscal 1955, compared with 26,758 ounces in 1954. Seizures of marihuana continued comparatively high, while opium-type drugs apprehended were somewhat smaller in volume.

There were 728 arrests made during the year for violations of customs laws, and more than 500

offenders were convicted in cases reaching trial.

RALPH KELLY,
Commissioner of Customs.

CYCLING. See SPORTS, GAMES, AND SHOWS.

CYPRUS. Since 1925 a British crown colony, this third largest Mediterranean island lies 60 miles west of Syria and 40 miles south of the coast of Turkey. It has an area of 3,572 square miles and a population estimated in 1954 at 517,000, of which 80% was of Greek origin and nearly 18% Turkish. The capital and largest town is Nicosia (pop., 53,300, including suburbs), and principal ports are Limassol (27,000), Famagusta (20,500), and Larnaca (16,500).

Government.—Authority in Cyprus is exercised by a governor (Sir Robert Perceval Armitage, until Sept. 25, 1955, when he was succeeded by Sir John Harding), assisted by a 7-member Executive Council. Appointed commissions manage the affairs of 627 villages.

Finance.—Estimated revenue in 1955 was £9,658,165; expenditure, £9,562,023. Over £5 million had been spent between 1946 and the end of 1954 on the 10-year development plan for Cyprus.

Education.—In 1954 there were 730 elementary schools (71,877 pupils) and 57 secondary schools (18,353). Each religious community has separate elementary schools (56,860 Greek and 13,171 Moslem pupils). Postsecondary education is offered in two government centers at Morphou and Nicosia.

Defense.—British defenses on Cyprus, including an extensive command post on the Episkopi Peninsula and an island garrison of 4,000, are being developed at a cost of \$84 million. A United States airbase was established near Nicosia in 1952.

Economy.—A diversified agricultural economy employed 134,300 persons, or about 55% of all wage earners in 1954; about 47,000 were employed in manufacturing.

The value of overseas trade rose by nearly £4 million to over £40 million in 1954. Exports, 36% of which were farm products, included copper concentrates (93,610 tons valued at £3,686,369), iron pyrites (678,954 tons, £3,338,223), and asbestos (18,163 tons, £868,668). Total imports were valued at £23,571,000; exports, £16,973,000. Income from tourism was estimated at £1,750,000 in 1954.

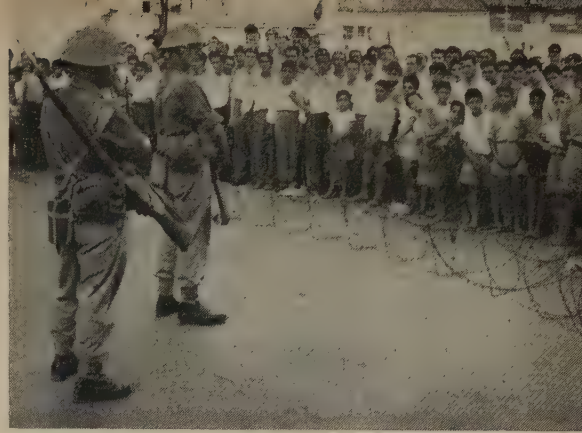
Transportation and Communications.—Nine airlines maintain regular services to Cyprus, and in 1954, 94,500 persons passed through the airport at Nicosia. Cyprus' 760 miles of asphalted roads are linked with 1,800 miles of subsidiary roads. In January 1955 there were 18,368 motor vehicles and some 55,000 bicycles.

Principal Events, 1955.—In 1955 the demand grew in Cyprus for self-determination for the island as the preliminary to union with Greece. Activities of the National Organization of Cypri-

THE CYPRUS PROBLEM

In September, while the London conference on Cyprus (Aug. 29-Sept. 7) was in progress (see accompanying text), demonstrations and violence occurred in Cyprus (1), and at Izmir (2), Istanbul (3), and Salonika (4).

THE NEW YORK TIMES



UNITED PRESS

Grim-faced Cypriotes, demanding home rule for Cyprus, watch British troops guarding the city of Nicosia.

ote fighters, the underground terrorist movement commonly known as EOKA, were accompanied by a wave of bomb explosions beginning in April, continuing several months, and reaching a peak of anti-British violence in November and December. Fifty explosions, spread over the entire island, occurred on November 19, and on November 26 an unsuccessful attempt (by bombing) was made on the life of the governor. In November, British casualties included 7 soldiers killed.

The British government called a London conference, held August 29-September 7, which the Greek, Turkish, and British foreign ministers attended. The Greek delegation came ready to arrange for British-leased bases on the island, in return for the granting of self-determination to Cyprus. British Foreign Secretary Harold Macmillan offered greater autonomy for Cyprus, reportedly including an elected assembly, but denied Cyprus the right to join Greece. Greek Foreign Minister Stephan Stephanopoulos was severely disappointed in the results of the meeting and also apparently shocked by the intransigence of Turkey, whose leaders declared their government's intention to claim Cyprus rather than have it turned over to Greece.

Before the conference terminated there were outbreaks of rioting in both Greece and Turkey on September 6. Anti-Greek riots took place in Istanbul and Izmir, and an explosion occurred at the Turkish consulate general in Salonika. Both the Turkish and Greek governments subsequently exchanged formal apologies. (See also GREECE; TURKEY.)

Meanwhile, military precautions were taken by Great Britain on Cyprus. Equipment was transferred from Malta, and 1,500 Royal Marine commandos, augmented in October by 800 British veterans of the Korean War, were assigned to Cyprus. By December, emergency forces on Cyprus had grown to 14,000. On September 15, the EOKA was declared outlawed; and on December 14, all forms of Communist organization also were outlawed and 130 Red leaders arrested, including the Communist mayors of Larnaca and Limassol.

On September 25, Field Marshal Sir John Harding was named governor and commander in chief of British forces on Cyprus. He held talks on October 11-12 with Archbishop and Ethnarch Makarios III of Nicosia, leader of the Enosis (union with Greece) movement. These consultations came to nothing. The possibility of mediation by the United Nations faded when the Cyprus question was excluded on September 20 from the General Assembly agenda, but on De-

cember 5 a change in British policy was indicated in London, where the foreign secretary stated that self-determination for Cyprus could be considered "some time and in certain conditions."

DONOVAN ROWSE,
Author and Publicist.

CZECHOSLOVAKIA. A Soviet-dominated and Communist-controlled people's republic of central Europe, Czechoslovakia is bounded on the north and northeast by Poland, on the east by the USSR, on the south by Hungary and Austria, and on the west and northwest by Germany. It has an area of 49,354 square miles, and its population is officially estimated (Dec. 31, 1954) at 13,020,000. The chief cities, with their 1947 census populations, are Prague (Praha), the capital, 922,284; Brno, 273,127; Moravská Ostrava, 180,960; Bratislava, capital of Slovakia (1948), 184,423; Pilsen (Plzeň), 117,814; and Olomouc, 58,617. Of the total population, 67% are Czechs, 25% Slovaks, 3.5% Germans, and 3.5% Magyars. There are small Polish and Jewish minorities.

Government.—The Communists, who seized control of the government in 1948, have transformed the country into a Soviet-type state. The Communist Party operates through the National Front, which, in addition to Communists, includes small groups from the traditional democratic parties. These groups endorse Communist rule.

According to the constitution of 1948, the governmental organs consist of the unicameral National Assembly, whose 368 deputies are elected for 6-year terms; the Presidium of the National Assembly, the highest legislative body when the assembly is not in session; and the cabinet. The present National Assembly was elected on Nov. 28, 1954. The assembly elects the president of the republic for a term of 7 years; Antonín Zápotocký, former premier, has been president since March 21, 1953. Viliam Široký is premier. Slovakia, which is guaranteed an autonomous status, has its own 100-member National Council.

The Communist Party of Czechoslovakia is headed by Antonín Novotný, first secretary of its Central Committee, and Karol Bacilek is first secretary of the Slovak Communist Party, a subsidiary of the Czechoslovak party. In August 1955, the authorities admitted that during the year several thousand members had been expelled from the Communist Party because of "nonfulfillment of party obligations."

Education.—The entire Czechoslovak educational system has been secularized and subordinated to government control. A law of April 24, 1953, established a unified school system and made 8 years of schooling obligatory. In 1953-54 there were 9,125 elementary schools with 505,000 pupils, 2,715 junior secondary schools with 1,095,000 pupils, 304 secondary schools with 234,000 students, and 655 vocational schools with 124,000 students. The principal universities in Czechoslovakia are Charles University of Prague and the universities of Brno and Bratislava; these and 36 other institutions of higher education had a combined enrollment of 49,000 in 1954-55.

Religion.—According to a 1947 estimate, the population was distributed as follows: Roman Catholics, 9,300,000; members of the Czechoslovak Church, 950,000; Protestants, 900,000; persons claiming no religious affiliation, 820,000; Jews, 50,000; and Eastern Orthodox, 50,000. A law of Oct. 14, 1949, made the clergy civil servants of the government, and they were obliged to sign an oath of allegiance to the state. A Ministry of Church Affairs was established to handle religious matters. Persecution of churchmen continued in 1955, and the Communist Party conducted widespread antireligious propaganda.

Finance.—The Czechoslovak monetary unit is the koruna (crown), valued in exchange at 1.80 koruny to 1 ruble, or 7.20 koruny to U.S. \$1. The 1955 budget provided for total expenditures of 86,039,452,000 koruny, of which about 44 billion was allotted to the economy, 28 billion to social and cultural measures, 10.5 billion to defense, and 3.5 billion to administration. On March 30, 1955, the government announced price reductions ranging up to 28% on about 1,600 items.

Agriculture.—On June 30, 1955, at the conclusion of a two-day session, the Central Committee of the Communist Party issued a declaration calling for greater food production. It announced a policy of emphasizing the joint cultivation of land on a village basis as a propaganda move to

impress noncollectivized farmers with the alleged advantages of collective farming.

Czechoslovak collective farms are of four distinct types: (1) joint cultivation of land, but retention of ownership in land, livestock, and harvested crops; (2) joint cultivation of land with retention of ownership in land and equipment, but contribution to the collective farm of received rent; (3) joint cultivation of land, but purchase of equipment by the cooperative; and (4) common ownership of land and equipment and distribution of income according to work units. The first type is little more than a convenient partnership, but the fourth is identical with the Soviet kolkhoz. Of the total number of Czechoslovak collective farms, 95.5% were of the fourth type in 1955. In 1954, 41.5% of all grain delivered to the government, 56.4% of the sugar beets, 59% of the pork, 48.5% of the beef, and 43.3% of the milk came from collective farms of the third and fourth types and from state farms.

Production figures for 1953 (in thousands of metric tons) for some of the leading crops are as follows: wheat and rye, 2,800; barley, oats, and corn, 2,200; potatoes, 8,500; and sugar beets, 5,500. At the beginning of 1955, Czechoslovakia had a total of 32,700 tractors.

In March 1955, a government spokesman admitted that food production was below the pre-World War II level. The 1955 budget allotted 7,952 million koruny for capital investments in agriculture. According to the annual plan, approved by the Central Committee of the Communist Party at its June meeting, 300,000 acres of new land were to be brought under cultivation during the year.

Industry and Mining.—In 1953 the First Five-Year Plan (1948-53) was completed, and in 1954 the government decided not to begin the Second Five-Year Plan until 1956, so as to synchronize national planning with that of the Soviet Union and Hungary. Instead, annual plans have been made. Beginning in September 1953, national planning was consumer oriented, and proportionally higher financial allotments were made for capital investment in agriculture. On Feb. 13, 1955, however, Premier Široký announced that in the future the national economy would be based on heavy industry.

According to an official announcement, the 1954 annual plan was fulfilled 102.5%. In that year, 37,840,000 metric tons of lignite, 21,561,000 metric tons of bituminous coal, 4,430,000 metric tons of crude steel, and 13.5 billion kw.-hr. of electricity were produced. Estimates for 1953 include 2,300,000 metric tons of iron ore, 2,800,000 tons of pig iron, 2,900,000 tons of rolled steel products, 2,300,000 tons of cement, and 196,000 tons of crude petroleum.

Industrial production for 1955 was expected to rise 9% over that for 1954. On Dec. 31, 1954, Premier Široký, in a speech made at the opening of the new National Assembly, said that 1955 production targets must be achieved by curbing absenteeism and labor turnover and by improving the organization of work. The budget allocated 14,112 million koruny for capital investment in industry in 1955. In August the government announced its plan to build during the next 15 to 20 years nuclear power stations with capacities of 50,000 to 100,000 kw.

Foreign Trade.—Overall statistics on Czechoslovak trade are not available. United States exports to Czechoslovakia amounted to \$1,006,000, and imports from Czechoslovakia to \$3,074,000,

in 1954; corresponding figures for the first six months of 1955 were \$1,884,000 and \$1,693,000, respectively.

While traditionally Czechoslovak exports have consisted primarily of consumer goods (led by textiles), basic exports now consist of heavy tools and shaping equipment (boring and milling machines, high-speed lathes, forging presses, cranes, suction dredges) and transportation equipment. The bulk of Czechoslovakia's trade is with the USSR and other countries of the Soviet bloc. The 1955 trade agreement with the Soviet Union stipulated that the latter supply Czechoslovakia with grain, cotton, wool, nonferrous metals, iron and manganese ore, chemical fertilizers, agricultural machinery, and various types of industrial equipment in exchange for diesel electric passenger vessels, river tugs, suction dredges, mobile steam power plants, diesel engines, machine tools, oil piping, sugar, and rolling, forging, and pressing equipment. During the year, Czechoslovakia supplied the USSR with two sugar plants.

The Czechoslovak government has endeavored to expand trade by cutting prices, offering long-term credits, and providing free training to foreigners who purchase equipment. In 1955 special efforts were made to increase trade with southeastern Asia (Burma, India, Indonesia), Africa (Egypt, the Sudan), and South America (Chile, Argentina). In addition, Czechoslovakia is supplying Communist China with machinery and other heavy equipment.

Transportation and Communications.—Czechoslovakia had, in 1950, 8,227 miles of railway and, in 1946, 43,967 miles of roads. In 1950 the country had about 224,000 passenger cars and trucks. The Danube, Elbe, and Vltava rivers are navigable for a total of 281 miles. In 1951 the country had 350,708 telephones and, in 1952, 2,608,000 radio receiving sets. Television programs averaged about six hours daily in 1955.

Principal Events, 1955. Foreign Affairs.—During 1955 the Czechoslovak government continued to conduct its foreign policy in conformity with the international orientation of the USSR. Nevertheless, although it emphasized the new Soviet policy of coexistence and international peace, it did not make any really serious effort to improve its relations with the West. On Feb. 3, 1955, the government announced that the state of war between Czechoslovakia and Germany had come to an end, and on August 30 the National Assembly approved Czechoslovak accession to the Austrian State Treaty. On August 10, Premier Široký stated that Czechoslovakia was ready to negotiate with West Germany for the establishment of normal diplomatic relations; and on November 12 the government announced that it had released 1,437 German and Austrian prisoners, and that the remaining prisoners would be freed gradually. Otherwise, relations with the West were marred by a number of incidents.

On January 14, Switzerland protested to the Czechoslovak government about espionage carried out through the Czechoslovak legation at Bern, and the Czechoslovak military attaché was recalled. A similar protest on March 15 by Sweden resulted in an order for three Czechoslovak diplomats to leave Stockholm. On March 29, the United States government filed with the International Court of Justice a claim against Czechoslovakia for \$271,384.16 as damages for the shooting down of a U.S. Air Force plane over Germany on March 10, 1953. Then, on April 19, Czechoslovakia protested to the United States

embassy in Prague concerning alleged hostile acts perpetrated by the United States government and its agencies. The protest was aimed particularly at the organization of a Czechoslovak military unit in Germany under the alleged sponsorship of the United States government.

The announcement by Egypt on September 27 that she had negotiated an agreement to obtain arms from Czechoslovakia in exchange for cotton caused great concern in the West. It was feared that these arms might upset the balance of power in the Middle East, and so precipitate a major Arab-Israeli conflict. On October 4, Israel informed the Czechoslovak government that she considered the arms agreement an "unfriendly act."

Meanwhile, Czechoslovakia's relations with the USSR and the satellite countries were harmonious. Czechoslovakia participated in the Soviet-sponsored Warsaw Conference of May 11-14, 1955, at which 8 Soviet bloc countries concluded a 20-year treaty of friendship, cooperation, and mutual assistance. The Czechoslovak National Assembly ratified the treaty on May 24. Czechoslovakia was also designated a beneficiary of the Soviet decision to build atomic reactors in satellite countries and to provide these countries with complete equipment, fissionable material, and expert assistance. On August 24, following the Soviet example, Czechoslovakia announced that it would reduce its armed forces (estimated at 200,000 to 230,000 men) by 34,000 by Dec. 28, 1955.

On June 4 and 5, a group of Czechoslovak, Rumanian, and Hungarian leaders met with Soviet leaders in Bucharest and gave full endorsement to the Soviet-Yugoslav declaration of agreement. On July 27, however, Marshal Tito criticized the Czechoslovak government for obstructing rapprochement between Yugoslavia and the USSR. On August 12, the Czechoslovak National Assembly approved a resolution favoring better relations with Yugoslavia.

Internal Conditions.—During 1955 the Czechoslovak political scene was dominated by numerous trials of individuals or groups accused of sabotage or espionage. On February 1, 17 persons were sentenced for alleged destruction of socialist property and sabotage, and on March 10 it was reported from Carlsbad that 10 leaders of a "Social Democratic underground" had received sentences of 4 to 17 years in prison. Then, on May 31, the Ministry of the Interior announced the arrest of 13 persons accused of infiltrating Czechoslovakia from Germany as spies for the United States; many other persons were implicated. On May 9, however, an amnesty was issued for various categories of prisoners, as well as for those who had left the country illegally.

It was announced on October 14 that Premier Široký had reorganized his cabinet, increasing the number of ministers from 37 to 42. Michael Bakula replaced Oldrich Beran as minister of state control, and the latter became head of a new Office for Reconstruction. Josef Tesla was appointed minister of manpower, succeeding Vaclav Nosek, whose death had been reported on July 22. The former Ministry of Engineering was split into ministries of Heavy Industry, Precision Industry, and Agricultural Machines. Some observers are of the opinion that this division is connected with the government's efforts to find new markets for its industrial products.

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DAHOMEY. See FRENCH WEST AFRICA.

DAIRY PRODUCTS. United States milk production in 1955 was estimated at 124.5 billion pounds, a new record and about 1% more than the previous high of 123.5 billion pounds in 1954. Annual milk production per cow rose to 5,630 pounds, compared with 5,512 pounds in 1954 and 4,787 in 1945. The number of milk cows at midyear was estimated to be 22,067,000, compared with 22,425,000 in 1954 and 25,110,000 in 1945. The general trend in milk cow numbers for the past 10 years has been downward, the only exceptions being in the years 1953 and 1954.

Government-owned stocks of dairy products, which reached record proportions in 1954, were sharply reduced in 1955. Major efforts on the part of government to dispose of its stocks through sales, donations, and special programs were the dominant factors. As of Nov. 1, 1955, government stocks were: butter, 108 million pounds, compared with 466 million in 1954; cheese, 278 million pounds, as against 436 million in 1954; and dry milk, 22 million pounds, compared with 599 million in 1954.

Per capita consumption of several important dairy products increased during 1955, in some instances reversing the long-time trend.

U.S. PER CAPITA CONSUMPTION OF CERTAIN DAIRY PRODUCTS AND MARGARINE (In pounds)

	1935-39	1945	1950	1955*
Fluid milk and cream.....	330	399	349	353
Butter.....	16.8	10.8	10.6	9.2
Cheese.....	5.5	6.6	7.6	7.7
Ice cream (milk used).....	24.6	37.0	44.4	48.6
Evaporated milk.....	14.9	16.1	17.9	14.5
Margarine.....	2.8	4.0	6.0	8.3

* Preliminary.

According to October 1955 estimates, milk production in the principal dairy countries of the world decreased slightly in 1955, after having increased in both 1953 and 1954. Adverse weather conditions in most of Europe held production down. Greece was one of the few European countries in which output apparently increased. In France, Austria, and Norway, production in 1955 was about the same as a year earlier. Ireland had the most drastic decline.

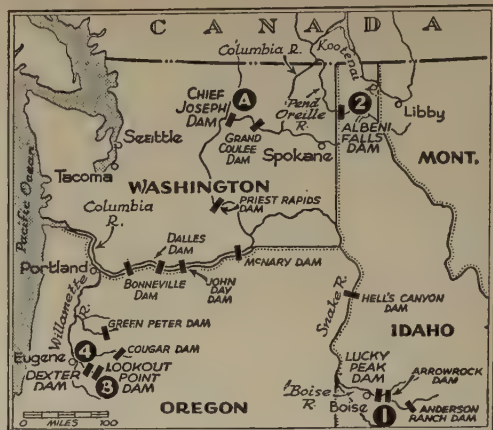
MILK PRODUCTION IN PRINCIPAL COUNTRIES (Cow's milk, in million pounds)

	Average 1946-50	1953	1954	1955*
Canada.....	16,844	16,449	16,884	16,950
United States.....	117,297	121,149	123,502	124,500
Denmark.....	10,181	11,856	11,898	11,400
France.....	27,256	38,590	41,660	41,500
West Germany.....	24,993	36,852	37,597	36,850
Netherlands.....	10,109	12,837	12,967	12,710
Italy.....	16,746	18,001	18,523	18,150
Switzerland.....	4,951	5,937	6,157	6,100
Norway.....	3,116	3,544	3,453	3,450
Sweden.....	10,245	10,097	10,252	9,760
United Kingdom.....	20,394	23,752	24,195	23,700
Ireland.....	4,800	5,320	5,408	4,500
Argentina.....	7,762	11,804	11,236	10,800
Australia.....	12,206	12,195	13,184	13,850
New Zealand.....	9,487	11,740	10,998	11,200

* Preliminary. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

(See also AGRICULTURE and the Index entry, Dairy Products.)

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THE NEW YORK TIMES

Four federally built dams in the Northwest are dedicated in one week in June 1955: (1) Lucky Peak; (2) Albeni Falls; (3) Lookout Point; and (4) Dexter. Chief Joseph Dam (A) generated its first hydroelectric power in 1955.

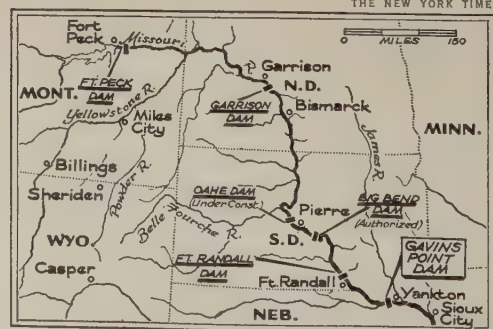
DAMS. Construction of large dams in the United States staged a strong comeback in 1955, with contract awards running to near 70% ahead of the previous year. There had been a period of economy in government, as well as a period of adjustment to the present administration's policy of approving partnership arrangements wherein local interests assume a share in financing major river development projects.

St. Lawrence Power Project.—This long-awaited \$660 million development of the International Rapids between New York State and Ontario was off to a good start in 1955. The first full year of construction on the international project to develop nearly 2,500,000 horsepower saw a 4,000-man construction force at work on both sides of the river. United States constructors excavated for first-stage construction on the 114-foot high Long Sault Dam. This 1,790-foot spillway dam across the river's channel on the south side of Barnhart Island will be the control structure on the power reservoir to be formed. Twenty-five miles upstream, American builders similarly have complete responsibility for construction of Iroquois Dam, a low spillway structure 1,600 feet long, which is intended to control water levels upstream in Lake Ontario while also helping to regulate the level of the power pool below.

On the channel of the river north of Barnhart

Gavins Point Dam (lower right), closed on July 31, 1955, is the fourth of six Missouri River dams to be closed as part of the Pick-Sloan river-control plan.

THE NEW YORK TIMES



Island, straddling the international boundary, is Barnhart Island Power Plant. This 3,200-foot-long dam and powerhouse will have sixteen 71,000-hp. turbines on either side of the international line. It is being built in the completely dried bed of the river's north channel behind an exceptionally long cellular steel cofferdam. Financing of this vast hydroelectric undertaking is dependent on power production (and sales) by 1958. It is therefore one of the heaviest concentrations of dam construction ever undertaken—concentrated in time as well as in space. The owner on the United States side is the New York State Power Authority; in Canada it is the Hydro-Electric Power Commission of Ontario. (See also CANALS.)

Missouri River Dams.—On July 31, 1955, closure was accomplished on the Missouri River in South Dakota at Gavins Point Dam, smallest and farthest downstream of the four main-river dams in the plan for complete Missouri Basin water use and control. Gavins Point is considered a re-regulating dam for the river below the larger Fort Randall Dam which is 75 miles upstream; it will provide 100,000 kw. of power. Fort Randall Dam neared completion in 1955 with the last of its eight 40,000-kw. units to go on the line in 1956. Oahe Dam, near Pierre, S. Dak., least advanced of the four big multipurpose units, was about 15% completed at the end of 1955. In North Dakota, Garrison Dam's 210-foot-high rolled-earth embankment was finished, and work began on installation of its five 80,000-kw. power units.

Apart from these big multipurpose main-river dams, being built by the U.S. Corps of Engineers, the work of the U.S. Bureau of Reclamation progressed through 1955 on a number of Missouri Basin rivers. Among these were Kirwin Dam in Kansas, the Frenchman-Cambridge project in Nebraska, and Glendo Unit in Wyoming. (See also RECLAMATION.)

Columbia River Basin.—In one week in June 1955, four major dams were dedicated in the Northwest. These were Lucky Peak, Albeni Falls, Lookout Point and Dexter dams (see accompanying map). These four Corps of Engineers projects represent an investment of \$140 million and a power increment of 177,600 kw., in addition to flood control and irrigation benefits. Lucky Peak is on the Boise River in Idaho; Albeni Falls is on the Pend Oreille River in northern Idaho; and Lookout Point is on the middle fork of Oregon's Willamette River, with Dexter a re-regulating dam immediately downstream.

Elsewhere in the basin, downstream on the Columbia River from Grand Coulee Dam in Washington, the major Chief Joseph Dam generated its first hydroelectric power in 1955 as a \$169 million project planned to provide 1,024,000 kw. when finally completed in 1958.

Also downstream on the Columbia, where it forms the Washington-Oregon border, The Dalles Dam moved along as a \$310 million project scheduled to produce initial power in November 1957. A rock-fill dam, to become a permanent part of the project, must be placed in water flowing at the rate of 200,000 cubic feet per second until this fast flow is closed off and diverted through a completed portion of the concrete dam and powerhouse. McNary Dam, upstream from The Dalles, continued to have power units added, toward final installation in 1956 of a total of 980,000 kw.

John Day Dam, planned for the Columbia River between The Dalles and McNary dams,



CORPS OF ENGINEERS, U.S. ARMY

Fort Randall Dam in South Dakota, part of Missouri River flood control system, as it neared completion in 1955.

emerged in 1955 as a prime example of the administration's partnership idea for river development projects. Private electric utilities in the Northwest proposed to advance the cost of constructing power elements of the \$310 million project. Under the proposal the federal government would build, own, and operate the dam.

Other evidence of how the Republican administration's partnership plan was working were to be found high in the Columbia Basin on the Snake River in Idaho, where great controversy developed over who should develop the hydroelectric potential of Hell's Canyon. Public power advocates fought for a government-planned, single, high Hell's Canyon Dam. Private interests offered a plan to build three lower dams along the Snake. In August 1955, the Federal Power Commission voted unanimously to license the Idaho Power Company to build its \$175.6 million three-dam project along a 37-mile stretch of the river. By November, the FPC had approved plans for Brownlee Dam and Oxbow Dam, the two upstream structures; design of the third, Hell's Canyon Dam, had not been completed. The 395-foot-high Brownlee Dam was due to be started in 1956. Oxbow Dam, a 205-foot-high structure was expected to be started in 1959, and the 320-foot Hell's Canyon Dam was scheduled to follow two years later. Power installation was anticipated to total 1,175,100 kw. at the three projects. This river development is designed primarily for power. Public power advocates were expected to continue their fight against present plans.

In the Columbia Basin, the Washington Water Power Company started work in 1955 on a \$79.5 million Noxon Rapids Dam across Clark Fork River in northwest Montana. It will be a 190-foot-high concrete structure expected to develop 400,000 kw.

California Dams.—Folsom Dam, a \$65 million project of the Corps of Engineers on the American River, was nearing completion in 1955. This multipurpose dam near Sacramento is a 340-foot-high concrete structure 1,400 feet long.

The \$1.6 billion Feather River project—a state plan to bring 1.8 million acre-feet of water each year from northern to southern California—remained in planning stages through 1955. The scheme involves what would be the world's largest dam—the 730-foot-high Oroville Dam on Feather River above Sacramento. Also involved in the grandiose plan is a 310-foot-high earth dam, called San Luis Dam, southeast of San Francisco.

Southeastern States.—Jim Woodruff Dam on

the Apalachicola River at the Florida-Georgia state line was virtually completed in 1955 as a \$46 million project. And in Georgia, near Atlanta, Buford Dam on the Chattahoochee was a \$41 million earthfill dam being pushed toward completion. Roanoke Rapids Dam in North Carolina was virtually completed for \$34 million on the Roanoke River by the Virginia Electric and Power Company.

Canadian Dams.—Two relatively small rockfill dams in the Quebec wilderness on a northern tributary of the St. Lawrence River were probably the most significant dams completed in Canada in 1955. Unspectacular as they may be as dams, they are to soon divert water of the Bersimis River through a 7½-mile tunnel to a 1,200,000-hp. installation in Canada's second underground powerhouse. In most aspects this \$225 million Bersimis project compares in size and scope with the great Kitimat project in British Columbia. Bersimis is intended to begin supplying power by the end of 1956.

France.—Serre on the Durance River will be the site of France's first earthfill dam, an 18 million cubic yard structure, which will be 402 feet high.

Africa.—In French Morocco, the \$85 million Bin el Ouidane Dam on el Abid River was completed in the spring of 1955.

The Federation of Rhodesia and Nyasaland was reported in 1955 as decided on going ahead with a \$240 million project to dam the Zambezi River at Kariba Gorge. The lake formed by the 360-foot-high dam would back up 150 miles to Victoria Falls.

In Egypt, the proposed High Dam on the Nile 4 miles south of Aswân Dam had the attention of financial as well as political interests in 1955. The Soviet Union was reported to have offered to build the project in return for trade agreements. The \$600 million project has been envisioned as a 361-foot-high rockfill dam to divert water into an underground powerhouse of nearly 2 million kw. capacity. It would be perhaps 10 years in construction. (See also EGYPT.)

Communist China.—Fu-Tze-Ling Dam—a multi-arched structure called the largest in China—

was reported to have been completed in 1955. It is a multipurpose structure on the Pi River in central China. Its 1,700-foot length is made up of 21 arches.

(For further references, see the Index entry, *Dams*.)

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DANCE. Ballet.—During the 1954-55 season, London's Festival Ballet toured the United States for the first time. Under the artistic direction of Anton Dolin, this company of 65 dancers featured Tamara Toumanova, Nora Kovach, Istvan Rabovsky, and Toni Lander as guest artists. When the group made its New York debut with three performances in Brooklyn, Harald Lander's sparkling one-act version of Auguste Bournonville's classic, *Napoli* (music by H. Paulli, E. Helsted, and H. C. Lumbye—décor by Osbert Lancaster), and Michael Charnley's lively *Symphony for Fun* (Don Gillis—Tom Lingwood) met with an enthusiastic welcome. Charnley's *Alice in Wonderland* (Joseph Horowitz—Kenneth Rowell) and Nicholas Beriosoff's reconstruction of Act II of *La Esmeralda* (Cesare Pugni—Nicola Benois) did not fare so well. While on tour, the company presented Frederick Ashton's *Vision of Marguerite* (Liszt—James Bailey). In general, this group of excellent and hard-working dancers was hampered by a not very enterprising repertoire and by the substitution of the star system for a sound artistic policy.

The National Ballet of Canada also gave its first New York performances in Brooklyn. This promising troupe of young dancers, which is directed by Celia Franca and has David Adams and Lois Smith as its principal soloists, made a decidedly favorable impression. Of the new productions, Antony Tudor's engaging farce, *Offenbach in the Underworld*, won special praise, while Joey Harris' *Barbara Allen* (Louis Applebaum—Kay Ambrose), based on the play *Dark of the Moon*, was accorded a cool reception. Later, in Washington, D.C., the company offered Elizabeth Leese's *Lady from the Sea* (music by Saul Honigman).

The New York City Ballet introduced four new works choreographed by George Balanchine. *Western Symphony* (Hershy Kay—John Boyt), a divertissement which blended classical ballet technique with American folk dance formations, scored an immediate hit with the public. The critics, however, preferred the more original and imaginative *Ivesiana*, set to six short orchestral pieces by the late American composer, Charles Ives. *Pas de Trois No. II* (Glinka) was another delectable display piece, but *Roma* (Bizet—Eugene Berman) seemed thin and artificial. In the winter, the company played an unprecedented seven-week season, during which the only ballet given was the popular full-evening *Nutcracker*; this was said to be the longest continuous run in American ballet history for a single dance work. The group later embarked on its fourth European tour and appeared in Paris in June as part of the "Salute to France" festival, sponsored by the Performing Arts International Exchange Program, which is administered by the American National Theatre and Academy (ANTA) on behalf of the State Department.

The Ballet Theatre climaxed its 15th anniversary season with an ambitious three-week engagement at the Metropolitan Opera House in April. The only novelty was the American pre-

Matt Turney in Martha Graham's *Seraphic Dialogue*, based on the legend of St. Joan and premiered in May 1955.

COURTESY OF DANCE MAGAZINE



mière of David Lichine's clever modernization of a classic theme, *The Sphinx* (Henri Sauguet—Christian Bérard), but the season was chiefly memorable for the revivals of ten famous ballets restaged by such choreographers as Tudor, Dolin, Leonide Massine, and Agnes de Mille. An imposing list of guest artists, many of them former members of the company, returned to create their original roles. In June, the group started on a five-month Latin American tour under the auspices of ANTA's International Exchange Program.

The reorganized Ballet Russe de Monte Carlo, headed by Frederic Franklin and guest ballerina Maria Tallchief, made its first transcontinental tour in two years, and during the summer gave a single performance at New York's Lewisohn Stadium. Two new ballets were created for the company: Massine's *Harold in Italy* (Berlioz—Bernard Lamotte) and Antonia Cobos' *The Mikado* (Sir Arthur Sullivan—Lamotte).

The Metropolitan Opera Company produced its first independent ballet since the late 1930's. This was *Vittorio* (Verdi—Esteban Francés), devised by the resident choreographer and ballet director, Zachary Solov, who also danced the title role with Mía Slavenska. Although this melodramatic work in the operatic style failed to arouse much enthusiasm, it at least indicated that the Metropolitan's directors have realized the importance of building a genuine ballet company at the opera house.

Concert Dance.—The outstanding event of the season was the second festival of "American Dance," sponsored by the B. de Rothschild Foundation, at a Broadway theater in May. Among the participating companies were those of Martha Graham, José Limón, Pearl Lang, John Butler, Valerie Bettis, and Anna Sokolow, while Janet Collins, Paul Draper, Ann Halprin, Pauline Koner, Daniel Nagrin, and Iris Mabry appeared as solo dancers in their own works. The repertoire, which consisted of 26 group works and 19 solos, featured the American première of Miss Graham's group composition, *Ardent Song* (Alan Hovhaness); *Seraphic Dialogue*, another new group work by Miss Graham, employing the score by Norman Dello Joio for her earlier solo, *The Triumph of St. Joan*; and a new version of her *Theatre for a Voyage* (William Schuman). New solos were danced by Miss Bettis (*The Golden Round*) and Miss Collins (*Bird of Paradise*).

The Juilliard Dance Theatre, a group of 16 young dancers organized in the fall of 1954 under the direction of Doris Humphrey, got off to a commendable start in April 1955 with the premières of Miss Humphrey's *The Rock and the Spring* (Frank Martin) and Miss Sokolow's *Primavera* (Arthur Benjamin). Other New York debuts were made by the newly formed Dance Drama Company, headed by Emily Frankel and Mark Ryder; *To Yo Za*, or the Theatre of the Far East, a group of three dancers; and John Begg's Ballet Carnival. An evening devoted to the ballets of Robert Joffrey presented his *Pierrot Lunaire* (Schönberg) and *Harpichord Concerto* (de Falla). Important new works by Anna Sokolow (*Rooms*), Jean Erdman (*Strange Hunt*), May O'Donnell (*Incredible Adventure*), Merce Cunningham (*Minutiae*), and Pearl Lang (*And Joy Is My Witness*) were seen for the first time in New York. The Spanish dance was represented by Broadway engagements of Vicente Escudero and his company, the Ballets Espagnols of Teresa and Luisillo, and Hurtado de Cordoba



PHOTO BY JACK B. MITCHELL

Members of Royal Danish Ballet appeared at Jacob's Pillow, Massachusetts, dance festival, in July 1955.

and his Ballet Español. José Limón's company toured Latin America for the first time under the sponsorship of the International Exchange Program.

Concert appearances were made by the companies of Mary Anthony, Alan Banks, Bhanumati, Shirley Broughton, Ethel Butler, John Butler, Jean-Léon Destiné, José Greco, Bill Hooks, Myra Kinch, Maxine Munt-Alfred Brooks, Nala Najan, Natanya Neumann, Walter Nicks, Priyagopal, Florita Raup, Thomas Ribbink, Orest Sergievsky, Edith Stephen, Tao Strong, Sahomi Tachibana, James Waring, and Ethel Winter. Notable solo and joint recitals were given by Birgit Akesson, Paul Draper, Maria Fenton, Annabelle Gold, Inesita, William Kane, Marie Marchowsky, Merle Marsciano, Helen McGehee, Shanta Rao, Sybil Shearer, Marina Svetlova, Maria Theresa, Helen "Mahealani" Williams; Carola Goya and Matteo; and Federico Rey and Pilar Gomez.

The eighth annual American Dance festival took place in New London, Conn., in August, and offered new group works by Humphrey (*Airs and Graces*) and Limón (*Symphony for Strings and Scherzo*); a trio by Pauline Koner (*Concertino in A Major*); and duets by Ruth Currier (*Idyl* and *The Antagonists*) and by Lucas Hoving and Lavina Nielsen (*Satyros and Ballad*). Ten members of the Royal Danish Ballet made a successful American debut at the Jacob's Pillow Dance Festival in July.

Europe.—In London, the Sadler's Wells Ballet mounted three new one-act works by Frederick Ashton: *Rinaldo* and *Armida* (Malcolm Arnold—Peter Rice), *Variations on a Theme of Purcell* (Benjamin Britten—Peter Snow), and *Madame Chrysanthème* (Alan Rawsthorne—Isabel Lambert). The company opened its fourth American tour in New York in September 1955. The Sadler's Wells Theatre Ballet, which will tour the greater part of every year, premièred two ballets by Kenneth Macmillan: *Dances Concertantes* (Stravinsky—Nicholas Georgiadis) and *House of Birds* (Federico Mompou—Georgiadis). Ballet Rambert also presented a work by Macmillan, *Laidrette* (Frank Martin—Kenneth Rowell), as well as the English premières of two ballets by the young American choreographer, Robert Joffrey: *Pas de Déeses* (John Field) and *Persephone* (Vivaldi—Harri Wich). After its return to England, the Festival Ballet augmented its repertoire with Solov's *Mlle. Fifi* (Théodore Lajarte) and Lander's *Etudes* (Czerny).

In Paris, the Opéra Ballet produced Serge Lifar's *Les Noces Fantastiques* (Marcel Delan-

noy—Roger Chastel) and John Cranko's *La Belle Hélène* (Offenbach—Marcel Vertès). The Grand Ballet du Marquis de Cuevas enjoyed another successful season that featured a number of novelties. These included George Skibine's *Achille* (François de la Rochefoucauld—Pellerin), *La Reine Insolente* (François Serrette—Camille Hiller), and *Le Retour* (Prokofiev—Stanislas Leprie); Paul Goubé's *Duo* (Scriabin) and *Le Lien* (Franck—Manolo Muntanola); Léone Mail's *Jeanne d'Arc* (Phillippe Gerard); Vladimir Skouratoff's *Scarlatina* (Alfredo Casella—Gino Severini); and revivals of Bronislava Nijinska's *Concerto de Chopin* and *Bolero*. This company participated in a special presentation of Berlioz's dramatic symphony, *Roméo et Juliette*, which was staged as an opera-ballet in the courtyard of the Louvre Palace, with décor by François Ganeau, and choreography by John Taras, Serge Golovine, Skibine, and Skouratoff.

At the Berlin Festival in the fall of 1954, Tatjana Gsovsky choreographed *Pelleas und Melisande* (Max Baumann—Ita Maximowna) and *Der Rote Mantel* (Luigi Nono—Jean-Pierre Ponnelle). Her Dance Theater-Berlin began its first American tour in October 1955. In Copenhagen, the Royal Danish Ballet invited Ashton to create a full-length production of *Romeo and Juliet* (Prokofiev—Peter Rice). In Italy, the first International Ballet Festival was held in July at Nervi, near Genoa.

EDWARD M. STRINGHAM,
Writer and Researcher.

DATES. See FRUITS.

DAVILA, Carlos Guillermo, Chilean diplomat and journalist: b. Los Angeles, Chile, Sept. 15, 1887; d. Washington, D.C., Oct. 19, 1955. An authority on Latin American life, he worked untiringly both as journalist and diplomat in behalf of greater understanding and goodwill among the nations of North and South America.

Graduated from the University of Chile, Carlos Dávila rejected a career in law to become a journalist. In 1914 he joined the conservative Santiago newspaper, *El Mercurio*, with which he remained until 1917 when he established *La Nación* in the same city. In 1925 he founded another paper, *Los Tiempos*, which became a vehicle for his advocacy of social reform in Chile.

In 1927 Dávila left *La Nación* to become ambassador to the United States until 1932, in which capacity he did much to broaden North American understanding of the Latin American people. He was also instrumental in negotiating a peaceful solution to the 50-year-old Tacna-Arica boundary dispute between Chile and Peru, which had been submitted to President Herbert Hoover for arbitration. Having returned to Chile by March 1932, after the overthrow of the government of Carlos Ibáñez del Canipo, he founded *Hoy*, a news magazine, and launched a campaign against the regime of President Juan Estaban Montero. With the overthrow of the latter on June 4, 1932, Dávila was named provisional president of Chile, and thereafter he embarked on a program of socializing the economy. On September 13, after an army revolt, he resigned and went to the United States. There in 1933, with Joshua Powers, he established the Editors' Press Service, a news agency which specialized in disseminating economic, political, and cultural news about the United States to Latin American newspapers.

With the advent of the liberal Popular Front government of Pedro Aguirre Cerda in Decem-

ber 1938, Dávila was named Chilean representative on the Inter-American Financial and Economic Advisory Committee, which met in Washington in 1940, and was largely responsible for the establishment of the Inter-American Development Committee, the purpose of which was the economic integration of American states. A staunch advocate of the United Nations, he served as a member of the U.N. Relief and Rehabilitation Administration (UNRRA) from 1943 to 1946, when he became a member of the U.N. Economic and Social Council.

Dávila was recalled to Chile to resume his editorship of *La Nación* early in 1954, but in June he was elected secretary general of the Organization of American States, a post he held with distinction until his death. He was the author of the well-received *We of the Americas* (1949).

DAVIS, John William, American attorney and political leader: b. Clarksburg, W.Va., April 13, 1873; d. Charleston, S.C., March 24, 1955. An outstanding authority on constitutional law, he identified his political philosophy with the ideals of Jeffersonian Democracy, arguing in behalf of individual freedom, private property, and states' rights. He was the unsuccessful Democratic candidate for president in the election of 1924.

John W. Davis received his formal education from Washington and Lee University (B.A., 1892; LL.B., 1895). After teaching a year (1896-97) at the law school there, he entered a law partnership with his father, and in a short time established a reputation as a brilliant liberal attorney. He became active in politics in 1899, when he was elected on the Democratic ticket to the West Virginia House of Delegates. In 1910 he won a seat in the 62d Congress from West Virginia's normally Republican 1st District. As a member of the House Judiciary Committee, he played an important role in the reformation of federal court procedure, and assisted in drafting the Clayton Anti-Trust Act (1914), which, among other provisions, exempted unions from the jurisdiction of the Sherman Anti-Trust Act (1890). In 1912, Davis was re-elected to Congress, but on Aug. 30, 1913, he resigned his seat to accept appointment by President Woodrow Wilson as solicitor general.

After serving briefly on the United States commission which negotiated with Germany in Bern, Switzerland, on the treatment and exchange of World War I prisoners of war, Davis was appointed ambassador to Great Britain in November 1918. He also served with the United States delegation at the Versailles Treaty Conference, and played a prominent part in the development of a program for the control of occupied territory. With the election of Warren Harding to the presidency, Davis resigned his ambassadorship on March 21, 1921, and returned to practice law in New York City. He was elected president of the American Bar Association in 1922.

At the stormy Democratic National Convention of 1924, in which neither William G. McAdoo nor Alfred E. Smith was able to obtain the necessary two-thirds majority, Davis emerged from a "dark-horse" position to be nominated on the 103d ballot. He was defeated in the November elections by the Republican candidate, Calvin Coolidge. His popular vote was 8,378,962 (136 electoral votes), compared with 15,718,789 (382) for Coolidge, and 4,822,319 (13) for Robert La Follette, Sr., who ran as a Progressive.

In the 1932 presidential campaign, Davis supported the candidacy of Franklin D. Roosevelt, but soon afterward voiced disapproval of the president's drastic economic policies. He claimed that the New Deal was a dangerous departure from the Jeffersonian ideals of individualism and private property. Thus in 1935, along with other conservative Democrats who assertedly believed as he did that "human rights and the rights of property are not different or antagonistic," he helped found the American Liberty League to combat the administration's domestic innovations. He opposed Roosevelt's reelection in 1936 and 1940; but in May 1941 he appealed to the nation in behalf of the president's foreign policy, and in December 1944 he urged acceptance of a United Nations Organization suggested at the Dumbarton Oaks Conference.

During his career, Davis appeared in 140 constitutional cases before the Supreme Court. The tenor of his interpretation of constitutional law is indicated by the stands he took on the historic cases involving President Truman's seizure of certain steel mills in 1952, after prolonged labor disputes, and the demand of the National Association for the Advancement of Colored People for the termination of racial segregation in public schools.

In May 1952, arguing in behalf of the dispossessed steel companies, he claimed that the "inherent powers" delegated to the executive by the Constitution did not, under the circumstances, provide it with authority to seize private property, a view upheld by the Supreme Court in its decision of June 2, 1952. In December 1952 and again in December 1953, as council for South Carolina, he contended that public-school segregation was not expressly prohibited by the 14th Amendment, and that

the "police powers" delegated to the states by the Constitution rendered segregation legal as long as equal facilities were provided, a view rejected by the Supreme Court in its decision of May 17, 1954. Davis' last important case was his defense of J. Robert Oppenheimer, atomic physicist, in June 1954.

DEAFNESS. See Index entry.

DEAN, James, American actor: b. Marion, Ind., Feb. 8, 1931; d. (in automobile accident), near Paso Robles, Calif., Sept. 30, 1955. After spending two years as a pre-law student at the University of California at Los Angeles, James Dean turned to acting. He played bit parts in motion pictures before winning attention in 1954 for his performance as a young Arab servant in the Broadway play, *The Immoralist*.

His roles as a shy, moody, inarticulate adolescent in the films *East of Eden* and *Rebel Without a Cause* in 1955 brought him acclaim as the most promising new motion picture actor of the year. On December 6 he was selected as the winner of the first Audience Awards election, sponsored by the Council of Motion Pictures Organizations, for the best performance by a male actor in pictures released from Oct. 1, 1954, to Sept. 30, 1955. Several days after completing his third film, *Giant*, he was killed while driving his Porsche Spyder sports car en route to a sports car meeting at Salinas.

DEATH, Causes of. The death rate for the United States fell to a record low of 9.2 per 1,000 population in 1954 after having remained nearly stationary at 9.6 or 9.7 for the five previous years.

DEATHS AND DEATH RATES FOR 33 SELECTED CAUSES: UNITED STATES, 1953 AND 1954

(Exclusive of fetal deaths and of deaths among armed forces overseas. Rates per 100,000 estimated midyear population, excluding armed forces overseas. Numbers after causes of death are category numbers of the Sixth Revision of the International Lists, 1948)

Cause of death	Category	Number		Rate	
		1954*	1953 (final)	1954*	1953 (final)
<i>All causes</i>		1,481,000	1,517,541	918.8	958.6
Tuberculosis, all forms.....	001-019	16,920	19,544	10.5	12.3
Syphilis and its sequelae.....	020-029	4,970	5,273	3.1	3.3
Typhoid fever.....	040	60	52	0.0	0.0
Dysentery, all forms.....	045-048	560	882	0.3	0.6
Diphtheria.....	055	200	156	0.1	0.1
Whooping cough.....	056	330	270	0.2	0.2
Meningococcal infections.....	057	1,090	1,325	0.7	0.8
Acute poliomyelitis.....	080	1,620	1,450	1.0	0.9
Measles.....	085	440	462	0.3	0.3
All other infective and parasitic diseases.....	030-039, 041-044, 049-054, 058-074, 081-084, 086-138	4,710	4,548	2.9	2.9
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues.....	140-205	236,900	229,079	147.0	144.7
Diabetes mellitus.....	260	24,830	25,796	15.4	16.3
Major cardiovascular-renal diseases.....	330-334, 400-468, 592-594	791,640	814,662	491.1	514.6
Diseases of cardiovascular system.....	330-334, 400-468	773,980	795,888	480.2	502.8
Vascular lesions affecting central nervous system.....	330-334	166,950	169,800	103.6	107.3
Rheumatic fever.....	400-402	1,230	1,523	0.8	1.0
Diseases of heart.....	410-443	553,530	570,275	343.4	360.2
Hypertension without mention of heart.....	444-447	11,430	12,387	7.1	7.8
General arteriosclerosis.....	450	30,670	32,351	19.0	20.4
Other diseases of circulatory system.....	451-468	10,170	9,552	6.3	6.0
Chronic and unspecified nephritis and other renal sclerosis.....	592-594	17,660	18,774	11.0	11.9
Influenza and pneumonia, except pneumonia of newborn.....	480-493	40,650	52,238	25.2	33.0
Ulcer of stomach and duodenum.....	540, 541	9,610	9,240	6.0	5.8
Gastritis, duodenitis, enteritis, and colitis, except diarrhea of newborn.....	543, 571, 572	8,500	8,510	5.3	5.4
Cirrhosis of liver.....	581	16,760	16,399	10.4	10.4
Acute nephritis and nephritis with edema, including nephrosis.....	590-591	2,520	2,789	1.6	1.8
Deliveries and complications of pregnancy, childbirth, and the puerperium.....	640-689	2,140	2,385	1.3	1.5
Congenital malformations.....	750-759	20,750	20,012	12.9	12.6
Certain diseases of early infancy.....	760-776	63,580	63,444	39.4	40.1
Symptoms, senility, and ill-defined conditions.....	780-795	20,340	21,693	12.6	13.7
Motor vehicle accidents.....	E810-E835	37,190	37,955	23.1	24.0
All other accidents.....	E800-E802, E840-E962	54,490	57,077	33.8	36.1
Suicide.....	E963, E970-E979	15,980	15,947	9.9	10.1
Homicide.....	E964, E980-E985	7,710	7,640	4.8	4.8
All other causes.....	Residual	96,510	98,713	59.9	62.4

* Figures for 1954 are estimates based on a 10% sample of death certificates. The sampling error varies with the number of deaths. For example, the estimate for diseases of the heart is subject to an error of 0.3%, and for syphilis, 4%. Typhoid fever, with only 60 deaths, is subject to an error of 39%. (Source: National Office of Vital Statistics, U.S. Public Health Service.)

This substantial drop in part reflects the fact that no outbreaks of influenza were reported in 1954, in contrast with outbreaks in the early part of each of the four preceding years. As a consequence, the rates were low not only for influenza and pneumonia, but also for the chronic cardiovascular diseases, which account for over half the deaths in the United States.

Favorable mortality was also evident in the relatively low number of deaths in the first year, 2,000 less than in 1953, although the number of live births increased by 112,000 in 1954 over 1953. Infant mortality reached a new low rate of 26.6 deaths per 1,000 live births. The risk of death from maternal causes continued to decline; in 1954 only 1 maternal death occurred for 1,900 live births (a rate of 5.3 per 10,000 live births).

The remarkable downward trend in mortality from tuberculosis has continued; between 1953 and 1954 the death rate dropped 15% to 10.5 per 100,000 population, about half of what it was in 1951. The death rate for syphilis has also fallen steadily each year since 1936.

The death rate for motor vehicle accidents was somewhat lower in 1954 than in 1953. For all other accidents the rate was the lowest on record, 33.8 per 100,000 population. Among persons aged 1 to 34 years, more deaths resulted from accidents than from any other cause. (See also ACCIDENTS.)

The heaviest toll in lives was taken by the chronic diseases, which strike hardest in the later years of life. In 1954 the death rate for malignant neoplasms continued to rise. Between 1953 and 1954 the death rates for most of the cardiovascular diseases fell as a result of the sharp change in influenza incidence in these two years. Mortality from chronic nephritis continued the decline observed in previous years. The death rate for diabetes, one of the few diseases for which mortality among women is greater than among men, was lower in 1954 than in the previous four years.

HALBERT L. DUNN,

Chief, National Office of Vital Statistics,
U.S. Public Health Service.

DEATHS. For a list of prominent persons who died in 1955, see NECROLOGY.

DEBT, Public and Private. Net public and private debt in the United States totaled \$605.5 billion at the end of 1954, a rise of about \$20.8 billion, or 3.5%, during the year, as compared with a rise of about 5.5% during 1953. Net private debt accounted for 56% of the 1954 total net debt; net federal debt, 38%; and net state and local debt, 6%. Gross public and private debt (before consolidation of borrowers' accounts) rose to \$706.4 billion at the end of 1954, as compared with \$681.7 billion at the end of 1953. The 1954 increases in both net and gross debt were less than in any year since 1949.

In the public debt sector, the net federal debt of \$230.2 billion at the end of 1954 showed an increase of \$2.1 billion (less than 1%) over the 1953 figure, the smallest increase since 1951 and less than half the 1953 increase. New net borrowings by state and local governments, mainly for highway and school construction, amounted to about \$4.8 billion in the fiscal year 1954, resulting in a rise of 17% in net indebtedness, as compared with rises of 11% in each of the two preceding fiscal years.

Important trends in private indebtedness in 1954 were: a rise of nearly \$11 billion in non-farm mortgage debt, associated with near-record

completions of new owner-type dwellings; a rise of nearly \$5 billion in corporate long-term debt, based upon continuing high outlays for new plant and equipment; a decline of over \$6 bil-

PUBLIC AND PRIVATE DEBT IN THE U.S.,
END OF CALENDAR YEARS 1953 AND 1954¹
(In billions of dollars)

	Net debt		Gross debt	
	1953	1954	1953	1954
Public debt:				
Federal ²	\$228.1	\$230.2	\$289.3	\$294.4
State and local.....	28.6	33.4	32.7	37.9
Total.....	256.7	263.6	322.0	332.3
Private debt:				
Corporate long-term....	78.8	83.7	94.5	100.5
Corporate short-term....	99.1	92.9	115.1	108.2
Farm mortgage.....	7.7	8.2	7.7	8.2
Farm nonmortgage ³	9.1	9.4	9.1	9.4
Nonfarm mortgage ⁴	83.6	94.5	83.6	94.5
Nonfarm nonmortgage ⁵ ..	49.7	53.2	49.7	53.2
Total.....	328.0	341.9	359.7	374.1
Total public and private..	\$584.7	\$605.5	\$681.7	\$706.4

¹ Data for state and local governments are for June 30 of each year. Components may not add to totals because of rounding. ² Includes categories of debt not subject to statutory debt limit. ³ Comprises non-real-estate farm debt contracted for productive purposes and owed to institutional lenders (includes CCC loans). ⁴ Data for noncorporate borrowers only. ⁵ Comprises debt incurred for commercial (nonfarm), financial, and consumer purposes, including debt owed by farmers for financial and consumer purposes.

(Source: *Survey of Current Business*, May 1955, U.S. Department of Commerce.)

lion in corporate short-term debt, reflecting lower tax liability and inventory liquidation; a slackening of the rise in consumer credit outstanding; and a rise of 30% in financial debt, based largely on greater security loans associated with rising stock prices and a high level of securities trading. (See also CENSUS DATA, U.S.; CONSUMER CREDIT; TREASURY OF THE UNITED STATES.)

DEFENSE. See FEDERAL CIVIL DEFENSE ADMINISTRATION; NATIONAL SECURITY; and the Index entry, *Military*.

DEFENSE MOBILIZATION, Office of. See OFFICE OF DEFENSE MOBILIZATION.

DE JONG, Johannes, Dutch cardinal: b. Nes op Ameland, the Netherlands, Sept. 10, 1885; d. Amersfoort, Sept. 8, 1955. As archbishop of Utrecht he became internationally prominent for his open defiance of Nazi authorities during the German occupation of the Netherlands in World War II.

Ordained on Aug. 15, 1908, after preparing for the priesthood at the Archdiocesan Seminary at Rijsenburg, near Utrecht, de Jong continued his studies in Rome, where he took degrees in philosophy in 1910 and theology in 1911. From 1914 to 1931 he taught church history at the seminary in Rijsenburg, and in the latter year became its rector. In 1935 he was appointed coadjutor archbishop of Utrecht and on Feb. 6, 1936, archbishop.

During the German occupation he successfully fought Nazi pressures aimed at gaining the cooperation of the Dutch Catholic population. He also condemned forced labor and persecution of the Jews and, with the aid of Protestant leaders, resisted Nazi encroachment on education. In December 1945, after the liberation of the Netherlands, Archbishop de Jong was created a cardinal by Pope Pius XII. In 1951, the prelate gave up his archdiocese and retired to a convent of the Little Sisters of Our Lady, at Amersfoort, where he remained until his death.

He was the author of a number of theological

works, the most important of which is *Manual of the History of the Church* (4 vols., 1936-37).

DELAWARE. Middle Atlantic state, United States; one of the original 13 states. The "Diamond State" ranks 47th in area and 45th in population (1955) among the 48 states.

Area and Population.—Area: 2,057 square miles (land, 1,978; inland water, 79), divided into Kent, Sussex, and New Castle counties. Population: (1950) 318,085; (est., July 1, 1955) 380,000. Urban places with 1950 populations above 5,000 are: Dover, the capital, 6,223; Elsmere, 5,314; Milford, 5,179; Newark, 6,731; New Castle, 5,396; and Wilmington, 110,356.

Executive.—Chief state officers in 1955:

Governor: J. Caleb Boggs (Republican)

Lieutenant Governor: John W. Rollins, Sr.

Secretary of State: John N. McDowell

Treasurer: Howard Dickerson

Attorney General: J. Donald Craven

Supt. of Public Instruction: George R. Miller, Jr.

Constitution and Judiciary.—The present constitution went into effect in 1897. The Supreme Court comprises three justices; chief justice in 1955 was Clarence A. Southerland.

Legislature.—The General Assembly (Senate, 17 members; House of Representatives, 35) meets in odd-numbered years commencing the first Tuesday in January.

Among major actions, the 1955 regular session of the legislature revised the registration and election laws, restoring the practice of permanent registration; established a state prison system; authorized construction of limited-access roads; and adopted a Korean War veterans bonus.

Finances.—State treasury receipts (1954-55 fiscal year): \$40,837,368.73; expenditures, \$41,933,720.43; treasury balance, \$6,653,212.55; long-term indebtedness, \$84,491,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$34,532,837.86, including \$9,330,105.05 from selective sales taxes and \$12,545,649.91 from individual income taxes. The state has no general sales, corporate income, or poll tax.

Banking.—As of June 30, 1955, the state's 9 national banks had \$35,743,000 in assets, \$18,578,000 in demand deposits, and \$12,848,000 in time deposits; the state's 24 other banks and 36 branches had \$728,398,244.53 in assets, \$432,148,207.55 in demand deposits, and \$209,016,996.44 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Estimated operating expenditures for public elementary and secondary schools in the 1954-55 school year were \$18,200,000 (\$335 per pupil). Expenditure for construction and improvements was an estimated \$6,000,000. Teachers' salaries averaged \$4,129 (elementary school teachers, \$4,006; high school teachers, \$4,278).

During 1954-55 there were 105 public school districts which employed 1,126 elementary school teachers serving 37,921 pupils, and 822 secondary school teachers serving 22,547 pupils.

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$2,991,156, including \$857,012 for old-age assistance, \$1,111,672 for dependent children, and \$156,502.75 for the needy blind. A monthly average of 8,554 persons received public assistance. Operating expenditures for health and welfare institutions were \$6,331,447.50.

DELAWARE WELFARE INSTITUTIONS

Type of institution	No.	Pop.*
Hospitals for mentally deficient and epileptic	1	480
Hospitals for the mentally ill	1	1,390
Preventive psychiatric centers	1	200
Sanatoriums for the tuberculous (Sept. 6, 1955)	1	223
Hospitals for crippled children	2	85
Homes for the aged (Sept. 7, 1955)	1	430
Reformatories for males	1	91
Reformatories for females	2	63

* As of Aug. 1, 1955, unless otherwise noted.

Labor Force.—As of March 15, 1955, there were 109,807 insured persons in nonagricultural establishments, and for the year ending March 15, 1955, an average of 111,639. There were

1,900 registered unemployed workers in June 1955, and \$3,067,605 in unemployment compensation claims was paid to insured workers in the 12 months ending June 30, 1955.

Manufacturing.—In 1954, establishments numbering 562 had 62,480 employees. There were 58,550 employees in 1953 who received \$255,801,000 in salaries and wages; value added by manufacture was \$378,975,000, and investment in new plant and equipment, \$26,455,508. Earnings of production workers in manufacturing averaged \$70.90 for an average work week of 39.9 hours in 1954 and \$76.38 for 41.2 hours in the first six months of 1955.

MAJOR DELAWARE MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
Chemicals and allied products	7,244	\$30,451	\$101,297
Transportation equipment	3,391	16,324	50,988
Food and kindred products	4,903 ³	12,252 ³	31,192 ³
Primary metal industries	4,160	18,751	25,703
Apparel and related products	4,018 ³	11,148 ³	22,967 ³
Textile mill products	2,580	9,206	15,392
Leather and leather products	2,235	8,018	10,851

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. ³ 1952 figures. (Source: *Annual Survey of Manufactures, 1953*.)

Mining.—The mineral output of Delaware, the smallest of that recorded for any of the states, consists almost exclusively of building materials. The 1953 production, valued at \$658,997, comprised 520,817 short tons of sand and gravel (\$399,685), 80,364 tons of stone (\$215,382), and other minerals valued at \$43,930.

Fisheries.—Commercial fishermen in 1953 numbered 1,050. Their catch comprised 5,359,000 pounds of shellfish valued at \$2,049,000 and 362,141,000 pounds of fish (\$4,117,000). Chief species were menhaden, 360,844,000 pounds (\$3,969,000); and oysters, 3,142,000 pounds (\$1,565,000).

Agriculture.—Cash farm income in the first half of 1955 totaled \$43,342,000, and for the full year 1954 comprised \$73,705,000 from livestock and livestock products, \$24,916,000 from crops, and \$390,000 from government payments. Receipts from principal crops and livestock in 1954 included: broilers (\$48,916,000), dairy products (\$9,272,000), corn (\$5,258,000), soybeans (\$2,939,000), and greenhouse and nursery products (\$2,651,000).

The state's 6,297 farms (814,316 acres; harvested cropland, 412,295) averaged 129.3 acres and \$18,692 in value of land and buildings per farm. Some 5,300 farms had telephones, and 5,993 had electricity. Livestock on farms (Jan. 1, 1955) included 78,000 cattle and 1,030,000 chickens (not including commercial broilers). In the week of Oct. 24-30, 1954, there were 13,716 family and hired workers engaged in farming.

DELAWARE CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	361	280	220
Corn (1,000 bu.)	4,992	5,332	5,100
Potatoes (1,000 bu.)	582	2,002	2,990
Soybeans (1,000 bu.)	762	1,190	1,482
Wheat (1,000 bu.)	1,152	840	858

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in 1954 totaled \$10,750,000, and newly completed construction aggregated 134 miles.

Highways and roads on June 30, 1955, totaled 3,957.4 miles (3,293.5 surfaced). Registered *motor vehicles* numbered 154,308 on July 31, 1955, including 115,776 passenger cars. There were 3 *railroads* (1955) operating 923 line miles, and 3 regularly scheduled *airlines* and 15 *airports and airfields* (11 commercial and municipal, 1 military, and 3 private).

Communications media included (1955) 1 FM and 4 AM *radio stations* and 1 VHF operating *television outlet*; 2 daily *newspapers* (circulation, 89,307) and 15 other *newspapers* (circulation, 40,246); and (Jan. 1, 1955) 46,877 business and 106,102 residential *telephones*.

Principal Events, 1955.—Many after effects of the 1954 row over the segregation of schools in Milford plagued Delaware in 1955. Bryant Bowles, head of the National Association for the Advancement of White People, who had taken the leading public role in the movement to retain segregation in Delaware, moved to the state in January and announced a campaign to oust officials who had supported integration. Many Milford teachers and administrators subsequently resigned, and a new Milford school board which had Bowles' backing—unasked, it declared—was elected on May 15. The Delaware Supreme Court had on February 8 upheld the previous board's action in removing Negro pupils from Milford High School, but the grounds were that proper admission procedures had not been followed, the court stating that Delaware's segregation laws had definitely been nullified by the U.S. Supreme Court decision of May 17, 1954.

Integration, however, slowly gained ground in Delaware schools. By September 1955 more than one tenth of all Negro students were being taught in mixed classes, although no such classes were meeting south of Dover.

Although the governor, J. Caleb Boggs, was a Republican, the unusual Democratic majority in the General Assembly was so large that an extraordinary number of bills was passed over his veto, and the composition of many commissions and agencies was changed. To retain control of affairs, the assembly did not adjourn in the summer sine die as was customary, but took long recesses, continuing its work through occasional evening sessions.

The rate of Delaware's population increase was continuing higher than in any other Eastern state except Florida and ranked fifth highest of all the states. A notable evidence of industrial growth was the construction of a large refinery north of Delaware City by the Tide Water Associated Oil Company. To make way for the refinery, King's College moved to New York State. Increasing industrial, agricultural, and domestic use of water led Governor Boggs to appoint a committee to examine water resources and make recommendations for their efficient use.

Principal Events by: JOHN A. MUNROE, *Chairman, Department of History, University of Delaware; Author, "Federalist Delaware, 1775-1815" (1954).*

DEMOCRATIC PARTY. Presidential politics of 1956 overshadowed all other Democratic activities in 1955. Leading prospective candidates for the party nomination in 1956 were the 1952 nominee, former Gov. Adlai E. Stevenson (q.v.) of Illinois (who made a formal announcement of candidacy on November 15), Gov. Averell Harriman (q.v.) of New York, and Sen. Estes Kefauver (q.v.) of Tennessee (who tossed his coonskin cap into the ring on December 16). Gov. Frank J. Lausche of Ohio announced his candidacy as a "favorite son" on December 14, and Gov. C. Menen Williams was considered a possible "favorite son" entry from Michigan. Sen. Richard B. Russell

of Georgia, a prominent candidate in the 1952 convention, indicated his intention not to enter the race. Speculation over the possible candidacy of Sen. Lyndon B. Johnson of Texas, Senate majority leader, diminished sharply after his temporarily disabling heart attack.

Stevenson's name tended to be in the forefront by virtue of a series of endorsements by important Democrats, among them governors and senators; because of his occasional major addresses; as a result of favorable newspaper reaction; and as a consequence of his lead among Democratic candidates in public opinion polls. Governor Harriman's friends, among whom Tammany leader Carmine DeSapio was a principal spokesman, seemed to be avoiding for him the role of an early leading candidate with its danger of setting up "a man to beat." Senator Kefauver, enjoying significant organized support in several states, surveyed the political situation with the distinct likelihood that he would enter some of the 19 presidential preferential primaries. Many of Stevenson's friends urged him to enter only a few primaries where prospects for victory would be clear. Harriman stated that he would not enter any primaries.

Democrats in 1955 held majorities in both houses of Congress and occupied 27 of the state governorships. Party optimism for 1956 ran high, particularly because President Eisenhower's candidacy for re-election seemed far less probable after his moderate heart attack on September 24. As a consequence also, the Democratic nomination immediately became more significant. Because of the president's clear popularity, many Democrats preferred not to direct political criticism against him personally, but others, notably the national chairman, Paul M. Butler, believed that Democrats should level attacks against the president.

The party chose Chicago for its 1956 national convention, which was scheduled to open on August 13, one week before the Republican convention. Because of later nominating conventions, the campaign period was to be shorter than usual. Television was expected to play a much greater role in the campaign than before.

Democratic leaders, especially those in Congress, were already placing major emphasis on such issues for the 1956 campaign as increased farm price supports, lower taxation for small-income groups, development of public power, federal aid for public school construction, outlays for flood control, and more liberal social security benefits. A program to win the farm vote was considered of paramount importance in party planning. National advisory groups on agriculture, labor, small business, natural resources, veterans affairs, and party structure were being set up by the national committee.

Elections in 1955 were generally encouraging to Democrats, although many contests involved primarily local issues. On April 4, Michigan Democrats gained statewide judicial and school offices, although in Chicago on April 5, Richard J. Daley was elected mayor by a smaller majority than usual for a Democrat. On November 8, Democrats went into the election in Indiana with control of 32 cities and emerged with control of 72, including Indianapolis, against 30 in Republican hands. The party easily retained control of Philadelphia (q.v.) and increased its strength elsewhere in Pennsylvania and in New York State, Connecticut, and Kentucky where A. B. "Happy" Chandler was overwhelmingly elected governor. (See also ELECTIONS.)

DENMARK. A northern European kingdom, located north of Germany and south of Norway, Denmark comprises the peninsula of Jutland (Jylland), which projects into the North Sea; the adjacent islands of Zealand (Sjælland), Fyn (Fünen, Fyen), Lolland (Laaland), Falster, and Bornholm (south of Sweden); about 500 smaller nearby islands (100 of which are inhabited); the Faeroe (Faroe) Islands in the Atlantic between Iceland and Scotland; and Greenland (Groenland). Its area, exclusive of Greenland and the Faeroes (qq.v.), is 16,576 square miles; and its estimated 1954 population was 4,405,000. The principal cities, with their populations (census of Nov. 7, 1950) are Copenhagen, the capital, 974,901 (greater Copenhagen, 1,166,204); Aarhus, 116,167; Odense, 100,940; and Aalborg, 79,806.

Government.—The Danish constitution dates from 1849 and was amended in 1915 (universal suffrage), 1920, and 1953. The king (Frederik IX, who succeeded to the throne on April 20, 1947, upon the death of his father, King Christian X) holds executive power and acts through a cabinet responsible to the Folketing (Parliament).

Hans Christian Hansen became premier on Feb. 1, 1955, and heads a Social Democratic minority government of 15 members, which has been in office since Sept. 30, 1953. The Folketing, with 135 seats elected through proportional representation and 40 seats divided among parties not having sufficient election returns for membership, has 179 members elected for 4 years. The minimum voting age is 23 years.

The last general election was held on Sept. 22, 1953, following which the Folketing consisted of 74 Social Democrats, 42 Moderate Liberals (Agrarians), 30 Conservatives, 14 Social Liberals (Radicals), 8 Communists, 6 Georgists (Single Taxers), 2 from the Faeroe Islands, 2 from Greenland, and 1 from the German minority living near the Danish-German frontier.

Denmark is a member of the United Nations, the Council of Europe, and the North Atlantic Treaty Organization, but not of the Western European Union.

Education.—Education is compulsory from the age of 7 to 14. In 1953 there were 3,545 elementary, 495 middle, and 35 secondary schools; 58 private colleges (folk schools), and 23 teacher-training colleges. There are extensive facilities for adult education through rural colleges and evening courses. In addition to the universities of Copenhagen and Aarhus, there are polytechnic, agricultural, and business schools of university grade. Most educational institutions are public and free.

Religion.—The Evangelical Lutheran Church, headed by the king, is the established church in Denmark. Less than 100,000 persons are outside this church, but complete toleration exists for all sects.

Social Legislation.—The social security system covers sickness insurance, old-age and disability insurance, unemployment insurance, and insurance for industrial injuries. Members of government-subsidized sickness insurance funds, which on a voluntary basis cover 80% of the population, have the right to free medical assistance and free hospitalization. In some instances, below-cost medicine is available. Disability pensions are paid to persons whose working capacity is reduced to about one third, and old-age pensions to persons of small means who attain the age of 65 years (single women, 60 years). All expectant mothers are entitled to free examinations by a doctor and to midwife service at the delivery. In 1955 a new act concerning maintenance of widows was passed. Families of moderate means with two or more children are entitled to a rent allowance of from 20% to 75% of the rent. In order to promote housing construction, government loans are granted for all types of housing where flats do not exceed a certain size. Public expenditures for social welfare, including health, for the fiscal year 1952-53 amounted to 2,100 million kroner, 10% of the national income.

Finance.—The public accounts for the fiscal year 1954-55 balanced at 3,312 million kroner (1 kroner = U.S.\$0.14,478), with a surplus of 26 million kroner. The gross national product and income in 1954 was 29.7 billion kroner, 1 billion kroner more than in 1953. Total aid to Denmark under the European Recovery Program and the Defense Support Aid Program during the financial years 1948-54 amounted to U.S.\$297 million.

Production.—Agriculture and allied pursuits engage 27.1% of the Danish population; handicraft and industry, 30.7%; and other trades, 42.2%. Of the total area of 10.6 million acres, 8 million are considered to be agricultural land.

The country affords good conditions for agriculture, forestry, and fisheries, and is industrially advanced despite few raw materials. The forest area is small but productive. Both coastal and deep-sea fishing are carried on intensively.

There are 208,000 farm holdings in Denmark, averaging 38 acres each. In 1954 milk production totaled 11,900 million pounds; pork, 1,060; beef and veal, 450; butter, 400; eggs, 310; and cheese, 180.

In 1955, 41.5% of agricultural land was planted in grain. There is some commercial gardening and fruit growing. Final results, in metric tons, of the 1954 harvest were: wheat, 292,000; rye, 276,000; barley, 2,045,000; oats, 820,000; mixed grains and legumes, 798,000; sugar beets for fodder, 1,353,000; and sugar beets for manufacture, 1,694,000.

Clay and chalk on Jutland's east coast provide materials for a large cement industry (1,019,000 metric tons in 1954). The iron and metal industry and the textile and clothing industries are large consumers of foreign raw materials. Other important industries are brewing, industrial and edible oils, leather, and wood products. Danish china, stoneware, and silver are considered to be among the best and loveliest in the world. The general index of industrial production (1935 = 100) averaged 183 for the first half of 1955, as compared with 180 for the full year 1954.

Fishing provided a livelihood for 14,500 persons in 1950, with about 5,400 others finding an extra source of income in this occupation. Herring, cod, plaice, and fish for industrial purposes comprise the bulk of the catch, which in 1954 had an estimated value of 225 million kroner.

Foreign Trade.—Exports in 1954 amounted to 6,550 million kroner, and imports were valued at 8,034 million kroner. Thus, the total import surplus was 1,484 million kroner, compared with 730 million kroner in 1953. This feature, which has marked Danish economy since World War II, has caused permanent scarcity of foreign currency. As a result the Danish debt to the European Payments Union (U.S.\$236.4 million in August 1955) has increased. To counteract this development the government has endeavored to restrict home consumption through higher taxes and duties, and by overbalancing the budget.

During the second half of 1955, the export of industrial goods increased; and after Oct. 1, 1955, Denmark received essentially higher prices for agricultural products, including butter (8,844 metric tons exported during the first half of 1955). Denmark's major countries of trade, with 1954 value in thousands of kroner, are the United Kingdom (exports, 2,399,578; imports, 2,156,126), Germany (1,006,541; 1,656,055), the United States (489,091; 395,750), and Sweden (429,217; 743,974).

Transportation and Communication.—The Danish railway network (including train ferries) consists of 3,120 miles, of which more than half—including all main lines—is owned by the central government. On Jan. 1, 1953, there were 5,146 miles of main highways and 28,108 miles of byroads; and on Jan. 1, 1955, there were 385,300 motor vehicles of all types. During 1954 the merchant fleet increased by 159,600 gross tons to a total of 1,585,000 gross tons.

As of Jan. 1, 1954, there were 825,879 telephones; and in April 1955 there were 1,327,000 registered radio receivers. The broadcasting system is operated by the government, and Denmark has regular television broadcasts.

Principal Events, 1955.—Following the death of

Premier Hans Hedtoft (q.v.) on Jan. 29, 1955, the foreign minister, Hans Christian Hansen, was appointed by the king to the premiership, holding it concurrently with his former post.

On March 8 the Danish government announced that it had appointed a commission, headed by Niels Bohr, to develop peaceful uses of atomic energy and to cooperate with the American and British commissions.

In the field of foreign affairs, Denmark and West Germany signed a treaty in March which settled the contested rights of German and Danish minorities within the respective countries; and on April 19 the Folketing ratified by a large majority (145 to 24) the Paris agreements of Oct. 23, 1954, which permitted West Germany to rearm within NATO.

On April 2, Denmark celebrated the sesquicentennial of the birth of Hans Christian Andersen, beloved writer of children's stories. The main observance was held in Odense, the writer's birthplace.

LITHGOW OSBORNE,
President, American-Scandinavian Foundation.

DENTISTRY. Some of the most interesting and significant items which occurred in the realm of dentistry during the past year are summarized in the following paragraphs.

Prevention.—The ever-widening fight against dental caries has extended to include Egypt. Its principal city of Cairo has now undertaken the artificial fluoridation of its communal water supply. While fluoridation of drinking water is considered the most effective weapon for the control of dental decay in children, it is still somewhat of a controversial issue in the United States. The opponents of fluoridation base their claims on the possible unknown harmful effects of the long-term ingestion of fluoride. They urge a conservative, cautious approach rather than a wholesale fluoridation program. There is also considerable resistance to the compulsory ingestion of a potentially toxic substance, even if in minute doses, for the reduction in incidence of a noncontagious disease.

Although there are about 1,100 communities in the United States whose public water supplies are fluoridated, it is to be noted that at least one municipality has discontinued the program at the wish of its citizens as expressed in a referendum. As a means of determining the wishes of the people on the question, without compulsion, the referendum would appear to be the method of choice.

National Defense.—The so-called doctor draft law, officially known as HR3005, was signed by President Eisenhower on June 30, 1955. By this action, the authority to make special draft calls on dentists and physicians will be continued for two more years. The original enactment, passed in 1950 with the support and approval of the American Dental Association, has been modified in some of its features. According to the new law, the age limit for the drafting of dentists is lowered from 51 to 46 years. It further provides that dentists rejected for a dental commission in the armed forces solely for physical reasons shall no longer be liable for military service upon reaching age 35. The American Dental Association feels that this two-year extension does not help solve the basic problem of creating a Dental Corps with real career appeal which would attract the most qualified personnel.

The strategic and professional value of the

dentist as a member of disaster casualty teams has been recognized and reevaluated. Although dentists are familiar with the basic medical sciences, the anatomy and physiology of the body as a whole, and the use of drugs and anesthetics, the average practitioner has little actual experience in the treatment of body injuries. In the event of a peacetime or wartime disaster, if the dentist were called upon to render casualty care, he would not be able to render such service as efficiently as he should. Recognizing the trend of the times, the Council on Dental Education of the American Dental Association and the Federal Civil Defense Administration are fostering the inclusion of casualty-care courses in the curricula of all dental schools, and well-organized courses of training in this important subject are now being given in several schools throughout the United States. It is anticipated that such courses will be made a permanent requirement in the program of all dental schools.

Electrical Anesthesia.—Dental scientists carrying on the endless search for methods of eliminating pain and suffering paused during the past year to reconsider the potentialities of what may be termed "electrical anesthesia" for dental cavity preparation. While the idea is not new, attention has recently been focused on its promising possibilities. By the use of a simple, specially designed apparatus, an extremely minute current of electricity is allowed to pass from the operative instrument to the tooth. Experimenters claim that the anesthesia thus produced reduces by a high percentage the pain that may accompany drilling or tooth preparation.

Ultrasonic Drill.—During the past year further research and experimentation has been done on the recently introduced ultrasonic dental drill. This apparatus, designed to cut tooth structure more or less painlessly by applying ultrasonic vibrations to a cutting instrument, has held out considerable promise of becoming a most valuable adjunct to the armamentarium of the dentist. The Dental Information Bureau recently supervised a demonstration of the instrument and its technic, in order to make an accurate appraisal of its development. As a result of this demonstration, the bureau felt that, while the technic still holds promise of great usefulness, it is still, and will be for some time to come, strictly in the experimental stage.

EUGENE S. SOZZI,
Contributing Editor, "Mid-Town Dental Journal," New York City.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. On April 11, 1953, the department was created from the Federal Security Agency, which since 1939 had administered the major programs for the country's health, education, and economic security. The units that constitute the department are: the Social Security Administration, Public Health Service, Office of Education, Food and Drug Administration, Office of Vocational Rehabilitation, Saint Elizabeths Hospital, and three federally aided corporations—Howard University, Gallaudet College, and the American Printing House for the Blind.

The Social Security Administration (see SOCIAL SECURITY) administers the federal system of old-age and survivors insurance, and is also responsible for federal activities in the state-federal public assistance programs for aid to the needy aged, needy blind, dependent children, and permanently and totally disabled persons. Through its Children's Bureau (see CHILD WELFARE),

grants are authorized to states for maternal and child health services, services for crippled children, and child welfare services. Responsibility for promoting the establishment of and supervising the operation of federal credit unions is also lodged with the Social Security Administration.

The Public Health Service (see PUBLIC HEALTH) works with the states on health problems and conducts major research programs in cancer, heart disease, arthritis and metabolic diseases, dental problems, mental health, neurological diseases and blindness, and microbiology. Grants are made by the service to universities, hospitals, and other research organizations for additional research. The hospital survey and construction program is administered by the service.

The Office of Education (q.v.) collects and disseminates information on schools and school systems, colleges and universities, libraries, and programs of instruction and administrative procedures. It serves in an advisory and consultative capacity to school officials, administrative and professional staffs of colleges and universities, representatives of foreign countries, and students of education; and administers grant-in-aid funds for special programs.

The Food and Drug Administration (q.v.) protects consumers and ethical producers by enforcing federal laws prohibiting interstate shipment of impure or mislabeled foods, drugs, and cosmetics.

The Office of Vocational Rehabilitation cooperates with the states in restoring disabled civilians to useful employment by establishing standards, giving technical assistance, and certifying federal grants to states according to a formula set by law.

Also under jurisdiction of the department are Saint Elizabeths Hospital, for the mentally ill; Howard University, for Negroes; and Gallaudet College, for the deaf, each located in Washington, D.C.; and the American Printing House for the Blind, in Louisville, Ky., which provides textbooks, tangible apparatus, and other materials, without cost, to schools for the blind.

M. B. FOLSOM,

Secretary of Health, Education, and Welfare.*

DEPARTMENT OF STATE, U.S. See FOREIGN POLICY OF THE U.S.; UNITED STATES.

DEPARTMENTS AND AGENCIES, Federal. See Index entry, *Government Departments and Agencies*.

DERMATOLOGY. A variety of practical and theoretical advances marked the progress of dermatology in 1954-55. Some of the more interesting and significant of these are reviewed below.

Syphilis and the Venereal Diseases.—Because of its connotation with respect to the state of public health, it was an encouraging and notable event when Joseph E. Moore, editor of the *American Journal of Syphilis, Gonorrhea and the Venereal Diseases*, was able to conclude publication of his magazine with the November 1954 issue. The incidence of these diseases has diminished—for they are now easy to cure with the antibiotic drugs—and investigative interest in them has waned. With the January 1955 issue, the *A.M.A. Archives of Dermatology and Syphilology* changed its name to *A.M.A. Archives of Dermatology*.

It is noteworthy that the treponema pallidum immobilization and related tests have made the

diagnosis of syphilis serologically almost fool-proof; they approach absolute specificity, according to Charles R. Rein. Tetracycline has been found by A. Maynard and collaborators to be effective in lymphogranuloma venereum.

Glanders.—This infection, although rare in human beings, has been uniformly fatal whenever it occurred in the past. The Turkish Ministry of Health found records of 18 such cases in the decade 1938-48. The first patient to be cured was one treated with streptomycin, penicillin, and sulfadiazine in 1949. Two others have responded to aureomycin and streptomycin, in 1953 and in 1954. It seems that *Malleomyces mallei* may now be added to the list of bacteria no longer greatly to be feared.

Ecthyma Gangrenosum.—A disease of infants that begins with characteristic small ecchymoses and blebs and progresses with ulcerative and gangrenous lesions has long been known by this name. According to A. M. Hand it was recognized in 1917 by E. Fraenkel as a manifestation of *Pseudomonas aeruginosa* septicemia, but this fact has not become common knowledge. Hand was able to cure 3 of 5 cases by the use of polymyxin B. The rash which occurs early in the disease is recognizable clinically, and its presence should make diagnosis possible at a time when treatment may be effectual.

Moist Warts.—Condylomata acuminata are usually treated with podophyllin, an effectual agent popularized in recent years. However, J. W. Ward and collaborators have reported that a pregnant woman with extensive anogenital condylomata was treated with podophyllin, and died of encephalopathy. The drug, despite its topical, not internal, administration, was evidently toxic. Prior to this report, few dermatologists were aware that the external application of podophyllin is attended by the possibility of dangerous percutaneous absorption.

Milkers' Nodules.—Presumably due to a virus and found frequently on the fingers of farmers who contract the disease from cattle, this innocuous infection is interesting but is incompletely understood. For the first time it has been experimentally inoculated from one human being to another, and from the second individual to a third volunteer. C. E. Sonck and K. Penttinen accomplished this by rubbing biopsy material onto the eroded skin of the forearm, but they were not successful in cultivating the virus in vitro.

Pigmentation.—The biochemistry of melanin is under constant study. It has been shown in the past that melanocytes in the albino are present, but, lacking tyrosinase, they are not able to elaborate melanin. In contrast, melanocytes in vitiligo are absent, and in their absence melanin is, of course, not elaborated. A. Kukita and Thomas B. Fitzpatrick studied melanogenesis by autoradiographic methods. They exposed hair bulb explants to solutions of radioactive tyrosine, so that melanocytes containing tyrosinase might be identified. Tyrosinase-containing melanocytes of the hair matrix converted radioactive tyrosine into melanin granules that remained fixed to the mitochondria. After the unfixed labeled tyrosine in solution was washed out, autoradiography demonstrated the presence of the labeled melanin. So tested, the melanocytes of albino hair bulbs were found unable to convert labeled tyrosine into melanin.

Melanotic spots on the lips of patients with intestinal polyposis were described in a classic essay by Harold Jeghers and collaborators in

* Appointed on July 13, 1955 (effective August 1), following the resignation of Oveta Culp Hobby.

1949. Numerous recent publications concerned with the Peutz-Jeghers syndrome, as it is called, have only elaborated on their observations. If a young adult with dark, freckle-like lesions of the oral mucosae, and perhaps of the skin about the nose and on the fingers and toes, suffers with episodes of abdominal pain, cramping, intestinal obstruction, and perhaps rectal bleeding, he probably has intestinal polyposis.

Lupus Erythematosus.—Systemic lupus erythematosus continues to receive intensive study. The "L. E. cell" phenomenon, characterized by necrobiosis, agglutination, and phagocytosis of the nuclei of polymorphonuclear leukocytes, is now known to result not only from the specific disease, but also from the effects of certain drugs. Hydralazine (Apresoline) is one of these. The syndrome it produces in some individuals, when it is ill-tolerated, differs in no particular from systemic lupus erythematosus, and it is responsive to treatment with cortisone and corticotropin. It was observed by J. C. Muller and collaborators in 7 of 53 patients who had received hydralazine for periods of from 4 to 23 months. Richard Weiss and collaborators discovered that the lupus erythematosus-like disease caused by hydralazine can be induced in dogs, so that an experimental animal is now available for the pursuit of investigation.

Books.—Recent significant publications include the second edition of *Précis de mycologie*, by M. Langeron, revised by R. Vanbreuseghem; *Viral and Rickettsial Diseases of the Skin, Eye, and Mucous Membranes*, by Harvey Blank and collaborators; *Physiology and Biochemistry of the Skin*, by Stephen Rothman; and *Systemic Associations and Treatment of Skin Diseases*, by Kurt Wiener.

RICHARD L. SUTTON, JR.,
*Chairman of the Department of Dermatology
and Syphilology, University of Kansas
Medical Center.*

DESIGN. See Index entry.

DETERGENTS. See SOAP AND SYNTHETIC DETERGENTS.

DETROIT. Fifth largest city in the United States, Detroit, Mich., has an estimated population (1955) of 1,902,000 (1950 census: 1,849,568) in an area of 139.6 square miles. Metropolitan Detroit, including Wayne, Macomb, Oakland, and part of Washtenaw counties, covers 1,965 square miles with a population of 3,515,000 in 1955 (1950 census: 3,016,197).

The city government is nonpartisan, headed by a mayor and nine-man City Council, all elected to four-year terms in 1953. The incumbent mayor is Albert E. Cobo.

Tax budget (1955-56 fiscal year): \$103,486,866. Total city budget: \$214,602,634. School budget (separated for the first time in 1955-56): \$113,219,410. City tax rate (1955): \$35.07 per \$1,000 assessed valuation (includes municipal and school taxes separately assessed). Net long-term debt: \$336,821,000. Public school enrollment (Sept. 30, 1955): 272,528, including 169,584 kindergarten and elementary, 91,240 junior and senior high school, 11,704 trade and special students. Wayne (municipal) University enrollment (1955): 18,499.

Value of imports and exports through the customs district of Michigan (1954): \$1,587,000,000; estimated value in 1955: \$1,750,000,000. Employment in metropolitan area (1955 estimate): 700,000 in manufacturing and 630,000 in nonmanufacturing; unemployment: 60,000. Gross factory product of Wayne County (1955 estimate): \$14 billion. Wayne County retail sales (1955 estimate): \$4.9 billion.

Automobiles made the motor city's two big stories in 1955. Beginning in the summer the United Automobile Workers (CIO) signed a series of three-year labor contracts with the automobile manufacturers which included a new security principle inaccurately called the guaranteed annual wage. By any name, however, the

industry funds set up to pay unemployment benefits supplementary to state-administered insurance were considered a revolutionary economic innovation (see also LABOR). While the National Association of Manufacturers began a fight to outlaw the contracts, CIO President Walter Reuther promised to extend the pattern to other key industries. Each of the UAW negotiations with the big three motor companies was concluded in marathon bargaining sessions that extended a few hours beyond strike deadlines. The resulting work losses, however, were slight.

Strikes, in fact, were unthinkable because Detroit was in the midst of its biggest automobile boom in history. Production in the first three quarters of the year was greater than in any previous full year except 1950 and 1953 (see also AUTOMOBILES). And the boom seemed still young. While turning out about 9 million cars and trucks in 1955, the major manufacturers all announced plans for expansion. At least one resumed production on an overtime basis reminiscent of wartime.

Along the Detroit River the city continued clearing industrial slums and constructing the Civic Center. The City-County Building in the center was opened in 1955, the Ford Auditorium neared completion, and ground was broken for a Convention Hall and Exhibits Building. (See also HIGHWAYS.)

GORDON HARRISON,
Editorial Writer, "The Detroit News."

DE VOTO, Bernard (Augustine), American literary critic, essayist, and historian: b. Ogden, Utah, Jan. 11, 1897; d. New York, N.Y., Nov. 13, 1955. During an unusually varied career as historian, literary critic, and teacher, he won the reputation of being a highly independent and vigorous critic of American culture, especially in his column, "The Easy Chair," in *Harper's Magazine*.

After a year at the University of Utah, he entered Harvard College in the fall of 1915, where philosophy was his main interest and where he studied English under Dean Le Baron Briggs.



Bernard De Voto
(d. Nov. 13, 1955)

WIDE WORLD

Returning to Harvard after World War I, he was graduated in 1920. From 1922 he taught English at Northwestern University until 1927, when he moved to Cambridge, Mass. There, after two years of studying and writing, he became an instructor at Harvard (1929-36). In 1935 he took over for *Harper's* the writing of "The Easy Chair," a post which he was to occupy for the next 20 years. Following two years (1936-38) as editor of the *Saturday Review of Literature*, he returned once more to Cambridge to devote all of his time to writing.

Sometimes compared with H. L. Mencken because of the pungency with which he expressed his opinions, De Voto's strong views on literary questions and social issues kept him almost constantly engaged in controversy, which he greatly enjoyed. During the ideology-dominated late 1930's he refused to assume a definite socio-political position or to subscribe to any of the major literary orthodoxies, most of which he attacked sharply. Civil liberties and the conservation of natural resources were the most frequently discussed of the many causes he championed in his monthly column.

One of the most versatile of contemporary writers, the extraordinarily wide range of his work included light fiction, essays, social history, serious fiction, crusading journalism, and literary criticism. In the trilogy, *The Year of Decision: 1846* (1943); *Across the Wide Missouri* (1947), winner of the 1948 Pulitzer Prize in history; and *The Course of Empire* (1952), he examined in a masterly and scholarly way the Western expansion of America. An authority on Mark Twain, De Voto was the author of several books on that writer, including *Mark Twain's America* (1932). Other of his better-known books are a novel, *We Accept With Pleasure* (1934); *Forays and Rebuttals* (1936), essays; *The Literary Fallacy* (1944), literary criticism; *The World of Fiction* (1950); and *The Easy Chair* (1955), essays from *Harper's*. (See also AMERICAN LITERATURE.)

DIAMONDS. See Index entry.

DIETETICS. See Index entry, *Nutrition*.

DIPLOMATIC LIST. See AMBASSADORS AND ENVOYS.

DISASTERS. See the CHRONOLOGICAL INDEX at the front of this volume; METEOROLOGY; and the Index entry, *Disasters*.

DISCIPLES OF CHRIST. Total membership in the United States in 1955 was 1,882,377, and world membership, organized in 8,830 congregations, was 2,045,943, with 136,613 new members added during the year preceding. Contributions for the year totaled \$75,955,232.30. The year 1955-56 was being observed with emphasis on the themes "Our Church in a Changing America" and "Our Church A Teaching Church."

Overseas missions are maintained in the Union of South Africa, the Belgian Congo, Argentina, India, Japan, Jamaica, Paraguay, Mexico, the Philippines, Puerto Rico, and Thailand. Christmount, a national Christian Assembly Ground, has been established at Black Mountain, N.C. The Council on Christian Unity was organized in 1955 to extend efforts for church union through lectures and conferences.

Twelve area Christian assemblies were held during the fall of 1955 in Lynchburg, Atlanta, Pittsburgh, Cincinnati, St. Louis, Omaha, Colorado Springs, Spokane, Bakersfield, Wichita, Fort Worth, and Memphis. Their purpose was to review the first five years of the long-range program adopted in 1950 and to make plans for the next five years. The World Convention of Churches of Christ was held in Toronto, August 16-21.

National headquarters of the International Convention of Disciples of Christ are located at 620 K of P Building, Indianapolis, Ind. Publications are the *World Call*, a monthly, and *The Christian-Evangelist*, a weekly.

GAINES M. COOK,
Executive Secretary.

DISEASES. See references under Index entry.



DISNEYLAND

"Casey Jr." carries children through Fantasyland, a section of the Disneyland amusement park.

DISNEYLAND. Located in Anaheim, Orange County, California, 25 miles southeast of downtown Los Angeles, Disneyland is a \$17 million amusement center founded by Walt Disney and comprising five major areas extending in time from the ageless era of fantasy through America's earliest days and into the world of tomorrow. The entire project covers 160 acres, of which 100 are for parking. Disneyland's public opening on July 18, 1955, attracted nearly 30,000 visitors.

First of Disneyland's five areas is Main Street, U.S.A., in which two blocks of shops, all built to scale in the Gay Nineties fashion, and open for business, line the street. A horse-drawn streetcar trundles from Town Square to the Plaza, from which the four "lands" radiate like slices of pie. To the east is Tomorrowland, where science and industry present their plans for the future. Rides such as TWA's Rocket Ride to the Moon and Space Station X-1 are based on factual technical data. Fantasyland, where Disney cartoon characters become animated realities, is entered through a fairyland castle and lies to the north of the Plaza. West of the Plaza is Frontierland, based on early American history and ideals. The *Mark Twain*, a 105-foot stern-wheeler, docks in Frontierland, while the Santa Fe and Disneyland freight train has its station there, and stages, wagons, and mule train can be boarded for trips through simulated mountain and desert country. Adventureland, where tropical rivers and their flora and fauna are represented, is entered through a Polynesian type settlement. Canvas-topped boats steam down the Adventureland river past lifelike animals and cannibals.

According to Walt Disney, Disneyland will not be finished so long as his imagination can create new features for the amusement center. Plans call for the addition of International Street and the opening of Holiday Land in 1956.

C. V. WOOD, JR.,

Vice President and General Manager of Disneyland, Inc.

DISPLACED PERSONS. See REFUGEES AND DISPLACED PERSONS.

DISTILLING INDUSTRY. *Production.*—The production of beverage distilled spirits at registered and fruit distilleries during the fiscal year ended June 30, 1955, compared with audited figures for the fiscal year 1954, was as follows, in tax gallons:*

* As used herein, a tax or proof gallon is a standard United States gallon of 231 cubic inches containing 50% of ethyl alcohol by volume; a wine gallon is a standard United States gallon regardless of proof.

DISTRICT OF COLUMBIA

	July 1, 1954- June 30, 1955	July 1, 1953- June 30, 1954
Whiskey.....	103,927,044	102,541,246
Brandy.....	4,007,868	5,778,596
Rum.....	2,004,883	1,830,164
Gin.....	16,558,549	13,612,183
Vodka.....	2,414,620	867,842
Spirits.....	53,277,317	60,366,997
Total.....	182,190,281	184,997,028

Rectified Spirits.—Data on rectified spirits in the fiscal year 1955, with 1954 figures in parentheses, are as follows: rectifying plants used 81,144,051 proof gallons of domestic and imported spirits (89,562,058); production by rectification amounted to 81,854,638 proof gallons (90,369,825). Whiskey accounted for 72,408,334 gallons of the total production by rectification (77,609,934).

Output for Consumption.—The bottled output of domestic distilled spirits, plus imported spirits bottled after withdrawal from customs warehouses, during the calendar year 1954 totaled 169,231,673 wine gallons, compared with 177,391,900 gallons during 1952, a decrease of 8,160,227 gallons, or 4.6%. Whiskey bottled during 1954 amounted to 137,185,136 wine gallons, accounting for 81% of total distilled spirits bottled, as against 145,638,632 gallons during 1953, or 82.1% of total spirits. Of the total whiskey bottled in 1954, spirit blends amounted to 82,626,746 gallons; bonded, 13,200,392; straight, 39,259,855; and blended straights, 2,098,143. The remainder of the bottled output consisted of gin, 18,395,254 gallons; rum (bottled in continental United States and not including rum imported from Puerto Rico), 702,420; brandy, 3,259,678; cordials, liqueurs, and similar output, 5,686,248; vodka, 3,543,314; and miscellaneous, 459,623.

Withdrawals.—Tax-paid and tax-free withdrawals (in tax gallons) during the fiscal year 1955, compared with 1954, were as follows:

	July 1, 1954- June 30, 1955	July 1, 1953- June 30, 1954
Tax-paid withdrawals:		
Whiskey, bottled-in-bond ¹ ..	13,137,465	13,652,766
Whiskey, total.....	74,356,096	75,698,645
Brandy.....	3,241,475	3,075,152
Rum.....	276,542	299,247
Gin.....	15,947,003	12,778,285
Vodka.....	2,390,353	745,033
Spirits ²	47,107,330	50,970,570
Alcohol ³	9,803,516	15,223,740
Total.....	153,122,315	158,790,672
Tax-free withdrawals:		
For fortification of wine....	28,308,367	25,339,062
For denaturation.....	1,735,791	1,638,963
For export.....	1,736,556	3,474,005
Transfers to customs manufacturing bonded warehouses.....	803,379	3,073,553
For vessels and aircraft....	9,905	3,592
For use of the United States.....	468	1,687
To foreign trade zones.....	44,251	22,178
Total.....	32,638,717	33,553,040

¹ Included in total whiskey. ² Produced at registered distilleries. ³ Produced at industrial alcohol plants.

Apparent Consumption.—The apparent consumption of distilled spirits in the United States during the calendar year 1954, as compiled by the Distilled Spirits Institute, Inc., amounted to 189,470,688 wine gallons, a decrease of 2.7% compared with 1953. These figures are based on actual wholesale and retail sales in the monopoly states, and on tax collections or gallonage shipments to wholesalers in the license states. Consumption in the license states amounted to 136,955,928 gallons, or 72.3% of the total consumption, and 52,514,760 gallons in the monopoly states, 27.7% of the total.

The following table shows apparent consumption in the 10 leading states in 1954, compared

with 1953 (in wine gallons), and indicates the type of control:

	1954	1953
New York.....	24,107,193	23,934,753 (license)
California.....	19,704,314	19,707,741 (license)
Illinois.....	13,588,678	14,369,475 (license)
Ohio.....	10,929,657	11,237,176 (monopoly)
Pennsylvania.....	9,508,637	10,046,106 (monopoly)
New Jersey.....	8,535,992	8,443,335 (license)
Michigan.....	8,448,017	8,555,682 (monopoly)
Texas.....	7,184,359	7,164,164 (license)
Massachusetts.....	6,796,091	6,664,545 (license)
Florida.....	5,785,598	5,856,102 (license)

Per capita consumption of distilled spirits in the United States during 1954 was 1.18 wine gallons.

Stocks.—Stocks of whiskey and other distilled spirits remaining in internal-revenue bonded warehouses as of June 30, 1955, compared with June 30, 1954, at original entry gauge and before determination of losses owing to leakage, evaporation, and related factors, were as follows (in tax gallons):

	June 30, 1955	June 30, 1954
Whiskey.....	715,860,858	720,698,733
Brandy.....	12,520,443	14,215,932
Rum.....	1,056,378	1,189,224
Gin.....	1,759,529	1,505,214
Vodka.....	138,455	172,453
Spirits.....	110,160,340	126,546,591
Total.....	841,496,003	864,328,167

Revenues.—Revenues accruing to the federal government from distilled spirits during the calendar year 1954 amounted to \$1,911,433,000, a decrease of 3.85% compared with 1953, and accounted for 69.71% of federal collections from alcoholic beverages. Taxes from beer amounted to 27.17% of the total alcoholic beverage receipts of \$2,741,907,000, and wine accounted for 3.12%. The federal excise tax rate on distilled spirits was \$10.50 per proof gallon.

Imports.—United States dutiable imports for consumption of distilled spirits during the calendar year 1954 amounted to 22,127,106 tax gallons, with whiskey comprising 20,157,647 gallons of the total. In addition, 1,948,106 gallons of spirits were received from Puerto Rico and the Virgin Islands.

Exports.—Exports of distilled spirits from the United States to foreign destinations (exclusive of military shipments) amounted to 3,933,505 proof gallons. In addition, 580,763 gallons were shipped to Puerto Rico, the Virgin Islands, Alaska, and Guam.

Distillers' Dried Grains.—Production of distillers' dried grains at registered distilleries and industrial alcohol plants during 1954 consisted of 123,200 tons of dark grains, 65,300 tons of light grains, and 53,700 tons of dried solubles, or a total of 242,200 tons.

Canada.—Beverage distilled spirits produced in Canada during 1953 amounted to 17,925,007 imperial proof gallons, compared with 16,694,807 gallons in 1952. Net sales of potable spirits during 1953 amounted to 12,445,166 proof gallons valued at \$97,715,878. Imports of distilled spirits during that year amounted to 3,867,477 proof gallons, with exports amounting to 7,376,492 gallons.

HOWARD T. JONES,
Executive Secretary, Distilled Spirits Institute, Inc.

DISTRICT OF COLUMBIA. This federal district of the United States comprises an entirely urban area of 61 square miles, and is coextensive with the city of Washington, the national capital. Population: (1950) 802,178; (est., July 1, 1955) 831,000.

Government.—Administration is handled by a board of three commissioners, two of whom are civilians appointed by the president of the United States, with the consent of the Senate, and the third, a member selected from the Corps of Engineers of the U.S. Army. Commissioners in 1955 were: Samuel Spencer, president, Robert E. McLaughlin, and Brig. Gen. Thomas A. Lane. The secretary of the board was G. M. Thormett; finance officer, James L. Martin; corporation counsel, Vernon West; and superintendent of schools, Dr. Hobart M. Corning.

Legislative power is vested in the U.S. Congress, which generally seeks advice from the Board of Commissioners regarding proposed legislation. District residents do not vote in elections. A federal court of appeals and a federal district court serve the District.

Finances.—Treasury receipts (1954-55 fiscal year): \$179,153,977; approximate expenditures, \$171,313,360; treasury balance, \$12,221,037; long-term indebtedness, \$1,900,000.

Taxation.—District tax revenue (1954-55 fiscal year): \$103,172,096, including \$17,852,735 from a 1% food sales tax, a 3% tax on room accommodations furnished to transients, a 2% tax on all other retail sales, and selective sales and gross receipts taxes; \$2,634,849 from licensing; \$5,796,194 from individual income taxes; \$6,658,195 from corporate franchise taxes; and \$48,495,410 from property taxes. The District has no poll tax.

Banking.—As of June 30, 1955, the District's 8 national banks had \$920,343,000 in assets, \$694,661,000 in demand deposits, and \$163,063,000 in time deposits; 9 other banks and 22 branches had \$530,588,000 in assets, \$329,416,000 in demand deposits, and \$155,950,000 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$28,860,556 (\$308.46

EDUCATIONAL STATISTICS FOR THE DISTRICT OF COLUMBIA, 1954-55

Type of school	No.	Teachers	Students ¹
Public elementary (1-6).....	126	1,895	65,702 ²
Public junior high (7-9).....	22	950	22,447 ²
Public senior high (10-12).....	11	628	12,377 ²
Veterans public high.....	1	26	806
Public vocational high.....	5	155	2,420
Capitol pages schools.....	1	6	33
Americanization schools.....	1	10	565
Private and parochial elementary and secondary.....	64	.....	19,404
Public teachers colleges.....	2	69	1,080

¹ As of Oct. 22, 1954. ² Including kindergarten and ungraded. ³ Including ungraded.

per pupil) for public elementary and secondary education in the 1954-55 school year comprised \$28,799,616 from local school districts and \$60,940 from the federal government. Expenditures for construction and improvements totaled \$5,636,413. Teachers' salaries (1954-55) averaged \$4,723 (elementary school teachers, \$4,531; high school teachers, \$5,335).

WELFARE AND CORRECTIONAL INSTITUTIONS OF THE DISTRICT OF COLUMBIA

(As of June 30, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.....	1	766
Hospitals for the mentally ill.....	1 ¹	5,313 ²
Sanatoriums for the tubercular.....	1	546
Hospitals for crippled children.....	1	198
Homes for dependent children.....	1	254
Homes for the aged.....	1	602
Soldiers and sailors homes.....	1	49
Schools for the blind.....	3	20
Schools for the deaf.....	4	74
Municipal lodging houses.....	1	31
Receiving homes for children (detention).....	1	75
Training schools for delinquent boys and girls.....	3	653 ³
Reformatories for males.....	1	1,750 ⁴
Reformatories for females.....	1	210 ⁴
Jails.....	1	1,039 ⁴
Workhouses for misdemeanants.....	1	1,182 ⁴

¹ Mentally ill District residents are hospitalized at St. Elizabeths Hospital, a federal institution. ² Daily average, 1954. ³ Maryland School for the Blind, Overlea, Md., maintains District blind children at District expense. ⁴ Columbia Institution for the Deaf, Washington, D.C., maintains District deaf children at District expense. ⁵ Includes 213 boys committed to the National Training School for Boys. ⁶ Average for 1954-55.



UNITED PRESS

Automobiles are permitted to park in center of Washington's Pennsylvania Avenue during July 1955 transit strike.

Social Welfare.—Public welfare expenditures from federal and District funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$7,654,060, including \$2,086,949 for old-age assistance, \$3,243,610 for dependent children, \$189,186 for the needy blind, and \$1,671,311 for the disabled; a monthly average of 15,727 persons received public assistance. Operating expenditures for welfare institutions totaled \$3,670,817; for correctional and penal institutions, \$4,214,820.

Labor Force.—In the calendar year 1954, employers paid an estimated \$795,721,450 in wages, representing a .1% decrease from the 1953 figure, to an average of 217,265 workers covered by the District Unemployment Compensation Act. Average covered employment and wages paid were as follows: contract construction, 16,896 employees (\$69,578,653); finance, insurance, and real estate, 23,394 (\$73,957,856); manufacturing, 15,748 (\$71,718,583); service industries, 50,045 (\$176,089,280); transportation, communication, and other public utilities, 21,273 (\$91,277,786); wholesale and retail trade, 89,811 (\$312,784,149); and other, 98 (\$315,143).

Manufacturing.—In 1954, manufactures engaged 15,748 persons covered by the District Unemployment Compensation Act, to whom \$71,718,583 was paid in wages by 531 employers. The two major manufactures, printing and publishing and food processing, employed 9,467 and 3,793 covered workers, respectively. Value added by manufacture in the District totaled \$150,687,000 in 1953.

Transportation and Communications.—Expenditures for road and highway maintenance in the 1954-55 fiscal year totaled \$18,280,228, and newly completed construction and reconstruction aggregated 30.53 miles.

Highways and roads on April 1, 1955, totaled 1,200 miles, all of which were surfaced. Registered motor vehicles numbered 192,528 on Sept. 30, 1955, including 158,094 passenger cars. There were 6 railroads operating 34 track miles within the District (1955) and 10 regularly scheduled airlines and 1 public airport.

Communications media (1955) included 7 AM and 9 FM radio stations and 4 operating television outlets; 3 daily newspapers (circulation, 779,804) and 4 weekly newspapers (circulation, 802,178); and (Jan. 1, 1955) 253,454 business and 284,032 residential telephones.

Principal Events, 1955.—The 52-day transit strike, which had crippled the District's trans-

portation facilities since July 1, ended on August 22 after an act of Congress gave the District commissioners power to negotiate a wage settlement. The act, which also cancelled the Capital Transit Company's franchise after one year, authorized fare increases to provide revenue for the wage increase granted. Racial discrimination was eliminated as a factor in gaining employment on the company's cars and buses under an agreement announced January 13 by the president's Government Contract Committee.

Clark Calvin Griffith (q.v.), owner of the Washington Senators baseball team and co-founder of the American League, died in Washington on October 27. Clark R. Griffith was appointed president of the club to succeed his father.

Octagon House, which served as the executive mansion after the White House was destroyed by fire in 1814, was opened to the public on November 10, after extensive restoration.

DIVIDENDS. See PROFITS AND DIVIDENDS.

DIVORCE. See MARRIAGE AND DIVORCE.

DODECANESE ISLANDS. A group of 14 inhabited islands and some 40 islets and reefs in the southeastern Aegean Sea, forming a prefecture of Greece. Area, 1,035 square miles; pop. (1951), 121,074. Rhodes (537 sq. mi.) is the main island; and the city of Rhodes (24,186) is the capital. Chief crops are olives, grapes, tobacco, and oranges. Sponge fishing and sheep and goat raising are important. Handicrafts include pottery, leather goods, silk, copperwork, and carpets.

DOG SHOWS. See SPORTS, GAMES, AND SHOWS.

DOMINICA. See WINDWARD ISLANDS.

DOMINICAN REPUBLIC. A Caribbean republic comprising the eastern part of the island of Hispaniola. Area, 18,641 square miles; pop. (est. mid-1955), 2,404,000, mainly of mixed white and Negro descent. Chief cities and populations (Jan. 1, 1954): Ciudad Trujillo (the capital), 221,558; Santiago de los Caballeros, 61,406; and San Pedro de Macoris, 21,580.

Government.—The legislature consists of a Senate of 23 members and a Chamber of Deputies of 52. Senators and deputies are elected for 5-year terms. The president is also elected by popular vote for a 5-year term. Generalissimo Rafael Leonidas Trujillo Molina has dominated the government since 1930. His brother, Gen. Hector B. Trujillo Molina, was elected president in an unopposed election in 1952.

Education and Religion.—In 1953 there were 286 elementary and junior high schools (81,622 pupils); 1,221 emergency rural schools (68,303); and 916 rural grammar schools (98,873). Enrollment in high schools totaled 6,679; in trade schools, 8,814; and in special schools, 99,829. The University of Santo Domingo had 4,794 students. Roman Catholicism is the state religion. There is freedom of worship for other faiths.

Finance.—Revenue in 1955 was estimated at 108.1 million pesos; expenditure, 105.5 million. The Dominican peso is equal to the United States dollar. The public debt was retired in 1953.

Production.—The all-important sugar crop is grown mainly on estates in the south. Over 60,000 workers are employed in the country's 16 sugar centrals. Sugar production in 1954 (prelim.) totaled 772,000 short tons (raw value), as compared with 699,000 in 1953. Other major cash crops are: coffee, 460,000 bags (132.3 pounds each) in 1954-55 (prelim.); cacao, 84,024,000 pounds in 1954-55 (prelim.); and tobacco, 41.5 million pounds in 1954. Subsistence crops include corn, rice, sweet potatoes, dry beans, plantains, and peanuts.

In 1953 there were 3,529 industrial establishments employing 60,025 wage earners and hav-

ing a gross sales value of 154.9 million pesos. Chief manufactures are tobacco products, chocolate, textiles, beverages, peanut oil, furniture, cement, tiles, bricks, straw hats, soap, hides, shoes, and fertilizer. The republic exports some 120,000 tons of high-grade iron ore annually. Electricity output in 1953 totaled 167.5 million kw.-hr., a rise of 50.1% over that of 1952. Gross national product was 434.7 million pesos in 1953, a 5.1% increase over the 1952 figure.

Foreign Trade.—Exports in 1954 totaled 119.73 million pesos; imports, 82.83 million. Sugar exports were valued at 40.1 million pesos; cacao, chocolate, and cocoa products, 32.3 million; and coffee, 31.4 million. Imports are mainly machinery and vehicles, textiles, foodstuffs, iron and steel products, fuels, and lubricants. The United States took 56.6% of the republic's 1954 exports and provided 64.5% of imports.

Transportation and Communications.—The highway network in 1953 totaled 2,100 miles, including 1,450 of all-weather roads. Two government-owned railways aggregating 152 miles offer irregular service. Sugar firms have several hundred miles of private lines. International airlines and a domestic line provide regular air services. Passenger cars numbered 5,794 in 1955; trucks, 5,034; telephones, 8,900 (1955); radios, 100,000 (1952); television sets, 1,200 (March 1954). There were 5 daily newspapers in 1952 with a total circulation of 54,000.

Principal Events, 1955.—In preparation for the international fair scheduled to take place in Ciudad Trujillo from Dec. 20, 1955, to Feb. 27, 1956, an intensive construction program was under way, including the erection of six pavilions which are to remain as permanent government buildings. The 1955 public works program also included construction of bridges, highways, housing, port improvement, and irrigation. Construction by a mixed Dominican-American company of a giant shipyard and drydock development at Rio Haina near Ciudad Trujillo commenced in February. When completed in 1959 the facilities will be capable of servicing the world's largest ships.

Following the passage of legislation preparing the way for the nationalization of the electric and telephone industries, the government purchased the electric company in early 1955 and proceeded to negotiate for the purchase of the telephone company. The government's literacy drive was renewed with vigor in 1955, with attendance in literacy courses made mandatory for all illiterate persons between 14 and 60. Following passage on May 11 of a bill granting amnesty to political prisoners, President Trujillo offered government aid to voluntary exiles who desired to return.

DONATIONS AND BEQUESTS. See PHILANTHROPY.

DOWNES, (Edwin) Olin, American music critic: b. Evanston, Ill., Jan. 27, 1886; d. New York, N.Y., Aug. 22, 1955. As senior music critic for the *New York Times*, he possessed a profound knowledge of his subject and a unique gift for expressing its elusive qualities.

Taken to Boston, Mass., by his parents in his early youth, Olin Downes embarked on a career in music at the age of eight. Although his formal education ended with elementary school, he continued private study of piano, musicology, harmony, and music appreciation. In 1906, after a brief period of acting as vocal accompanist, teaching piano, and playing viola in a string

quartet, he was appointed music critic to the *Boston Post*. While in Boston he conducted music courses at Boston and Harvard universities. In 1924 he succeeded Richard Aldrich as music critic for the *New York Times*.

In addition to his outstanding reputation as a critic, Downes was a popular lecturer. He gave a series of lectures at the Brooklyn Academy of Music (1932-34), and participated in a joint lecture-recital series with Walter Gieseking, the famous pianist, at Town Hall in New York (1934). He also lectured at Chautauqua, N.Y., and at the Tanglewood music festivals in Massachusetts, and for a time was commentator for the Sunday afternoon broadcasts of the New York Philharmonic-Symphony Society. In 1938-39 he served as director of music for the New York World's Fair.

Always willing to listen objectively to the artistry of new composers and musicians, Downes early recognized the genius of Jean Sibelius, and was named commander of the Order of the White Rose of Finland for his championship of the Finnish composer. Besides numerous articles for periodicals, Downes also wrote *The Lure of Music* (1918) and *Symphonic Broadcasts* (1932, republished as *Symphonic Masterpieces* in 1935); and edited, with Elie Siegmeister, *A Treasury of American Song* (1940, 2d ed. 1943).

DRAMA. See THEATER.

DRESS. See FASHIONS.

DRUG TRAFFIC. See NARCOTICS.

DRUGS. See FOOD AND DRUG ADMINISTRATION, and the Index entry, *Drugs*.

DUFF, Sir Lyman Poore, former chief justice of Canada: b. Meaford, Ont., Jan. 7, 1865; d. Ottawa, April 26, 1955.

Lyman Duff was educated at the University of Toronto (B.A. 1887) and the Osgoode Hall Law School (LL.B. 1889). Admitted to the bar of Ontario in 1893, he practiced briefly at Fergus before going to Victoria, B.C., where he became the law partner of Gordon Hunter, later chief justice of the province. After participating in a variety of important cases in which he demonstrated an extraordinary legal talent, he was named queen's counsel in 1899 and puisne justice of the Supreme Court of British Columbia in 1904.

In 1906, Sir Wilfrid Laurier, then prime minister, appointed him justice of the Supreme Court of Canada, a position he held until 1933, when he became chief justice following the resignation of Francis A. Anglin. The present law of Canada is to a great extent the product of his interpretations of the cases that confronted him. After his term was twice extended by the government beyond the normal retirement age of 75, he retired in 1944.

Justice Duff frequently acted as administrator of Canada in the absence of the governor general. In 1931 and again in 1940 it was his duty as representative of the king to open Parliament. The first occasion was the first time in the history of Canada that a Canadian opened the Canadian Parliament. He also served as head of a number of important royal commissions, including the commission investigating the Shell Contracts Committee (1916) and the Duff Commission on Transportation (1932). During World War I he nearly became prime minister when Conservative Party leader Sir Robert Borden, who was opposed by the Liberal Party, proposed that Justice Duff head the Union government of 1917. However, Sir Robert won control of the govern-

ment before a formal offer was made to the jurist.

Sir Lyman was the recipient of honorary degrees from a number of universities in Canada and the United States. In 1919 he was appointed to the Imperial Privy Council, the highest legal body in the British Commonwealth, and in 1934 he was created a Knight of the Grand Cross of St. Michael and St. George.

DULLES, John Foster, U.S. secretary of state: b. Washington, D.C., Feb. 25, 1888. Committed to the principle of negotiating from a position of strength, he labored throughout 1955 to achieve the reunification of Germany and to strengthen the West's far-flung system of defensive alliances.

Prior to his becoming secretary of state on Jan. 21, 1953, Dulles had served as a delegate to the San Francisco Conference (1945) and to the United Nations (1946-50), and as interim U.S. senator from New York (1949). From 1950 to 1953 he was Republican adviser to the Department of State, and in 1952 he wrote the foreign policy plank of the Republican Party platform.

Early in 1955, Dulles took a strong line against Communist China's threatened invasion of Formosa. After attending the first meeting of the Council of the Southeast Asia Treaty Organization (q.v.) in Bangkok (February 23-25), he visited Chiang Kai-shek in Formosa, where on March 3 he signed documents activating the United States-Nationalist China mutual aid treaty negotiated in December 1954. In a major foreign policy speech to the people of the United States on March 8, he warned Communist China against underestimating American willingness to meet a military challenge in the Far East. He repeated his contention, despite British opposition, that although the United States was not committed to the defense of the islands of Quemoy and Matsu, it would fight for them if their invasion constituted a threat to Formosa and the Pescadores.

At the Asian-African Conference (q.v.) in Bandung, Chou En-lai, premier of Communist China, proposed that his country and the United States hold discussions on the Formosa question. Dulles eventually announced that the United States was prepared to enter talks with Communist China without requiring the presence of Nationalist China, provided discussions were strictly confined to a cease-fire in the Formosa Strait.

Secretary Dulles subsequently hailed French ratification of the Paris agreements, which granted sovereignty to West Germany and provided for its admission to the North Atlantic Treaty Organization, and the signing on May 15 of the Austrian State Treaty.

On June 20-26, Dulles attended the tenth anniversary meeting of the United Nations in San Francisco, where final arrangements for the "Summit Conference" at Geneva were made. Following the Geneva Conference (q.v.), which resulted in some relaxation of tension between the East and West, Dulles went to the Geneva meeting of foreign ministers (October 27-November 16), where an unsuccessful attempt was made to implement the Big Four's directives on German reunification and European security, disarmament, and East-West contacts. During the period of negotiation, Dulles paid official visits to General Franco in Spain (November 1) and Marshal Tito in Yugoslavia (November 6).

Secretary Dulles' Middle Eastern policy was committed to winning over the Arab states on

one hand and at the same time remaining sympathetic toward Israel's Western orientation. On August 26 he offered a three-point program to further stability and progress in that area.

(See also FOREIGN POLICY OF THE UNITED STATES; UNITED STATES—*The United States in 1955.*)

DUTCH EAST INDIES. See INDONESIA.

DUTCH GUIANA. See SURINAM.

DUTCH NEW GUINEA. See NETHERLANDS NEW GUINEA.

Du VIGNEAUD, Vincent, American biochemist: b. Chicago, Ill., May 18, 1901. He was awarded the 1955 Nobel Prize in chemistry on November 2 for his work on the synthesis of the hormone, oxytocin, and for his work toward the synthesis of another hormone, vasopressin.

After being graduated from the University of Illinois in 1923, he pursued graduate studies at Illinois and the University of Rochester School of Medicine (Ph.D., 1927). He did further work at the Johns Hopkins University Medical School, the Kaiser Wilhelm Institute in Dresden, and the University of Edinburgh Medical School before he returned to join the faculty at Illinois in 1929. From the George Washington University School of Medicine, where he became the head of the

biochemistry department from 1932 to 1938, he went to the Cornell University Medical College in 1938.

Du Vigneaud has attained scientific eminence for his work in taking apart and then synthesizing—recreating under artificial conditions—the oxytocin hormone secreted by the pituitary gland, a hormone which is of importance in childbirth and lactation. His work and that of his associates, described by the Nobel authorities as “a historic feat in biochemistry,” produced in October 1953 the first synthesis or test-tube production of oxytocin. Composed of eight of the different amino acids, the material was the most complex of its kind ever made by man. He has also worked on the synthesis of vasopressin, a hormone which keeps a check on organs such as the kidney and regulates blood pressure.

In 1946, du Vigneaud and his associates had also accomplished the long-attempted synthesis of penicillin G. As a result, the industrial production of penicillin, until then restricted to the laborious mold process, was made much easier.

On Dec. 8, 1955, it was announced that du Vigneaud was scheduled to receive the 1956 Willard Gibbs Medal of the American Chemical Society on May 18, 1956.

DYESTUFFS. See Index entry.



EARNINGS. See INCOME; PROFITS AND DIVIDENDS; STANDARDS OF LIVING.
EARTHQUAKES. See SEISMOLOGY.
EAST AFRICA, British. See BRITISH EAST AFRICA.

EAST INDIES, Dutch. See INDONESIA.

ECLIPSES. See ASTRONOMY.

ECONOMIC AND SOCIAL COUNCIL (U.N.). See UNITED NATIONS.

ECONOMIC REVIEW. See Index entry, *Financial and Economic Review.*

ECUADOR. A member of the United Nations and the Organization of American States, Ecuador is situated on the west coast of South America between Colombia and Peru, is approximately 100,000 square miles in area (including the Galápagos Islands (3,123 square miles), and has a population of 3,567,000 (United Nations est., July 1954). Census figures for 1950 show that about 58% of the population lives in the sierra (the central plateau region), and about 40% in the coastal area, although population patterns indicate a steady migration from the sierra to the coast, where work and land are more plentiful. Only 47,000 people live in the Oriente, the large lowland forest area east of the Andes which comprises about one half of Ecuador. Less than 10% of the population of this primarily Indian and mestizo country is white.

According to 1955 official estimates, Guayaquil, the largest city and major port and commercial center, has a population of 360,000; and Quito, the capital, 220,000.

Government.—Under the 1946 constitution, the president (José María Velasco Ibarra, who took office on Sept. 1, 1952) is elected directly for a 4-year term and may not succeed himself. Congress consists of a 45-member Senate (4-year terms), 33 of whom are elected on a popular basis by province and 12 of whom are

chosen by cultural and economic associations; and a 69-member Chamber of Deputies (2-year terms), generally 1 for each 50,000 inhabitants. The next general election is scheduled for June 1956. The traditional political parties of Ecuador include the Conservative (Catholic), the Liberal (divided into “Authentic” and “Independent”), the Socialist, and the Communist. New groups emerging are the Concentration of Democratic Forces (led by the exiled Dr. Carlos Guevara Moreno), which was victorious in the municipal elections of Nov. 7, 1955; “Velasquista committees” (personal followers of the president); and the Ecuadorian Revolutionary Action, or ARNE (a Falange-type group). On the whole, politics is a regional, economic struggle between the landed, protectionist interests in the sierra and the export-importing interests of the coast.

Education and Religion.—Primary education is free and compulsory in Ecuador. In 1952 there were 3,706 primary schools, with 7,487 teachers and 352,396 pupils; 182 secondary schools, with 1,031 teachers and 32,390 pupils; and 6 universities, with 411 teachers and 4,562 students. Although a campaign against illiteracy was begun in 1944, a 1953 government report stated that 50% of the population was illiterate. The constitution of Ecuador guarantees freedom of religion to all persons. Nevertheless, the Roman Catholic Church, led by Ecuador's first cardinal, Carlos María de la Torre, exercises considerable influence in all phases of the country's life.

Finances.—In 1954 the national budget was estimated at \$42,470,000 (converted at the official rate of 15 sucres to the U.S. dollar). National revenues during that year reached a record high of \$64,358,000, compared with \$54,077,933 in 1953; actual expenditures amounted to \$76,499,000, compared with \$61,287,400 in 1953. The internal debt was reported at \$17,908,866 in 1954; the foreign debt, \$51,911,264.

Agriculture and Industry.—Ecuador's economy is predominantly agricultural. Although most of the land is still uncultivated, a continuous development policy has greatly increased production in recent years. The principal export crops are bananas, the production of which totaled 870,000 tons in 1954, an increase of 37% over 1953; cacao (37,000 tons, an increase of 44%); coffee (28,000 tons, an increase of 25%); and rice (51,200 tons, a decrease of 45%). Domestic

products include maize (corn), the production of which totaled 129,000 tons in 1954, an increase of 35% over 1953; barley (92,000 tons, an increase of 14%); sugar (55,900 tons); and wheat (32,300 tons, an increase of 14%). The cultivation of cotton and tobacco is also being encouraged and expanded. In 1955 the railroad running from Quito to the northern port of San Lorenzo and linking the Andes with the Pacific Ocean was near completion; freight traffic was scheduled to begin by early 1956.

Industrial developments during 1955 included continued construction on the 14,000-kw. hydroelectric plant at Quito, which is scheduled for completion in 1958, and on a second cement plant near Riobamba to supplement the one at Guayaquil; and completion of the Quito water-supply project begun in 1947. The shortage of low-cost power remains a serious problem.

Labor organization is limited to workers in the major centers. The Confederación de Trabajadores del Ecuador (CTE), claiming some 60,000 members in 125 unions, has been affiliated with the Communist-dominated CTAL of Mexico. The relatively new Catholic Workers Confederation (CEDOC) has fewer than 10,000 members.

Foreign Trade.—Ecuador's trade program continues to expand. Exports for 1954 totaled \$100,220,000, as compared with \$75,680,000 in 1953; and imports, \$86,045,000 (\$63,400,000 in 1953). Principal export crops in 1954 were cacao (\$34,923,200), bananas (\$28,009,500), and coffee (\$27,086,200); other exports included rice, balsa, quinine-base drugs, Panama hats, minerals, and petroleum. Exports to the United States comprised 62% of the total, and imports from the United States, 55%. Ecuador is the world's leading exporter of bananas.

Transportation and Communication.—The Ecuadorian highway construction and improvement program, the purpose of which is to create a system of all-weather roads which will open up new and isolated areas, was further augmented in 1955. A total of 1,336 miles of roads (estimated to cost 844 million sucres, or over \$56 million) have been projected by the government. The program will be financed by increased taxes on gasoline sales, credit extended by the Export-Import Bank of Washington and the International Bank for Reconstruction and Development, and appropriations in the national budget. In addition, a major road-building project in Guayas Province at a cost of approximately \$25 million has been undertaken by the Guaya Highway Commission. In 1954 there were only 3,407 miles of all-weather roads in Ecuador. The Pan American Highway, running the length of the sierra, lacks an 87-mile section from Loja to Macará before connecting with Peru.

Approximately 718 miles of railway track serve Ecuador's 9 railways. It was expected that the important Quito-San Lorenzo extension of the Quito-Guayaquil line would be open to traffic in 1956. The international air routes of Panagra, Braniff, Avianca, Royal Dutch Airlines (KLM), and Transportes Aereos Nacionales (TAN) link Ecuador with the rest of the world. The airports at Quito and Guayaquil are scheduled for modernization.

Principal Events, 1955.—Before the Council of the Organization of American States (OAS) on Sept. 8, 1955, Ecuador formally charged Peru with massing naval elements along the coast, and 20,000-30,000 troops in the vicinity of El Oro and Loja provinces (Ecuador) on the disputed frontier. The United States, Argentina, Brazil,

and Chile, as guarantors of the 1942 Ecuador-Peru border treaty, sent a team to investigate the charge. The initial report of the inspection group (September 14), based on aerial reconnaissance, failed to verify any troop concentrations in the area. Ecuador subsequently withdrew her charges, crediting the swift action of the OAS with the prevention of Peruvian military action.

Reaffirming earlier declarations of sovereignty over a 200-mile belt of waters along their coasts, Chile, Peru, and Ecuador met in Quito, December 12-16, and established quota and licensing regulations for fishing in the area, despite refusal by the United States and other countries to recognize the validity of such action under international law.

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EDEN, SIR (Robert) Anthony, British prime minister: b. Windlestone Hall, Durham County, England, June 12, 1897. On April 6, 1955, one day following the retirement of Winston Churchill, he was appointed prime minister of the United Kingdom by Queen Elizabeth II. He was unanimously elected leader of the Conservative Party on April 21, and retained his prime ministership through the Conservative Party's victory (344 seats to 277 for Labour) in the general elections held at his request on May 26.

A member of Parliament since 1923 and a ranking government figure since the 1930's, Eden had in recent years served as foreign secretary (1935-38 and 1940-45), leader of the House of Commons (1942-45), leader of the British delegation to the San Francisco Conference (1945), deputy leader of the opposition party (1945-51), and foreign secretary and deputy prime minister (1951-55).

Throughout 1955, Eden's activities were related to the West's determined but fruitless effort to reunify Germany in the face of Soviet opposition, and to strengthen existing ties with friendly Middle Eastern and Asian countries.

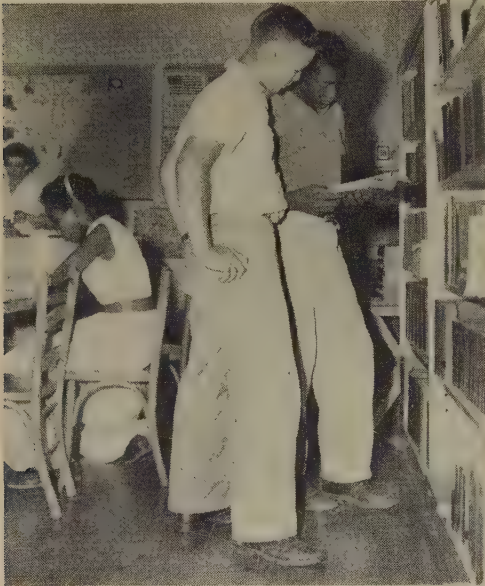
Prior to his appointment as prime minister, he attended the first meeting of the Southeast Asia Treaty Organization (q.v.) Council at Bangkok (February 23-25), and at the height of the Formosa crisis, Eden had proposed (March 8) a compromise whereby the Nationalist Chinese would abandon Quemoy and Matsu to the Chinese Communists for guarantees against attacks on Formosa and the Pescadores. On March 30 he announced the United Kingdom's adherence to the Baghdad Pact (q.v.).

After his appointment as prime minister, Eden attended the Geneva Conference (q.v.), where he offered three proposals to guarantee the Soviet Union's security in return for the reunification of Germany according to the plan he had submitted at the Berlin Conference in 1954. These included a security pact comprising the Big Four and a united Germany, demilitarization of a zone between the East and West, and delimitation of arms on each side in Germany and the countries neighboring Germany. During the conference of foreign ministers in October-November, the Soviet Union incorporated the latter proposal in its own security pact plan, but because the Soviet plan implied an indefinite division of Germany, it was disclaimed by the West.

Responding to the delicate Middle Eastern situation, Eden, on November 9, offered to mediate the Arab-Israeli dispute, but the offer was

rejected. On December 20 he announced important changes in his cabinet (see GREAT BRITAIN).

EDUCATION. School Segregation.—On May 31, 1955, the U.S. Supreme Court, in another historic decision, gave the job of ending racial segregation in public schools to lower federal courts and local school authorities. The court set no deadline for the beginning and ending of the transition, but made it clear that public disagreement would



WIDE WORLD

Negro and white students study together in Hoxie, Ark., school, following Supreme Court desegregation ruling.

not be permitted to stand in the way of the effective application of the principle that racial segregation in public education is unconstitutional.

In its unanimous opinion the court stated that local federal judges could take into account local conditions in determining whether school authorities were trying to end segregation as soon as practicable and in good faith. Desegregation was ordered to proceed "with all deliberate speed," a phrase which will probably be referred to frequently in the litigation that appears inevitable at the local level.

The ruling came slightly over a year after the court's original school segregation decision of May 17, 1954. The court had requested arguments by attorneys for both sides on how and when segregation should be ended. Lawyers for the National Association for the Advancement of Colored People (NAACP) had argued for the end of segregation by September 1956 at the latest; and attorneys for 10 states (Arkansas, Delaware, Florida, Kansas, Maryland, North Carolina, Oklahoma, South Carolina, Texas, and Virginia) and the District of Columbia had argued for no time limit and for authorization for federal district judges to weigh local problems in requiring adjustment to the decrees.

In a sense, the decision was a compromise in that no deadline was set. However, it was made clear that desegregation must proceed in "good faith." As one newspaper headline expressed it, "Court Upholds Principle, Gives Time."

The repercussions of the decision have been far reaching, especially in the Southern states

where the segregation issue had citizens aroused to fever pitch.¹ Some regarded the ruling as moderate and workable, even though it might produce years of litigation. However, in many Southern states the attitude was openly defiant. South Carolina reported "no slackening in its determination to maintain segregated schools to the maximum extent possible." In Georgia, Gov. Martin Griffin was quoted by the *Southern School News*, an objective reporting service on the progress of segregation, as declaring: "No matter how much the Supreme Court seeks to sugarcoat its bitter pill of tyranny, the people of Georgia and the South will not swallow it."

As schools opened in the fall of 1955, the situation regarding segregation was spotty. The *Southern School News* reported intensified opposition in seven states—Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Virginia. All of these states except Virginia opened the school year 1955–56 with a constitutional provision or statutory requirement permitting abolition of the public school system or assignment of pupils if desegregation should be enforced. In Virginia, six counties, including Prince Edward where one of the suits in the Supreme Court ruling originated, arranged their finances so that public support could be dropped immediately if courts ordered desegregation.

Progress in desegregation has been hailed rather optimistically by the NAACP. In a report issued May 14, the association's survey stated that nearly 250,000 Negro and white children were attending classes together in 500 public elementary and secondary schools that until 1954 had been segregated. "Admittedly," the report continues, "this is only a tiny minority of the 9,821,000 white and 2,397,000 Negro children enrolled in schools in the segregated areas."

West Virginia and Missouri, both border states, have done the "most effective job" of desegregation, according to the NAACP. In the 44 West Virginia counties in which Negro children of school age live, 29 have initiated desegregation, including 12 that have effected complete integration. In Missouri, 110 of the 177 school districts reporting Negro children have opened previously white schools to colored children.

St. Louis, Baltimore, and Washington have complied with the Supreme Court ruling and desegregated their schools. Some steps have been taken in communities in Texas, Oklahoma, and Kentucky. Arkansas has integrated in four of the state's 228 school districts in which children of both races live.

Petitions from Negro parents, usually backed by local branches of the NAACP, are "popping up all over the South," according to the September issue of *Southern School News*, which counted 118 petitions in 13 states at press time. Pressures of various kinds are being applied by anti-integration groups, whose activity has increased. By late 1955 there were 15 such organizations in the Southern states, including the States Rights League (South Carolina), the Federation for Constitutional Government (Tennessee), White America, Incorporated (Arkansas), and the Defenders of State Sovereignty and Individual Liberties (Virginia).

Educational TV.—With new stations going on the air in Chicago, Detroit, Miami, and Colum-

¹ Mandatory segregation laws were in effect in Alabama, Arkansas, Delaware, Florida, Mississippi, Missouri, North Carolina, Oklahoma, Georgia, Kentucky, Louisiana, Maryland, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Permissive statutes were in effect in Arizona, Kansas, New Mexico, and Wyoming.

bus, the number of educational television stations in operation in the United States totaled 15 (out of 34 authorized) as of Sept. 30, 1955. Programs range from nursery school activities designed for viewing by preschool children to sociological studies of slum conditions, housing, etc. One station is conducting a series of programs on the religions of mankind; others have sequences on Shakespeare, atomic science, appreciation of art, and foreign languages.

Most of the stations offer college credit for some programs through the cooperation of local educational institutions. Station WQED in Pittsburgh operates an Adult High School of the Air. Courses can be taken for full credit toward a high school diploma, with final examinations administered by the Commonwealth of Pennsylvania and the Pittsburgh Board of Education.

The cost of educational television presents a serious problem. In San Francisco, for example, Station KQED, in operation a little over a year, broadcast an appeal for \$65,000 to continue on the air. Only three of the 15 stations in operation sold time for advertising. During the past two years national and local foundations have contributed over \$9 million for equipment and construction costs. The Fund for Adult Education (Ford Foundation) has been the chief backer of educational TV, with contributions of over \$5 million. Other millions have been contributed by universities, public school systems, and interested citizens.

Thirty-five colleges and universities now offer credit courses by television. The enrollment procedures are similar to those for other extension courses, with a limitation on the number of credits that can be earned. Many institutions provide a noncredit registration. For a small fee the enrollee receives a syllabus or supplementary reading lists. Noncredit enrollments far outnumber the credit students.

ELEMENTARY AND SECONDARY EDUCATION

U.S. School Enrollments.²—For the eleventh consecutive year, the total school enrollment in the United States increased. Public and private schools and colleges enrolled an estimated 39,557,000 students for the 1955-56 school year, an increase of 1,657,000 over the previous session, according to data compiled by the U.S. Office of Education.

As expected, the greatest increase occurred in the elementary schools. The total of 29,038,000 enrolled in 1955-56 represented an increase of 1,300,000 (4.7%) over the 27,738,000 reported for 1954-55. Approximately 12.6% (3,664,800) of the elementary pupils are enrolled in private and parochial schools.

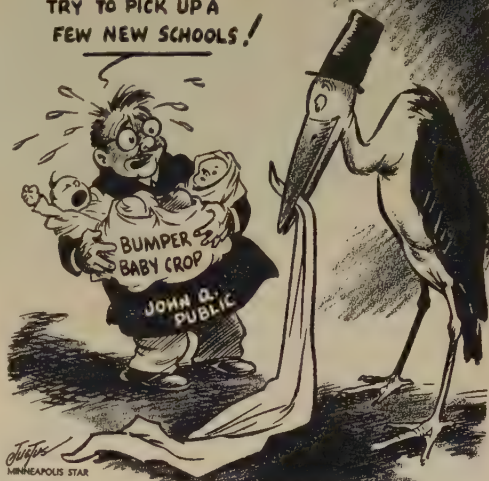
The increased birth rate of the 1940's is having an increasingly greater effect on high school enrollments. The 1955-56 estimated enrollment in secondary schools totaled 7,680,000, an increase of 258,000 as compared with the 7,422,000 enrolled the previous session.

Approximately 10.5% of the high school pupils are in private and parochial schools, the enrollment of which increased from 774,800 in 1954-55 to 805,100 in 1955-56.

The peak in school enrollments is yet to be reached. By 1960 the public elementary and secondary school enrollment is expected to reach 37,363,000, an increase of 12,293,000 pupils in one decade, as compared with the 25,070,000 enrolled in 1949-50. Even a more rapid rate of

² For Canadian enrollment data, see the article CANADA.

ON YOUR NEXT TRIP
TRY TO PICK UP A
FEW NEW SCHOOLS!



JUSTUS IN THE MINNEAPOLIS STAR

—AND SOME MORE TEACHERS"

increase will occur between 1955 and 1965 when the full force of the increased birth rate now being felt in the elementary schools will strike the secondary schools and colleges.

In the next ten years it is anticipated that the total elementary school enrollment will increase by 7,921,000, or 28.6%, and the secondary school enrollment by 4,468,000, or 60.2%. By 1965 the U.S. Office of Education estimates that there will be 35,659,000 pupils in elementary schools and 11,890,000 in high schools.

Shortage of Teachers.—As school enrollments increase, the shortage of teachers continues to grow more acute. In 1954-55 there were 1,065,803 elementary and secondary teachers in the public schools of the United States, plus an estimated 136,000 in private and parochial schools, or a total of 1,201,800 teachers employed.

Of this number, 91,200, representing 8.6% of all teachers, held emergency certificates. Almost five sixths of the emergency teachers were concentrated in the elementary schools. In addition, there were many thousands of teachers who met only minimum standards of preparation.

Approximately 7.5% of the teachers leave the profession each year for various reasons (retirement, marriage, nonteaching positions, death, etc.). This means that 83,300 qualified teachers had to be replaced at the end of the 1954-55 session.

The 1955 *Teacher Supply and Demand Report* of the National Education Association states that 86,696 men and women graduated from United States colleges and universities in 1955 with standard preparation for teaching. Of this group, 35,278 completed four years of college preparation for teaching in elementary schools, and 51,418 for teaching in high schools.

On the basis of previous studies, however, it is estimated that only 79%, or 27,800, of the potential elementary teachers will actually accept teaching positions; in the high school field, only 56%, or 29,000 of the newly qualified teachers, will actually go into classroom service.

These 56,800 teachers are not enough even to care for the necessary replacements as indi-



"Schoolroom Progress U.S.A.," a two-car train exhibit depicting more than a century of progress in American educational facilities, is sponsored by THE ENCYCLOPEDIA AMERICANA and the Henry Ford Museum and Greenfield Village of Dearborn, Mich. The "Little Red Schoolhouse" car, shown above, contains authentic models of 19th century classrooms, with items from the Henry Ford Museum and Greenfield Village, including a log cabin school of 1810.

cated above. When the supply is increased by an estimated 25,000 emergency teachers who will enter the profession, there is still no provision for meeting the increased enrollment in 1955-56, which should have the services of 55,200 additional teachers.

To replace the emergency teachers employed in 1954-55 and to provide adequately for the increased enrollment in 1955-56 would require the services of 141,300 additional teachers. This shortage is being met by the employment of additional emergency teachers, by the re-entrance of former teachers into the profession, and by further overcrowding.

Nearly one million elementary school pupils are on half-day sessions because of the shortage of teachers or classrooms. This practice is most widespread at the lower grade levels, among the young children least prepared to learn effectively through individual, undirected effort.

A number of states offer scholarships to encourage college students to prepare for teaching, particularly in the elementary grades. In some cases the aid is in the form of loans which are cancelled at a given rate as the recipient teaches in the public schools of the state.

Recently many liberal arts colleges and state universities have added elementary education curriculums. Others have inaugurated "dual" programs to prepare for both elementary and high school teaching. Still others have introduced special summer programs to enable liberal arts graduates to qualify for elementary teaching.

School Building Needs.—The school building shortage has been mounting over a period of years. Back in 1930 it was estimated that 120,000 classrooms were needed to replace obsolete and overcrowded facilities. Little construction took place during the war years.

The School Facilities Survey of December 1953 reported a total of 245,417 classrooms currently needed: (1) to replace obsolete buildings, 126,680; (2) to house enrollment increases, 45,316; and (3) to relieve overcrowding, 73,421. This report was based on data received from 43 of the states. The estimated cost of these classrooms and related facilities was \$7,408,267,989.

Needed and projected school construction for the five-year period from September 1954 to September 1959, as reported by the various states, totaled 476,000 classrooms.³ Even this goal is not being reached at the current rate of construction. During 1954-55 some 60,000 new classrooms were built. Approximately 104,000

classrooms a year would have to be constructed during the remaining four years for the five-year goal to be achieved.

Many obstacles stand in the way. In various school divisions it will be necessary to float bond issues, raise debt limits, raise assessments, or provide state or federal aid to achieve the classroom goal by 1960.⁴

Total school construction, however, has expanded greatly. According to statistics compiled by the Commerce and Labor departments, over \$2.6 billion was spent on it in 1954, as compared with about \$100 million in 1945. The accelerated rate is continuing, and it is estimated that school construction in 1955 will approach \$3.25 billion.

Public Law 24, enacted by Congress in April 1955, provided \$70 million for needed classrooms in school districts adjacent to federal installations or defense projects, along with an additional \$20 million for current operating expenses of schools in those areas through the fiscal year 1955.⁵ Including funds requested for the fiscal year 1956, total financial assistance furnished by the federal government to schools in federally affected areas will amount to \$609 million for school construction and \$353 million for maintenance and operation.

White House Conference on Education.—The White House Conference on Education was held in Washington, D.C., Nov. 28—Dec. 1, 1955. Broadly conceived, the general purpose of the conference was to involve citizens and educators in a study of current educational problems.

During 1955, preliminary state and regional conferences were held, financed by an appropriation of \$900,000 provided by the 83d Congress. At these meetings educators and lay citizens identified and discussed educational problems in their areas. President Eisenhower, honorary chairman of the committee, appealed for "the most thorough, widespread, and concerted study that the American people have ever made of their educational problems." A national committee of 33 members, headed by Neil H. McElroy, president of Procter and Gamble Company, and made up of representative leaders in business, agriculture, industry, labor, education, publishing, and

⁴ Over 30 measures providing federal aid for school construction were introduced during the first session of the 84th Congress. One provided \$500 million a year for two years for grants-in-aid to the states. Another provided 50-50 matching grants over a six-year period. Still another provided a five-year program for the purchase of construction bonds, for school construction loans, and for direct grants-in-aid. None of these bills was enacted.

⁵ The program of federal financial assistance to schools in federally affected areas was originally authorized by Congress in 1950 under Public Laws 815 and 874. The Eighty-third Congress extended the program to June 30, 1956.

³ These figures are based on the school building plans of the various states. School housing officials regard it as a realistic goal of minimum needs and not necessarily an assurance that needs will be adequately met.

The "Schoolroom Progress U.S.A." educational exhibit was launched at Philadelphia on Sept. 21, 1955, and will visit hundreds of major cities during its three-to-five-year tour of the U.S. The modern classroom car, shown above, depicts five rooms, showing the most modern classroom architecture, equipment, and audio-visual devices, along with architect's drawings and photographs of outstanding examples of today's school buildings and classrooms.

other fields, was appointed by President Eisenhower and charged with the general responsibility for the program of the conference.

Six main topics were recommended for the local and state conferences, and these became the agenda for the national conference: (1) What should the schools accomplish? (2) In what ways can the schools be operated more efficiently and economically? (3) What are the school building needs? (4) How can enough good teachers be secured and kept on the job? (5) How can the schools be financed, built, and operated? (6) How can a continuing public interest in education be obtained?

Provision was made for the traveling expenses to Washington of 1,400 representatives from the various states and territories, allocated on the basis of population with no state having less than ten representatives. In addition, invitations were issued to 300 national organizations to send representatives. Congressmen, educational specialists, foreign observers, and special guests made up the balance of the 2,000 persons who participated in the conference.

Highlighting both the discussions and the final report of the conference was the strong stand taken for federal aid to education. By a ratio of over two to one, the conference delegates supported this solution to the financial problems facing the schools. In their discussions the delegates were overwhelmingly in favor of federal aid for school construction. About half even favored federal funds to aid the daily operation of schools.

A majority agreed that federal funds should be granted only on the basis of demonstrated need. There was almost unanimous opposition to any federal control over the use of allocated funds in local school districts. A large majority of the delegates opposed the use of tax funds for the support of private and parochial schools.

The need for some form of federal aid was expressed in a five-minute filmed message from President Eisenhower. This stand was reiterated in person by Vice President Nixon, the opening speaker. However, it was the address of Secretary of Health, Education, and Welfare Marion B. Folsom, the final speaker of the four-day conference, which convinced observers that the administration was now ready to move on this issue.

Secretary Folsom said that the bill which the administration will present to Congress will be drawn up on the basis of these general principles: (1) aid in building schools should not reduce the incentive for state and local effort; (2) assistance should be distributed according to need; and (3) freedom of local school systems should not be endangered. (New York Times, Dec. 4, 1955.)

HIGHER EDUCATION

College and University Enrollments.—The 1954 fall enrollments in institutions of higher education totaled 2,499,750, an increase of 249,049, or 11.1%, over the number enrolled in the fall of 1953. Women constituted approximately 36% of the total enrollment. In 1954 there were 1,601,984 men and 897,766 women. The proportion of men students is increasing slightly.

Comparative fall enrollment data for 1953 and 1954, by type of institution, as reported to the U.S. Office of Education, are shown in the accompanying table.

ENROLLMENT IN INSTITUTIONS OF HIGHER EDUCATION, 1953 AND 1954

Type of institution and number reported*	Fall enrollment		Gain (%)
	1953	1954	
Universities (141).....	1,080,950	1,166,459	7.9
Liberal arts colleges (723).....	578,835	637,449	10.1
Separately organized professional schools:			
Teachers colleges (193).....	185,945	216,032	16.2
Technological schools (48).....	74,458	80,228	7.7
Theological schools (114).....	27,385	28,760	5.0
Other (125).....	51,037	54,838	7.4
Junior colleges (513).....	252,091	315,984	25.3
All institutions (1,857).....	2,250,701	2,499,750	11.1

* Figures in parentheses represent number of institutions of each type reported in the fall of 1954.

It will be noted in the table that junior colleges, with an increase in enrollment of 25.3%, registered the greatest gain from 1953 to 1954. Separately organized teachers colleges gained 16.2% in enrollment, which is also considerably in excess of the average increase of 11.1% for all institutions. The increase in number of first-time students in both of these types of institutions also exceeded the national average.

By type of control, the publicly controlled institutions increased 15.9% in enrollment between 1953 and 1954, while the privately controlled increased 5.5%. In enrollment of first-time students, the increases were 14.2% and 9.9%, respectively.

The 1955 estimated fall enrollment for all institutions of higher learning was 2,591,000 (1,666,000 men and 925,000 women), an increase of 91,250, or 3.65%, over the number enrolled in the fall of 1954. The U.S. Office of Education estimated the number of first-time students in the fall of 1955 to be 637,000.

The enrollment of college-grade students is currently the largest in the history of the United States, exceeding even the peak reached during 1946-50 when over a million veterans were enrolled each year. Statisticians now predict a further rise in enrollments in the next few years

that threatens to engulf the country's colleges and universities.

Typical of the studies that have been made is *The Impending Tidal Wave of Students*, published by the American Association of Collegiate Registrars and Admissions Officers, which, on the basis of current birth rates and school enrollments, makes the following predictions:

(1) Approximately one third of our youth of college age now attend college. If there is no further increase in the percentage of college-age youth attending college, and the only increase is in the number of college-age youth in the population, there will be over 4 million in our colleges and universities by 1970.

(2) If the trend of increasing proportional attendance continues until 1962 at the rate of 1% a year—the pattern established over the last 20 years—there will be approximately 5½ million students enrolled by 1970 (40% of college-age youth attending).

(3) If the proportional attendance continues to increase by 1% a year until 1970, which is entirely possible, there will be 6½ million students enrolled (50% of college-age youth attending), which is more than two and one-half times the present enrollment.

Projected enrollments, according to the foregoing three bases of prediction (percentages of youth of college age enrolled), are as follows:

Year	(1) 31% enrolled	(2) 40% enrolled	(3) 50% enrolled
1955-56.....	2,505,206	2,747,645	2,747,645
1960-61.....	2,874,678	3,616,531	3,616,531
1965-66.....	3,617,874	4,667,979	5,134,778
1970-71.....	4,219,047	5,443,932	6,668,817

The rapid growth of higher education in the United States is difficult to realize. U.S. Office of Education statistics cited in the above-mentioned bulletin tell the story briefly. In 1900 there were 238,210 students in the country's colleges and universities; in 1910, 339,578; in 1920, 531,339; in 1930, 1,082,443; in 1940, 1,499,109; and in 1950, 2,439,910. The estimate of over 4,200,000 students by 1970 is a conservative one. Unless there is a change in our philosophy of higher education, a much larger number can be expected.⁶

Plight of the Colleges.—In 1954 the *Economic Report of the President* (transmitted to Congress on Jan. 28, 1954) estimated that United States colleges were already \$6 billion behind in their building programs. On Aug. 11, 1955, President Eisenhower signed Public Law 345 continuing and expanding the present college housing loan program to provide student facilities. Loans can now be made for service facilities, such as dining halls, cafeterias, and student unions. The loan fund was raised to \$500 million, of which \$100 million was made available for auxiliary facilities; the rate of interest is 2¾%.

Nearly half of the nation's colleges and universities are operating in the red, according to a survey made by the Council for Financial Aid to Education.⁷ Although tuition fees in the 753 reporting institutions have risen 26% since 1947-48, the average cost of operation has in-

⁶ As evidence of the impact of the higher birth-rate on potential college attendance, it should be noted that in 1953 there were 8,001,654 young people of college age in the United States. By 1960 this number will have risen 16% to 9,273,157; by 1965, 46% to 11,669,949; and by 1970, 70% to 13,609,831. In other words in the period 1954-70 there will be an actual increase of 5½ million in the number of young people of college age.

⁷ See "The Financial Status of Colleges and Universities in the United States," *Higher Education*, May 1, 1955.

creased 50%. Faculty salaries have risen an average of 88%, as compared with a 93.4% increase in the cost of living during this period. The 753 institutions participating in the CFAE survey reported a need of \$2.5 billion for buildings and equipment over the next 10 years, plus \$3 billion in additional endowment to meet mounting costs of operation, especially faculty salaries.

Grants for Faculty Salaries.—The Ford Foundation announced on March 6, 1955, the allocation of \$50 million to raise faculty salaries, and appointed a committee of educators and businessmen to advise on its distribution. Between 50 and 100 private, regionally accredited liberal arts institutions will receive grants ranging from \$100,000 to \$1 million, and will be expected to raise matching funds from other sources.

On December 12, the Ford Foundation allocated an additional \$210 million for the same purpose, the money to be divided among all 615 private, 4-year liberal arts and science colleges and universities in the United States. With \$90 million for private medical schools and \$200 million for voluntary hospitals allocated on the same date, the new grants total \$500 million, the largest amount ever given for philanthropic purposes at one time.

Aid from Corporations.—American business firms are giving millions to help American colleges. The *New York Times* ("The Corporation and the Campus," April 17, 1955) estimated that corporate giving in 1955 would total \$100 million, in addition to the \$50 million Ford Foundation grant for faculty salaries.

Among gifts announced in 1955 were \$1 million from U.S. Steel Corporation to over 400 colleges in 43 states, its second annual grant; \$150,000 from Standard Oil of Indiana to liberal arts colleges in the Midwest; and \$42,000 from International Harvester Company to 11 state associations of colleges. General Electric Company has offered to match dollar-for-dollar gifts up to \$1,000 a year which its employees make to the colleges from which they graduated (\$250,000 was expended under this program in 1955). The company spent an additional \$1 million on scholarships, fellowships, grants, and equipment assistance.

National Scholarship Fund.—In September 1955 the Ford Foundation, together with the Carnegie Corporation and several business firms, announced the formation of the National Merit Scholarship Corporation. With a \$20 million grant from Ford and \$500,000 from Carnegie, the project is the largest independent scholarship program ever established in the United States. The group will award \$1 million a year for 10 years in four-year scholarships. An additional \$8 million is available for matching contributions from business and industry, plus \$2.5 million for developing and operating the program.

Awards will be based on student needs and will range from an honorary \$100 grant to full tuition and living costs. The average four-year scholarship is estimated to cost about \$6,000. It is expected that approximately 350 grants will be made to high school seniors during the first year of the program.

Two other important grants have been announced: the Sears-Roebuck Foundation has made a grant of \$600,000 for 100 student awards the first year, and Time, Incorporated, has allotted \$30,000 for five scholarships. Other corporations are expected to join the movement.

In an article announcing the Ford grant, the *New York Times* (Sept. 11, 1955) comments on

the increase in the number and value of scholarships available to college students. In 1936 there were 72,505 scholarships and fellowships available at a value of \$11,440,000. By 1950 the number had increased to 156,923, with a total value of \$41,700,000. It is estimated that about 200,000 scholarships and fellowships, valued at more than \$50 million, are now available to college students.

Degrees Conferred.—The U.S. Office of Education reports that 358,699 earned degrees were conferred by higher educational institutions in 1953–54. By type of degree, the awards were distributed as follows: bachelor's and first professional, 292,880 (187,500 men and 105,380 women); master's and second professional, 56,823 (38,147 men and 18,676 women); doctor's, 8,996 (8,181 men and 815 women).

Over 10,000 degrees were conferred in each of five major fields: education, 74,846 (20.9% of all degrees); business and commerce, exclusive of accounting, 35,164 (10.1%); engineering, all fields, 27,127 (7.6%); English, 14,596 (4.1%); and history, 10,960 (3.1%).

The most popular fields for the various degrees, and the number awarded in each were as follows: Bachelor's and first professional—education, 47,383; business and commerce, 33,483; and engineering, 22,329. Master's and second professional—education, 26,075; engineering, 7,398; and business and commerce, 3,623. Doctor's—education, 1,388; chemistry, 1,013; and psychology, 619.

(See also OFFICE OF EDUCATION, U.S.; the *Education* section of articles on the states, Canadian provinces, and countries; and the Index entry, *Education*.)

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EGGS. See Index entry.

EGYPT. This Arabic-speaking country of northeastern Africa (area, 386,198 square miles) lies east of Libya and west of Palestine and the Red Sea. Almost 97% of Egypt is desert; only the Nile Valley, its delta, and a few oases in the Western Desert are cultivable.

Population.—Egypt's population was officially estimated at 23,240,000 on July 1, 1955. The capital city is Cairo (pop., 1953 est., 2,500,000), and Alexandria (1953 est., 1,000,000) is the chief port. Other leading cities, with 1953 population estimates, are Port Said (200,000), Tanta (180,000), and the textile "workers' city" of Mahalla el Kubra (180,000). The nomadic population (1953 est.) is close to 100,000.

Government.—During 1955, scheduled to be the last year of the transitional government of the Revolution, executive power remained in the hands of the Revolution Command Council established in 1952, though the membership of this purely military group was reduced from 11 to 9 officers. The Republic of Egypt, proclaimed in 1953, remained without a president after the fall of Gen. Mohammed Naguib on Nov. 14, 1954. A cabinet, partly civilian in composition, shared the duties of the presidency with the premier, Lieut. Col. Gamal Abd el-Nasser. The government was assisted in forwarding its ambitious reconstruction program by a National Production Council and a Permanent Council for Public Services; the former promoted the economic development of Egypt, and the latter coordinated the welfare activities of various ministries.

The Revolution Command Council renewed its pledge to establish parliamentary government early in 1956, and a new Egyptian Constitution, drafted by a 50-man committee, was promised (announced for Jan. 15, 1956). Government plans included representation for all classes in the proposed Parliament, the continued suppression of political parties, and the abolition of all religious (Moslem and non-Moslem) courts. As of January 1956, the civil courts are to be entrusted with the administration of Islamic law, as well as the religious laws of the various Christian and Jewish minority communities.

Finance.—The healthy state of Egypt's economy was reflected in the record budget estimates of July 1955.

Egypt's reserves of foreign currency (including gold, sterling, and dollars) rose to £E276 million¹ in April 1955 (£E265 million in 1953); the total ordinary accounts of the government in the National Bank of Egypt rose to £E38,250,000; the total value of treasury bills fell to £E54 million in May 1955 (£E99.5 million in February 1954); total deposits in banks rose to £E283.5 million in April 1955 (£E218.5 million at the end of 1952); and total deposits in savings banks, over the same period, rose from £E30 million to £E52.8 million. Meanwhile, the number of bank notes in circulation decreased to £E167.8 million.

According to government estimates of revenue and expenditure, Egypt's total budget for 1955–56 balanced at £E315,258,972 (£E303,003,333 for 1954–55). The new budget was divided into three separate, independently financed budgets. The ordinary budget balanced at £E238,300,000; a budget for the development of the national economy balanced at £E54,248,972; and a budget for the Permanent Council for Public Services balanced at £E22,710,000. The greatest increases in expenditure were allocated to health and education. The government found no need to impose new taxes or to raise existing ones.

Religion and Education.—More than 91% of Egyptians are Sunnite Moslems. The Coptic Christians (6.8%) have been well treated by the Revolutionary government, as have Egypt's small Eastern Christian, Roman Catholic, Protestant, and Oriental Jewish communities.

Primary schooling is free and compulsory, and secondary schooling is free. In 1954 there were 7,492 primary schools (1,438,465 pupils); 595 secondary schools (361,650 students); 85 industrial, commercial, and agricultural schools (27,129 students); and 80 teacher training schools (23,000 students). The Institute for Popular Culture, sponsoring a wide variety of adult education programs, enrolled 18,196 men and women in its 18 urban centers.

The University of Cairo (20,771 men and women students enrolled in 1954), the University of Alexandria (9,624 students), and the University of Heliopolis (16,039 students) are all government supported. The Moslem University of al-Azhar (founded in the 10th century) had 32,739 students in its colleges and affiliated institutes. The American University at Cairo had about 900 students.

Agriculture and Industry.—The Revolutionary government, after making a systematic survey of Egypt's economy, embarked on long-range development plans. It was recognized that the nation's most serious problems stemmed from the overpopulation of a relatively small cultivated area (about 6 million feddans in 1954; 1 feddan = 1.038 acres); that the population was growing at a rate of over 500,000 a year; and that agriculture (in which about 73% of the population was engaged) contributed about one third of the national income.

The government accordingly determined on the following economic development policies: (1) exploitation of all natural resources; (2) large-scale land reclamation, industrialization, and extended public services (to raise the general standard of living); and (3) increased production in all fields (to raise the national income). It promoted economic stability by avoiding inflation (seeking increased funds for development projects through internal and external loans), and created favorable conditions for private (foreign and domestic) investment in Egypt. By 1955, new private investment exceeded £E11.6 million (£E7.9 million in 1953).

Furthermore, the government sought to improve the balance-of-payments position through diversification of exports, continued restrictions on luxury imports and on imports of commodities produced domestically, and the encouragement of tourism and transit trade. In 1954 there was a balance-of-payments surplus of over £E3 million, as compared with a deficit of over £E8 million in 1953. A total of 300,000 tourists visited Egypt in the year 1954–55.

The kingpin of the government's public utility projects is the High Dam to be built on the Nile 4 miles south of the present Aswân Dam.

¹ At the official rate, the Egyptian pound (£E = U.S.\$2.872).



UNITED PRESS

(Left) Egyptian troops race toward police station, dynamited by Israelis during Gaza strip incidents in 1955. (Right) U.S. Assistant Secretary of State George V. Allen (l.) and U.S. Ambassador Henry Byroade (r.) greet Egyptian Premier Nasser, Oct 1, 1955, during efforts to persuade Egypt to cancel its arms deal with Czechoslovakia.

This dam, which is to have four times the capacity of Hoover Dam, is expected to provide 2 million more feddans of cultivable land and from 6 to 10 billion kw.-hr. of electric power for industry. With its ancillary works, it will cost about £E209 million and will take 10 years to build. When completed, it will presumably increase the national income by more than 20%. Foreign loans will be necessary to help construct the High Dam. Offers of aid from the USSR, disclosed in October 1955, were part of the Soviet penetration of the Middle East (see below, *Principal Events*, 1955). The Egyptian government, however, preferred to obtain a loan from the International Bank for Reconstruction and Development, with which negotiations were in progress, and assistance from the United States.

In rural areas the policies of the Revolution were actively advanced during 1955. Potable water was brought to many villages; by August, 140,000 feddans of confiscated land had been distributed to the peasants; more rural social centers for health and education were completed, bringing the total to 180 (161 in 1953); and silos for grain storage were constructed. Work in the new Liberation (al-Tahrir) Province (600,000 feddans in the western Nile Delta) was pushed energetically. This is one of two pilot demonstration projects undertaken partly with United States aid. The second one (80,000 feddans) is in Beheira and Faiyûm provinces. By mid-1955, 2,000 feddans had been reclaimed in the latter, and 10,000 feddans in Liberation Province.

The total cotton acreage was 1,579,427 feddans (1,324,304 feddans in 1953). Cotton production in 1954-55 totaled 7,746,358 kantars (1 kantar = 99.05 pounds). With a carry-over of 1,671,292 kantars (from September 1954), the season's cotton supply was 9,417,650 kantars. Other crops in 1954 included 8.2 million kantars of sugarcane, 12.3 million ardebs² of corn, 11.5 million ardebs of wheat, and 1,093,000 metric tons of rough rice.

In the industrial field the textile industries still ranked first in 1954-55. (A total of 64,340 metric tons of cotton yarn and 241,000 metric tons of woven cotton fabrics was produced in 1954.) Other well-established industries included

food processing, cigarette, chemical, and metal manufactures, leather and leather goods, cement, soap, matches, glass, paper, beer, vegetable oils, and cotton ginning and pressing.

Half a dozen foreign and two Egyptian oil companies continued to exploit or search for oil in 1955. They all operated under equal rights, and some new wells were discovered. Crude oil production amounted to 2,388,420 metric tons in 1954; 2,376,330 metric tons of oil were refined in Egypt, and domestic oil supplied 55% of Egypt's needs. Other minerals (with production figures for 1953-54) include phosphate (484,176 metric tons), manganese (278,806 metric tons), iron ore and oxides, salt, talc, soda, and gold.

Foreign Trade.—In 1954 the total value of exports was £E138.3 million (£E135.8 million in 1953); of imports, £E159.6 million (£E174.7 million in 1953). Egypt's trade in 1954 was carried on chiefly with the following countries:

	Exports (millions) £E18.2	Imports (millions) £E 3.9
India.....	15.8	15.4
France.....	14.3	20.0
United Kingdom.....	11.4	17.8
West Germany.....	10.4	12.0
Italy.....	6.8	0.9
Japan.....	6.4	27.7
United States.....		

Between Sept. 1, 1954, and Aug. 31, 1955, Egypt exported 5,500,113 kantars of cotton (7,223,425 kantars in 1953-54). On Sept. 27, 1955, the Alexandria Cotton Futures Market, which had been closed since November 1952, reopened with controls to ensure equilibrium with Liverpool.

Transportation and Communications.—Egypt has 1,782 miles of paved and 7,163 miles of unpaved roads (1951-52), 88,892 motor vehicles (Dec. 31, 1953), 135,388 telephones (1954), and 305,000 licensed radio receivers (1953). Expansion in all fields of communication, initiated in 1953-54, was continued in 1955. A direct telephone link was established with Syria via Amman, Jordan. The Egyptian State Railways, reorganized as an independent agency in 1954, operated over 3,938 miles of track. MISRAIR, an Egyptian subsidized airline, serviced the entire Middle East; and a civil aviation agreement was signed with Syria on July 3, 1955, providing for regular air services between the two countries.

² 1 ardeb of corn = 309 pounds; 1 ardeb of wheat = 331 pounds.

The Suez Canal Company, registered as an Egyptian firm with headquarters in Paris, holds a concession due to expire in 1968. Receipts from Suez Canal dues reached £E30.3 million in 1954 (£E28.9 million in 1953). A record 13,215 ships passed through the canal in 1954, carrying 102,493,851 net tons of freight.

Principal Events, 1955. Foreign Affairs.—Egyptian leaders made many significant foreign policy statements in the course of the year. In these they declared that they sought the closest possible unity with the Sudan; abjured war with Israel, but stated that Egyptian territory would be defended against aggression; and took a firm stand against defensive alliances with any non-Arab power.

At an Arab conference held in Cairo on January 22–February 6, Egypt, in cooperation with Syria and Saudi Arabia, led a strong protest movement against the pending Turkish–Iraqi pact (signed February 24). Later in the year, on October 20 and 27, Egypt signed mutual defense treaties with Syria and Saudi Arabia, respectively. At the Asian–African Conference (q.v.), held at Bandung, Indonesia, on April 18–24, Premier Nasser urged peaceful coexistence between the Communist bloc and the West, limitation of armaments, and collaboration with the United Nations. Nasser's work as a committee chairman at this conference won him much praise, and he helped to obtain the expressed support of all the Asian nations for the Arabs of Palestine and of French North Africa.

In the Sudan, Egypt faced a delicate situation in 1955. After the deposition of President Naguib in 1954, the cordiality of the Egyptian–Sudanese entente had cooled. The pressure politics of Maj. Salah Salem, Egyptian minister of national guidance and minister of state for Sudan affairs, now became increasingly distasteful to the Sudanese. A strong movement developed in the Sudan against political union with Egypt, and there was sharp disagreement over the allocation of the Nile flood waters. On August 29, Salem resigned, and Premier Nasser personally took over the direction of Egypt's Sudan policy. On October 29, it was announced that Egypt had accepted the principle of a plebiscite in the Sudan on its future political status.

Egyptian–Israeli relations constituted the worst problem of the year. The Gaza strip and El 'Auja demilitarized zone were frequently the scene of fighting. Despite appeals and warnings to both sides by the United States, Great Britain, and the United Nations, the situation continued to deteriorate. On March 29, the U.N. Security Council condemned Israel for an attack on the Gaza strip on February 28, and both sides were censured several times by the Egyptian–Israeli Mixed Armistice Commission. Early in June, Premier Nasser warned Israel that any attempt to occupy the Gaza strip would lead to war. Unremitting efforts by Maj. Gen. E. L. M. Burns, chief of staff of the U.N. Truce Supervision Organization in Palestine, led to triangular talks beginning June 28. Burns paid tribute to Egypt (in May) for giving "full cooperation" to the armistice commission in its efforts to maintain peace. But these were unsuccessful, and were ended on August 24. There was a recurrence of fighting soon thereafter, and again in late September. On October 2, both sides withdrew their troops from El 'Auja zone. A month later, on November 2, however, the heaviest fighting since the 1949 armistice occurred, with an Israeli attack on an Egyptian post in the zone.

(For further details of the Egyptian–Israeli conflict, see ISRAEL.)

The political issues leading to this explosive situation were of long standing. A state of war technically continued to exist after the armistice of 1949, and Egypt refused to consider negotiating a peace treaty until the United Nations resolutions of November 1947 were implemented in Palestine. When it came to the United Nations-sponsored talks on border security, Egypt would negotiate only under the auspices of the U.N. Truce Supervision Organization, lest direct negotiations imply recognition of Israel.

In the absence of a peace treaty, Egypt participated with the other Arab League countries in an economic boycott of Israel. To make sure that strategic materials were not being carried to Israel, on July 3, 1955, Egyptians even fired on and searched the British ship *Anshun* in the Gulf of Aqaba, which Egypt considers part of its territorial waters.

On September 27, Premier Nasser announced a barter agreement with Czechoslovakia, a "strictly commercial" exchange of heavy arms and planes for Egyptian cotton and rice. When the United States, disturbed by this extension of Soviet bloc influence into the Middle East, expressed its concern, the Egyptians explained their position thus: After the February attack in the Gaza strip, Egypt had turned first to the West for help, but the West had denied all appeals for heavy arms (except under the terms of a mutual security agreement, which Egypt refused to sign). Egypt then learned that France was sending jet planes and heavy arms to Israel. National security required that heavy arms be obtained, without strings attached, from any available source, and no reorientation of policy toward the West was implied. Egypt had been urgently in need of cotton markets, and the Czech accord is merely the latest in a series of economic agreements with the Soviet bloc.

Egypt had good relations with two of the three major Western powers in 1955. The British

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evacuation of the Suez Canal Zone progressed smoothly and ahead of schedule. A revised sterling releases agreement was signed in Cairo on August 29, doubling the annual release (to £20 million) between 1956 and 1960. On February 23, the United States and Egypt signed four agreements allocating \$23,337,000 in United States aid for development projects and technical cooperation in public health programs. But relations with France deteriorated because of Egyptian support of nationalist movements in Tunisia, Algeria, and Morocco.

Internal Conditions.—On the home front the year 1955 opened with public trials of Moslem Brotherhood terrorists (15 were sentenced to death between Dec. 14, 1954, and Jan. 19, 1955), Zionist spies (2 were sentenced to hang on January 27), and Communists. Stern action was taken against narcotics smugglers and forgers, and tax evaders, and gambling was outlawed for all Egyptians. Press censorship was continued, but free discussion of the future form of government was allowed after May.

During the year, Egypt was host to Arab postal, medical, and scientific congresses and a regional meeting of the World Health Organization. More archaeological discoveries were made, and the great 32-foot statue of Rameses II was brought from Memphis and erected in Cairo.

CHRISTINA PHELPS HARRIS,

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EINSTEIN, Albert, German-Swiss-American theoretical physicist; b. Ulm, Germany, March 14, 1879; d. Princeton, N.J., April 18, 1955. Devoting his life to the quest for the basic laws governing the universe, he originated the theory of relativity which, more than any previous concept, has broadened man's understanding of the cosmos. He also was the first to explain the photoelectric effect, which eventually made possible, among other technological advances, the development of talking motion pictures, television, and methods of electronic control. Einstein also explained the phenomenon known as the Brownian motion, thereby providing direct proof of the existence of the molecule and enabling experimental scientists to observe the effects of molecules in motion and to determine their number in any given unit of volume.

Born of unorthodox Jewish parents, Albert Einstein grew up in Munich, Germany, where his father operated an electrical supply works. In 1894, when the business failed, the family moved to Milan, Italy, but young Einstein remained to continue his schooling at the Luitpold Gymnasium. Unwilling to adjust to a philosophy of education that was alien to his inquisitive nature, he left Munich soon afterward to join his parents in Italy. Subsequently he studied at the cantonal school in Aarau, Switzerland, and at the Federal Institute of Technology in Zurich (1896-1900). In 1902 he was appointed examiner of patents in Bern, a position he held until 1909. During these years he became a citizen of Switzerland, obtained his Ph.D. degree at the University of Zurich, and published his first scientific papers, including *The Electrodynamics of Moving Bodies* (1905), his initial statement of the epoch-making "special" theory of relativity.

The young scientist's work impressed Max Planck, the German physicist who originated the quantum theory, and as a result he was appointed adjunct professor of theoretical physics at the University of Zurich in 1909. In 1911 he was

named to the chair of physics at the German University in Prague, and a year later, full professor of theoretical physics at the Federal Institute of Technology in Zurich. He became director of the Kaiser Wilhelm Institute for Physics in Berlin in 1914, after which he resumed his German citizenship.

In 1916 he published his "general" theory of relativity, which was effectively corroborated by photographic observations made during the eclipse of the sun in 1919 and subsequently; and in 1929 he published his first of many attempts to develop a unified field theory.

In 1932, while Einstein was visiting professor at the California Institute of Technology, he was invited to join the staff of the then-planned Institute for Advanced Study at Princeton, N.J. Although he returned to Europe in 1932 and early 1933 for brief visits to England and Belgium, the advent of the Nazi regime in Germany forced him to abandon his homeland, and in 1933 he arrived at the Institute for Advanced Study as professor of mathematics and theoretical physics, devoting full time to his research. His property in Germany was confiscated by the Nazis in the following year, and his German citizenship was taken from him. In 1940 he became a citizen of the United States. Although he retired in April 1945, he continued his research into the twilight of his life, hoping to discover the one all-embracing law of the cosmos.

Dr. Einstein died of a ruptured aorta at the age of 76 at the Princeton Hospital. His body was cremated, but at the request of his elder son, Hans Albert, his brain was removed for scientific study at the hospital. He had been married twice: in 1901, to a Serbian fellow student, Mileva Maréc, by whom he had two children, Hans Albert and Eduard, and from whom he was divorced in 1916; and in 1917, to Elsa Einstein, a cousin, who died in 1936.

Professor Einstein's life at Princeton was a deliberately cloistered one. Nevertheless he spoke out on political and moral issues that were of concern to him. On Aug. 2, 1939, inspired by fellow scientists, he wrote his now-famous letter to President Franklin D. Roosevelt warning him of the reported large-scale nature of German research in nuclear fission and urging "quick action" by the administration in investigating the possible application of nuclear research to military weapons. This led eventually to the vast Manhattan Project that culminated in the production of the atomic bomb. After the devastating atomic bombings of Hiroshima and Nagasaki, Japan, in August 1945, he devoted much of his time and energy to arousing mankind to the terrible potential of atomic warfare and to the folly of international disunity. He became chairman of the Emergency Committee of Atomic Scientists, a group that strongly advocated supranational control of atomic energy. His ultimate belief was that only total disarmament and a world federation could bring lasting peace.

Einstein had a profound compassion for the politically and economically oppressed. His political ideal was democracy, and he felt that economic planning was a necessary means of eliminating the inequalities inherent in contemporary political and economic systems. In November 1952, after the death of Chaim Weizmann, he was offered the presidency of Israel, but he declined the honor on the grounds that he was not suited for such a position.

Although he followed no orthodox religion, Einstein was by nature a devoutly religious man.

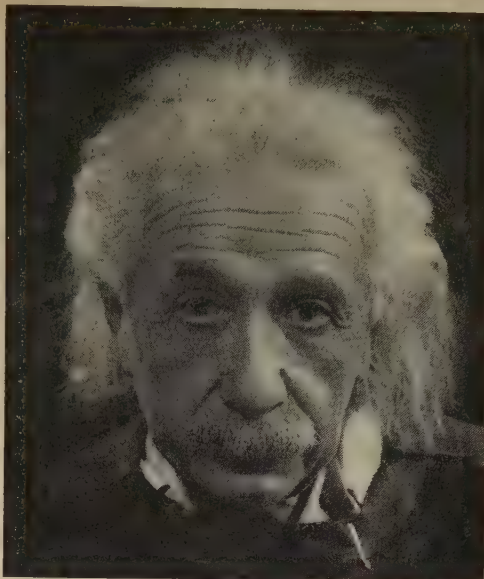
The striving "to experience the totality of existence as a unity full of significance" was the cosmic religion of which he not only spoke but also partook, especially in his approach to scientific research. He spent the mature years of his life in search of a few interrelated basic physical concepts that would unify the various and seemingly unrelated manifestations of the complex universe into one comprehensive synthesis.

Beginning where the Michelson-Morley experiment on the velocity of light (1887) left off, he developed the theory of relativity which held that only the relative motion of objects may be observed, and introduced a fourth dimension—time—as an essential of all physical measurement. This bold replacement of the traditional Newtonian notion of absolute space and absolute time by the idea of a space-time continuum gave scientists an entirely new point of departure in their study of cosmic law, and revolutionized man's view of the universe. It was this special theory of relativity (1905), moreover, that contained the now-famous equation $E = mc^2$ (E equals energy; m , mass; and c , velocity of light), which provided the key to the vast store of energy locked up within the tiny atomic nucleus. Up to that time, matter and energy were believed to be independent absolute entities. Einstein's formula postulated the revolutionary concept that matter and energy are actually different manifestations of one underlying entity: matter is frozen energy; energy is fluid matter. His equation was dramatically confirmed on July 16, 1945, when the first atomic bomb was exploded in New Mexico.

With the general theory of relativity (1916), an extension of the special theory, Einstein introduced a new and revolutionary concept of gravitation. The special and general theories together unified the hitherto unrelated concepts of space and time, matter and energy, and gravitation and inertia into one all-embracing principle, thus summing up, as Bertrand Russell said in 1924, "the mathematical and physical labors of more than 2,000 years."

Despite the magnitude of his achievement, Einstein had not finished his life's work. The universe seemed to flow in two parallel streams or "fields"—the gravitational and the electromagnetic. Only the first had been traced to its source in the geometry of the world—the curvature of the space-time continuum. There still remained the herculean and ultimate task of finding the common source of both "fields" in a larger cosmic pattern than was apparent.

In 1929, when he published his first efforts on a unified field theory, he believed he had arrived at a logically satisfying solution of the disturbing problem, but on closer examination found his insight to be incomplete. Late in 1949 his "generalized theory of gravitation" was announced, marking a further advance toward the synthesis he was seeking. He then announced in March 1953 that the last obstacle had been overcome, and published his findings in the appendix to the fourth edition of his work, *The Meaning of Relativity*. Nevertheless, his unified field theory, besides being at the time incapable of demonstrable proof, was unable to incorporate within its scope the atom and its component parts, which he referred to as "singularities in the field." Despite this crucial limitation he maintained unwaveringly that the concept of "the pure field" was the only real approach to the study of universal phenomena, and that eventually the atom and its components would be un-



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Albert Einstein, renowned physicist, died at Princeton, N.J., on April 18, 1955, at the age of 76.

derstood in terms of the unified field principle.

Einstein's vision of the universe was opposed to that of the great majority of contemporary physicists, who champion the quantum theory, a concept of which, ironically, Einstein himself was one of the major architects. According to the quantum theory—which applies to the forces within atoms, whereas relativity applies to the forces governing the entire macrocosm—all forms of electromagnetic radiation are made up of discrete quanta (bundles) of energy. The material universe is dual in nature, all energy and all matter possessing the properties of both particles and waves. Modern quantum mechanics also leads to the concept that there could be no demonstration of causality in nature, and that all knowledge of events in the atomic world is based on probability and thus can be only statistical in nature.

Despite the dramatic successes of the quantum theory in elucidating many of the mysteries of the atom and radiation and of other properties of matter, Einstein, standing alone before the tide of scientific opinion, intuitively believed that a theory which postulated a universe governed by chance was at best an incomplete one. Thus he tried to prove that the universe of the stars and galaxies is one continuous field in which every event is determined by immutable laws of causality, and that the universe of the atom is governed by the same laws. "I cannot believe," he said, "that God plays dice with the cosmos."

During his lifetime the great physicist was honored by numerous universities and scientific societies throughout the world. He was also awarded the Nobel Prize in physics in 1921 (primarily for his explanation of the photoelectric effect) and the Franklin Institute Medal in 1935. Among his technical scientific publications are: *The Meaning of Relativity* (1923; 4th ed. 1953); *Sidelights on Relativity* (1923); *Investigation on the Theory of the Brownian Movement* (1926); *On the Method of Theoretical Physics* (1933); and *The Evolution of Physics* (with Leopold Infeld, 1938). His nontechnical works include: *About Zionism* (1931); *Why War?* (with Sigmund Freud, 1933); *The World As I See It* (1934); and *Out of My Later Years* (1950).

WILLIAM L. LAURENCE,
Chief Science Correspondent,
"The New York Times."



UNITED PRESS

President Eisenhower, here answering reporter's question, is the first president to have regular television coverage of his press conferences.

EIRE. See IRELAND, REPUBLIC OF.

EISENHOWER, Dwight David, 34th president of the United States: b. Denison, Texas, Oct. 14, 1890. During 1955, President Eisenhower continued to emphasize a middle-of-the-road approach to domestic problems, while in foreign affairs he stressed efforts to secure world peace. After a period of forced inactivity following a heart attack on September 24, he was able to resume direction of the administration, and by December 17 he had made such good progress that he was pronounced out of danger.

Reared in Abilene, Kans., Eisenhower entered West Point in 1911 and was graduated and commissioned a second lieutenant in 1915. During World War I he served as an instructor in various army camps and as commander of Camp Colt, Gettysburg, Pa. Subsequently he was graduated from the Infantry Tank School (1921), the Command and General Staff School (1926), the Army War College (1928), and the Army Industrial College (1933). Between 1929 and 1935 he was assigned to the offices of the assistant secretary of war and of the chief of staff, and from then until 1939 served as assistant to Gen. Douglas MacArthur in the Philippines.

Eisenhower won distinction at maneuvers held in Louisiana in 1941, and on September 29 of that year was appointed to the temporary rank of brigadier general. In February 1942, he became head of the War Plans Division and, in March, of the new Operations Division of the War Department General Staff. In November, he directed the Anglo-American assault on French North Africa, and on Feb. 11, 1943, was named commander in chief of all Allied forces in North Africa. Later in 1943 he led his forces into Sicily and southern Italy. On December 24, he was named supreme commander of the Allied Expeditionary Force and went to London to direct preparations for the invasion of France on June 6, 1944. He was promoted to the rank of general of the army in December, and on May 7, 1945, received the unconditional surrender of Germany.

He served briefly as commander of United States occupation forces in Germany; was named army chief of staff in November 1945; and was installed as president of Columbia University in October 1948. From February to August 1949, on leave from Columbia, he served as temporary chairman of the Joint Chiefs of Staff, and in De-

cember 1950 became supreme Allied commander in Europe. Retiring from the army in June 1952, he received the Republican nomination for the presidency in July, was elected by an overwhelming majority in November, and took office on Jan. 20, 1953.

In his State of the Union message, delivered on Jan. 6, 1955, President Eisenhower began his third year in office by asking the new, Democratic-controlled 84th Congress for its cooperation. His legislative proposals, outlined in this message, were elaborated in his budget message (January 17), in which he forecast expenditures of \$62.4 billion and revenues of \$60 billion in the fiscal year 1956; in the economic report (January 20), in which he predicted an expansion of the economy; and in various special messages. Among these were requests for a three-year extension of the Reciprocal Trade Agreements Act, with authority to cut tariffs by 5% a year for three years (January 10); rises in postal rates and in postal and other federal salaries (January 11); extension of the draft to 1959, a stronger Reserve program, and higher military pay (January 13); a federal health reinsurance program (January 31); a federal-state-local program of school construction, costing \$7 billion (February 8); a 10-year, federal-state-local program of highway construction, which would cost \$101 billion and be financed by special bond issues (February 22); a \$3.5 billion program of foreign aid (April 20); and 10 amendments to the Refugee Relief Act of 1953 (May 27).

In general, the president's legislative program did not differ greatly from that presented in 1954. Innovations included a request that the minimum wage be raised to 90 cents an hour, the Reserve program, and the plan for school construction. In foreign affairs, Congress fulfilled the president's requests in a manner which he characterized as commendable in a press conference on August 4, but the domestic program proved more controversial. In some instances, as in raising the minimum wage to \$1, Congress went beyond the president's proposals; but it shelved others, including those for highways, school construction, and health.

During 1955, President Eisenhower appointed two important new bodies: the Committee on Government Employment Policy, on January 18; and the Commission on Government Security, on November 10. The Foreign Operations Administration (FOA) was replaced by the International Cooperation Administration (ICA), of which the president named John B. Hollister director on April 30. Harold E. Stassen, director of the FOA, was appointed special assistant on disarmament on March 19.

The president met criticism of administration programs by approving seven revisions of the federal security program (March 5), canceling the Dixon-Yates contract (July 11), and issuing a new order on conflicts of interest of men serving the government without compensation (November 28).

In foreign policy, President Eisenhower was concerned during the early part of 1955 with threats by Communist China, and on January 28, Congress gave him requested authorization to use armed force if necessary in the defense of Formosa and the Pescadores. On March 10, to hasten ratification of the expanded Western European Union, he sent letters to the premiers of its proposed members, reiterating United States determination to maintain defense forces in Europe. He signed the instruments of ratification of the

Paris pacts on the sovereignty of West Germany and its admission to the North Atlantic Treaty Organization on April 7, and that of the Austrian State Treaty on June 25. With regard to his Atoms for Peace plan, he proposed, in a speech of June 11, that the United States furnish friendly nations with research reactors and training in their construction and operation; authorized the Atomic Energy Commission on June 24 to increase grants of enriched uranium to friendly nations from 220 to 440 pounds; and sent an encouraging message to the International Conference on the Peaceful Uses of Atomic Energy, held on August 8-20. In a speech at the opening of the tenth anniversary meetings of the United Nations in San Francisco on June 20, he reaffirmed United States support of the organization.

At first skeptical of the value of a Big Four conference, Eisenhower offered on May 10 "to meet with anyone, anywhere," in the cause of peace. At the Geneva Conference (q.v.), held on July 18-23, he suggested an exchange of military blueprints and aerial surveys by the United States and the Soviet Union. His proposals were embodied in a disarmament resolution passed by the U.N. General Assembly on December 16.

The president's views on both foreign and domestic affairs were presented to the public in a more dramatic fashion in 1955, with the filming of his news conferences for television from January 19 until his departure from Washington in August. It was while he was on vacation in Denver in September that the nation was shocked to learn that he had suffered a coronary thrombosis. He made steady progress in recovering his health, however, and on November 11 was discharged from the hospital. Three days later he went to his farm near Gettysburg, where a temporary White House was set up in the post office.

(See also FOREIGN POLICY OF THE UNITED STATES; UNITED STATES—*The United States in 1955.*)

ELECTIONS, U.S. The results of elections held in 1955 generally showed a continuation of the Democratic trend noted in the preceding two years. In the general elections of November 8, the Democrats retained the Philadelphia mayoralty by an overwhelming majority, with the victory of Richardson Dilworth over W. Thacher Longstreth, and they registered gains in municipal elections in Indiana and Connecticut and in the New Jersey Senate. Previously, on April 5, they had succeeded in retaining the mayoralty in Chicago, with the election of Richard J. Daley. The Republicans captured the mayoralty in Denver, with the victory of Will F. Nicholson on June 21, and in November they increased their representation in the Virginia House of Delegates.

There were only two gubernatorial elections in 1955, both held on November 8. In Kentucky, Albert E. Chandler, making a political comeback, defeated Republican Edwin R. Denney; and in Mississippi, Democrat J. P. Coleman was elected without opposition. In elections held to fill vacancies in the U.S. House of Representatives, the Democrats retained the two seats at stake, sons succeeding their fathers in both instances. Paul G. Rogers (6th Congressional District, Florida) was elected on January 11, and John D. Dingell, Jr. (15th Congressional District, Michigan) on December 13.

Mayors elected in 1955 in leading cities included the following (R=Republican; D=Democrat; D-L=Democrat-Liberal; NP=non-partisan):

Baltimore, Md.—Thomas D'Allesandro, Jr. (D), re-elected May 3
 Boston, Mass.—John B. Hynes (NP), re-elected Nov. 8
 Bridgeport, Conn.—Jasper McLevy (Socialist), re-elected Nov. 8
 Chicago—Richard J. Daley (D), elected April 5
 Cincinnati, Ohio—Charles P. Taft (City Charter Committee), elected Dec. 14 from the city council, which was elected Nov. 8
 Cleveland, Ohio—Anthony J. Celebrezze (D), re-elected Nov. 8
 Denver—Will F. Nicholson (R), elected June 21
 Evansville, Ind.—R. Vance Hartke (D), elected Nov. 8
 Fort Wayne, Ind.—Robert Meyers (R), re-elected Nov. 8
 Gary, Ind.—Peter Mandich (D), re-elected Nov. 8
 Hammond, Ind.—Edward Dowling (D), elected Nov. 8
 Hartford, Conn.—Joseph V. Cronin (NP), elected Nov. 8
 Indianapolis, Ind.—Phillip L. Bayt (D), elected Nov. 8
 Little Rock, Ark.—Woodrow W. Mann (D), elected Nov. 8
 Memphis, Tenn.—Edmund Orgill (D), elected Nov. 10
 Miami, Fla.—Randall N. Christmas (D), elected Nov. 15
 New Haven, Conn.—Richard C. Lee (D), re-elected Nov. 8
 Niagara Falls, N.Y.—Calvin L. Keller (R), elected Nov. 8
 Paterson, N.J.—Edward J. O'Byrne (D), elected Nov. 8
 Philadelphia—Richardson Dilworth (D), elected Nov. 8
 Salt Lake City, Utah—Adiel F. Stewart (NP), elected Nov. 8
 San Francisco, Calif.—George Christopher (NP), elected Nov. 8
 Schenectady, N.Y.—Samuel S. Stratton (D-L), elected Nov. 8
 South Bend, Ind.—Edward Voorde (D), elected Nov. 8
 Springfield, Mass.—Daniel Brunton (D), re-elected Nov. 8
 Utica, N.Y.—John T. McKennan (D), elected Nov. 8
 Waterbury, Conn.—Edward D. Bergin (D), elected Nov. 8
 Yonkers, N.Y.—Kristen Kristensen (R), re-elected Nov. 8

ELECTRICAL DEVELOPMENTS. Progress in 1955 can best be measured by the outstanding developments in communications and by the new records established in the generation of electric power in the United States. Several private utility companies and combinations of companies received the Atomic Energy Commission's approval to start constructing electric power stations using reactors as a source of energy. The year marked the first International Conference on the Peaceful Uses of Atomic Energy, in August at Geneva, Switzerland (see ATOMIC ENERGY); in December the engineering societies of the country sponsored an Atomic Energy Congress and exhibition in Cleveland, Ohio.

Research.—The Naval Ordnance Research Calculator (NORC) was delivered to the U.S. Navy's Computation Laboratory in 1955. Because other "giant brains" were incapable of solving naval research problems quickly enough, International Business Machines Corp. engineers developed NORC. This machine carries out 15,000 complete arithmetic calculations per second. Eight high-speed magnetic tapes bring data to the calculator at the rate of 70,000 decimal digits per second. Similar tapes are used for storage of intermediate results and output. NORC can add or subtract 13-digit numbers in 15 microseconds and multiply numbers of like size in 31 microseconds. Numbers stored in the calculator's cathode-ray tube "memory" can be recalled from any one of 2,000 locations in 8 microseconds.

A light amplifier with no electron tubes has been developed by the General Electric Co. (see ELECTRONICS). This device has possible uses in television, X-ray fluoroscopy, etc.

An electron-image tube that can translate coded signals from tape, keyboard, or radio into clearly defined letters and figures up to 100,000 words per minute for high-speed photographic recording has been announced by the Radio Corporation of America. Its possible commercial uses are in electronic message transmission and in computing systems.

Power Generation.—A 5,500-kw. gas turbine-



GENERAL ELECTRIC COMPANY

Electricity produced by nuclear energy is distributed commercially for the first time at West Milton, N.Y., on July 18, 1955. Here Atomic Energy Commission Chairman Lewis L. Strauss closes the switch at General Electric Company's submarine nuclear reactor plant, automatically taking the picture as the current begins to flow.

electric generator power plant was built for the U.S. Navy in 1955 by Clark Brothers Co., one of the Dresser Industries. The complete plant is mounted on a railroad car which can be moved to any place where an emergency exists. The plant consists of a diesel engine to start the unit, a Clark gas turbine, and fuel pumps. The unit needs connections only to fuel and transmission lines.

One of the historical events of 1955 was the piping of the steam from the prototype submarine nuclear reactor at the West Milton, N.Y., plant of General Electric Co. to a 10,000-kw. turbine generator. Beginning on July 18, the electrical power produced was supplied to northeastern New York State over the lines of the Niagara Mohawk Power Corp. This was the first time that electricity produced from nuclear energy was distributed and sold on a commercial basis in the United States. However, on the previous day (July 17), for a short period of time, electricity produced by the "Borax" reactor, operated by the Argonne National Laboratory at the National Reactor Testing Station near Arco, Idaho, was fed to the town of Arco over the lines of the Utah Power and Light Company.

After several years of research, the Elgin National Watch Co. has announced a 1.15-volt indium cell to replace the mercury cells now used commercially. The new cell is about the size of a penny, but thicker; it is built into a leak-proof plastic case, has a service life of two years, and has constant operating characteristics from 0° to 120° F.

Industrial Equipment and Applications.—Bell Telephone Laboratories have developed a machine that can automatically wire complex electric apparatus. Instructions are fed to the machine from a punched tape. A series of relays translates the information into electric signals that actuate the machine to cut off sufficient wire, strip the proper length of insulation from

it, and wind the bared wire around terminals of electronic components on a panel.

A successful experimental model of an embroidery machine responds to ordinary 5-unit binary-recorded paper tape and standard printing-telegraph apparatus with minor adjustments. It responds to tape control at the average rate of 500 stitches per needle-minute. This development has contributed to the idea of the automatic factory in which unit machines can be ganged together and remotely controlled for labor economy and maximum machine-hours utilization.

Ultrasonic vibrations which are electrically generated have been used in several ways. They can detect certain flaws in metals; when applied to a liquid, they clean or degrease immersed delicate work parts so small they cannot be cleaned by hand; they can actuate a tool that will cut, with a drill head of any geometric form, into the hardest metals and ceramics. Ultrasonic frequencies used in this machine vary from 18 kc. to 500 mc., depending on the type of work.

The "Autofab" is the first automatic assembly machine for attaching electronic components to printed circuits. It was developed by General Mills, Inc., and sold to International Business Machines Corp. The latter firm uses the machine for producing printed circuit assemblies for the computers it is building for the U.S. Air Force. Its estimated capacity is 200,000 units per month with three workers attending it.

Transportation.—The second atomic-powered submarine, U.S.S. *Seawolf*, was launched on July 21, 1955, at the Electric Boat Division of General Dynamics Corp., Groton, Conn. The *Seawolf's* power plant differs from that of the *Nautilus*, which underwent sea trials in 1955. The new design is known as the submarine intermediate reactor and is cooled by liquid sodium, whereas the *Nautilus* reactor is cooled by high-pressure water.

Electronics is controlling Chicago automobile traffic in certain areas. At predetermined times each day a master mechanism in the central control station activates a tone signal which is transmitted by radio from the Board of Trade Building to traffic light receivers. A decoder at each light selects the signal intended for its intersection and ignores all others. The corresponding tone switch in the traffic light will respond to its own tone by changing the program of the lengths of time the colored lights are on. This changing program is automatic but can be manually controlled in emergencies or during bad weather.

The Otis Elevator Co. has demonstrated the prototype of its Trav-O-lator, an electrically driven series of cleated treads, like those of an escalator. The treads run on tracks horizontally or on an incline to higher or lower levels. Grades up to 14 degrees can be used, and speeds up to a maximum of 180 feet per minute, without discomfort to passengers.

Communications.—The first of the new twin transatlantic telephone cables was laid from Clarenville, Newfoundland, to Oban, Scotland, a distance of about 2,100 miles, in the summer of 1955, from H.M.T.S. *Monarch*. Each of the two cables has 52 voice amplifiers spaced about 40 miles apart, and these had to be slim and flexible enough to pass through the *Monarch's* laying gear.

The American Telephone and Telegraph Co. also has proposed similar cables to be laid between Port Angeles, Wash., and Alaska, and between the United States and Hawaii, to handle increased telephone traffic.

A new long-distance telephone center, which will be the hub of a dialing network for the United States, was placed in service in April 1955 at St. Louis, Mo. This installation brings the number of cities and towns on the distant-dialing network to approximately 3,600.

After many years of research, ultra-high-frequency (UHF) radio signals have been successfully transmitted as far as 200 miles. This over-the-horizon transmission is accomplished with 10-kw. transmitters and antennas 60 feet in diameter (20,000 times the power and 30 times the antenna area used in the present microwave transcontinental radio relay system). (See also RADIO AND TELEVISION; TELEGRAPHY; TELEPHONE.)

Illumination.—Variable-reactance dimming is a new method of brightness control for fluorescent lamps developed by the General Electric Co. It has the advantage of smooth dimming over a wide range from 50 to 1, by means of a variable impedance in series with the lamp and ballast.

A new efficient fluorescent lighting system has been installed in the Field House of Union College, Schenectady, N.Y., by the General Electric Co. A frequency of 400 cycles is used instead of the usual 60 cycles. This installation cost 10% less than an incandescent-mercury system to install, and it is estimated that the annual operating cost will be cut in half, despite a production of 20% higher levels of comfortable light.

Because helicopters have unusual maneuvering characteristics, they need lights on their blade tips at night to distinguish them from other types of aircraft. The Westinghouse Lamp Division has developed a 12-volt lamp which will withstand the great centrifugal forces existing at the tips of the rotating blades. These forces can exceed 700 g. and reach 1,000 g. under certain conditions.

Metallurgical and Chemical Applications.—A new concept of physics which will open up unlimited fields of airborne geophysical exploration has been announced by Varian Associates, the firm which invented the klystron tube. The new instrument uses hydrogen nuclei contained in any tap water to record minute changes of the earth's magnetic field, which in turn may indicate the presence of mineral or petroleum deposits. The "bird," which is trailed behind a survey airplane, measures total magnetic field

without regard to direction; it consists of little more than a jar of water with a coil around it, the whole being enclosed in a streamlined cone.

A practical germanium power rectifier that is applied to industry in the form of a d-c power supply has been developed by the General Electric Co. It is used in the chemical, aluminum, steel, titanium, and tin reclaiming industries. Ratings such as 16,000 amperes at 65 volts, 12,000 amperes at 130 volts, and 40,000 amperes at 24 volts are being produced.

Electromedical.—Faint sounds of the human heart which cannot be detected even with a physician's stethoscope can be seen now with the Electro Stethograph. This instrument combines the stethoscope with the sensitive pickup of the General Motors Surfactage, which measures roughness of highly machined automobile parts. Very-low-frequency sounds of the heart are pictured on a chart, and it is believed that the study of these sounds will offer new clues to the heart's behavior.

Electronics.—An investigation of television as an instructive medium at Fort Monmouth, N.J., showed that U.S. Signal Corps students learned technical subjects better by means of "live" television lectures than by motion pictures. The same was true of interns at several hospitals where surgeons explained their operating procedures before color television cameras.

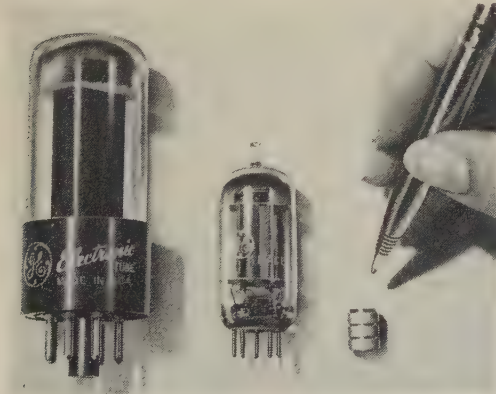
Closed-circuit television at the Portland, Ore., airport shows passengers and operating personnel flight information as it is written on a blackboard in the operations center. Highway police are using the system to control traffic in the half-mile tunnel on the West Virginia Turnpike, and branch banks are using it to verify signatures on file in their central offices.

An electronic music synthesizer has been developed by the Radio Corporation of America. Its operation is based on the breakdown of a tone into its characteristics (frequency, intensity, timbre, etc.). This instrument utilizes a paper tape in which holes are punched from a typewriter-like keyboard, and which actuates electronic circuits whose outputs are recorded on phonograph discs which are played on a conventional record player. The sounds of any musical instrument or combination of instruments can be synthesized.

A counter-mortar radar has been developed by the U.S. Signal Corps and Sperry Gyroscope

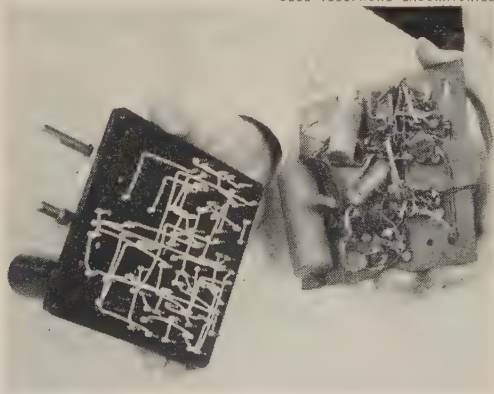
General Electric's new micro-miniature ceramic triode (right), for use in ultra-high-frequency television receivers, compared with conventional glass tube (left) and miniature type tube (center).

GENERAL ELECTRIC COMPANY



Five-tube radio receiver at the right was wired by ordinary soldering methods; that at the left, by ambidextrous "M-4" machine, using an automatic process for making solderless wrapped connections in complex apparatus.

BELL TELEPHONE LABORATORIES



Co. This instrument can detect and trace the path of enemy mortar shells automatically, and reveals the site of the enemy's guns from which the projectile was fired.

An electronic writing device has been announced by Autron Engineering, Inc., which can transmit instantaneously any type of written intelligence (drawings, maps, numerals, etc.) to a remote receiver either by radio or over wires.

A micro-miniature ceramic triode, $\frac{3}{8}$ inch long and $\frac{5}{16}$ inch in diameter, for use in ultra-high-frequency television sets, has been developed by the General Electric Co. It is designed to operate at 900 mc.; has a power gain of 15 db. and a band width of 10 mc.; and functions at temperatures up to 700°C.

Experimental "junction tetrode" transistors which oscillate at a billion cycles have been developed by Bell Telephone Laboratories. (See also ELECTRONICS.)

ELECTRIC LIGHT AND POWER INDUSTRY

Power Plant Generating Capacity.—The generating capacity of American power plants continued to expand in 1954 at an increased rate over 1953. In 1954, 11.4 million kw. was added, bringing the total nameplate capacity to 102,520,000 kw. (estimated), an increase of approximately 12% over 1953. Steam led again as a prime mover, with 77 million kw., an increase of 10 million kw. over 1953; hydroelectric power ranked second with 23.2 million kw.; and internal combustion ranked third with 2.2 million kw. It is estimated that the total assets of utility plants for 1954 was approximately \$31.4 billion.

U.S. Power and Light Production.—The demand for electric power has continued to expand steadily in the United States. The utility industry produced 472 billion kw.-hr. in 1954, and 73 billion kw.-hr. was generated by nonutility sources. Approximately 2 billion kw.-hr. imported from Canada and Mexico should be added to these figures, bringing the total to 547 billion kw.-hr.

Records of weekly power production continued to be broken in 1955. The peak output of 1954 was about 9.9 billion kw.-hr. early in December. This figure was exceeded every week in 1955 after the middle of July. It was estimated that an 11-billion-kw.-hr. week would be exceeded before the end of the year.

U.S. Energy Sales and Revenues.—In 1954, 410.9 billion kw.-hr. of electrical energy was sold to 51.2 million ultimate consumers, providing a revenue of \$7.3 billion to the utilities. Thus, energy sales showed increases of 6.9% in quantity, 2.6% in consumers, and 7.1% in revenue over figures for 1953.

TABLE 1—U.S. ELECTRIC ENERGY SALES AND REVENUES, 1954.

Classification	Customers (number)	Revenue (millions of dollars)	Distribution (millions of kw.-hr.)
Commercial, industrial.	6,272,400	3,824	273,500
Domestic.	43,140,000	2,920	108,500
Rural.	1,637,500	216	10,200
Highway, illumination.	38,400	124	4,000
Railroad, railways.	115	54	4,700
Other.	124,900	133	9,400

(Source: Edison Electric Institute.)

Operating revenue of the investment-owned electric utilities for 1954 was estimated to be \$6.31 billion, on which taxes were estimated at \$1.44 billion. These are increases of 6.2% and 7.3%, respectively, over 1953. (See also PUBLIC UTILITIES.)

World Electric Energy Production.—Production of electric energy by major countries is shown in Table 2.

TABLE 2—ELECTRIC ENERGY PRODUCTION BY MAJOR COUNTRIES, 1954

Country	Output (millions of kw.-hr.)	Country	Output (millions of kw.-hr.)
Australia.	13,622	Japan.	59,605
Austria.	9,847	Netherlands.	10,588
Belgium.	10,571	Norway.	21,780
Canada.	74,000*	Poland.	15,400
Czechoslovakia.	13,500	South Africa.	14,634
France.	45,570	Spain.	9,828
West Germany.	68,521	Sweden.	23,701
Great Britain.	74,706	Switzerland.	13,180
India.	7,522	USSR.	149,400*
Italy.	35,400	United States.	547,000

* Estimated. (Source: United Nations Statistical Office.)

G. C. BAXTER ROWE,
Associate Editor, "Electrical Engineering."

ELECTRIFICATION, Rural. See RURAL ELECTRIFICATION ADMINISTRATION.

ELECTRONICS. Considerable progress was made in 1955 by the industry dealing with tubes, transistors, and other electronic devices. The sales volume of \$9 billion achieved during the year led one leading United States manufacturer to predict a rise to \$20 billion in the next decade.

Of the 500 largest United States industrial concerns—each with annual sales of \$50 million and over—101 have some interest in the electronics business. This interest may range all the way from manufacturing radio and television sets almost exclusively to support of a small electronic research and development subsidiary, or production of small parts. These 101 firms have an annual sales volume of more than \$40 billion and assets of nearly \$26 billion.

Transistors.—The year 1955 saw the introduction of transistors into products which can be used by virtually all consumers. Previously the big market for these tiny devices had been in hearing aids, of which several million units have been sold. Mass production of transistors at prices comparable to those of vacuum tubes, and capable of operation at radio frequencies was not accomplished until 1955. Several radio receiver manufacturers brought out transistorized models during the year. Tiny enough to be carried in a pocket, these radios permit extreme economy of battery power. A few phonographs and automobile radios with transistors were also introduced.

The Signal Corps is field-testing a quantity of developmental FM transceivers, designed for communications over a quarter-mile range. These pocket-size sets consist of a receiver-transmitter, microphone-earphone, collapsible antenna, and battery in a 15-ounce assembly. The transceiver contains 12 transistors and one tube. It incorporates an all-transistor superheterodyne receiver and a two-transistor, one-tube transmitter. Up to ten hours of operation are provided with a single battery.

Tubes in Industry.—The current trend in petroleum refinery instrumentation is toward automatic logging—centralized recording of measurements taken throughout the refinery to provide a detailed record of operations. A \$50,000 system designed to monitor, analyze, and record 480 process variables will be installed in one Montreal refinery with a capacity of 20,000 barrels per day. Each hour the logger will type out the value of all variables, and in case of trouble the

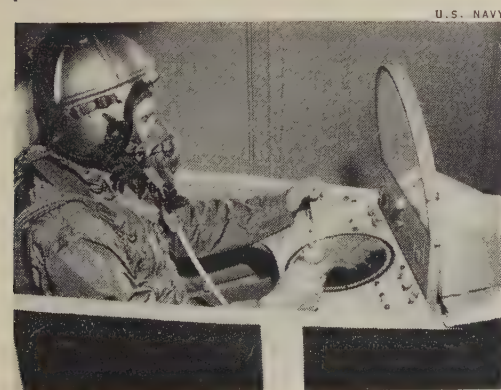
out-of-line condition and its location will be typed out. The instrument will also compute total flow, efficiency ratios, and yield factors, and will punch significant data into paper tape or cards for preparing summary reports to the management. About ten refineries have installed electronic logging systems costing from \$5,000 to \$50,000.

Use of electronic control in metalworking operations has been increasing steadily. Some of the development work by machine-tool builders has been done by electronics companies under contract, while other tool builders have set up their own electronics departments. One machine developed is a punched paper-tape controlled automatic boring machine for producing instrument gear trains. It consists of a precision boring machine modified with built-in electronic controls and circuitry, and a tape reader housed in a control cabinet. Hole coordinates and feed instructions are punched on the tape by a perforating machine similar to a typewriter. Electronic signals from the tape regulate the linear travel of the boring machine's hydraulic cross-slide and the rotary motion of a holding fixture mounted on the cross-slide. Tape preparation requires approximately 5 minutes per hole, and complete changeover from one part to another can be accomplished in about 30 minutes.

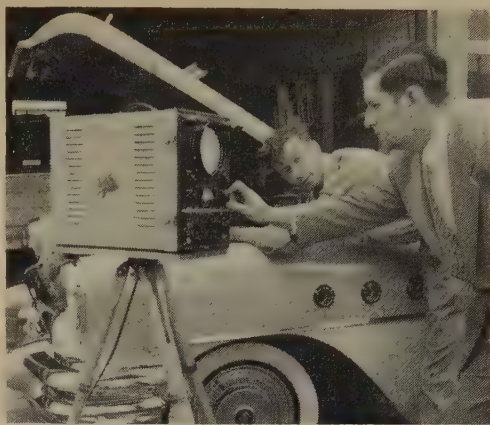
Several electronic manufacturers have entered into agreements to make and market electronic equipment developed by major oil companies. Plant analysis and control equipments planned include an infrared gas analyzer, a differential refractometer, an ultraviolet analyzer, and an oxygen analyzer. Other devices include level controls and engine analyzers that can diagnose auto ignition faults in less than one minute.

Space Satellite.—The launching and flight of the first earth satellite will involve considerable electronic equipment. Projected as a part of the United States program of participation in the International Geophysical Year (1957-58), the artificial satellite (which is expected to be a 21½-pound, basketball-like object) will be placed on orbit some 250 or more miles above the earth by rocket techniques (see SPACE FLIGHT). It will give opportunities for scientific measurements of the upper atmosphere. Out of approximately 90 minutes in which it will initially encircle the earth, perhaps 3 to 5 minutes will be available for experimentation. The mass of electronic equipment to be used in launching and tracking the satellite will probably remain classi-

Model cockpit shows simplified aircraft instrumentation and controls. Circular and semicircular television screens, using "flat" cathode-ray tubes, provide flight information for the pilot.



U. S. NAVY



SOCONY-VACUUM OIL CO.

Automobile engine defects are shown on screen of electronic engine analyzer, eliminating repair guesswork.

fied. On the ground, the important electronic equipment will certainly include telemetering and tracking equipment. Electronic computers will bulk large in maintaining accurate tracking of the satellite, and will also indicate slowing up of the satellite and make possible measurements of retarding forces.

Flat Cathode-Ray Tube.—Differing radically from conventional funnel-shaped cathode-ray tubes, a new flat tube holds promise of revolutionizing the television industry and simplifying aircraft instrumentation. The new tube consists of a phosphor screen mounted between flat sheets of glass. The entire unit is evacuated. The electron beam is injected along a horizontal edge of the tube and flows in a field-free region along this edge, adjacent to a row of transverse deflection plates. By controlling the voltages on these plates, the electron beam is bent at any desired place along the edge of the tube. The beam then flows vertically in a second field-free region between a series of transparent horizontal deflection plates and the electrically charged phosphor screen. By controlling the voltages on the horizontal deflection plates, the beam is deflected into the phosphor screen at any desired vertical level. A raster is scanned by sequentially changing the voltage on the transverse (vertical) and horizontal deflection plates simultaneously.

Tubes having useful screen areas comparable to those of 24-inch conventional tubes have been built. The new tubes have an approximate depth of only 3 inches, in comparison with approximately 20 inches for the conventional tubes.

One model of the new tube was adapted for the U.S. Navy's long-range program for simplifying aircraft instruments. This program will result in an instrument panel consisting of only two basic instruments, both picture tubes. One instrument will be a semicircular plate mounted vertically and directly in front of the pilot. It will be transparent and will not interfere with the pilot's vision during contact flight. Altitude, speed, and attitude of the aircraft will be shown on the plate. Physical features such as mountains, which the pilot sees during contact flight, will be depicted artificially. The second instrument will consist of a round plate mounted below the first, just inside the cockpit rim. Its appearance will be similar to that of a radar map. Broad physical features of the earth below will be depicted by analogy. Calibrations around the rim will indicate the number of miles to the pilot's

base, the amount of fuel remaining, and similar information.

Because picture tubes are used, several items of information can be selectively superimposed in the same area, to be used as needed. The tubes will not be used to present an actual picture of what is happening in the vicinity of an aircraft. The display the pilot sees will be an analogy of the visual world that he would see if flying by contact in clear weather.

Vision in the Dark.—There are now about 1,000 to 1,500 infrared viewers, modern versions of the wartime sniper-scope, in use. Such instruments have only recently been made available for civilian application. Compact and portable, the units weigh approximately 10 pounds and cost \$500 to \$1,000, depending on the quality of design as well as on the optics supplied. Film manufacturing and processing laboratories use the scopes to monitor film-manufacturing operations in darkness. Nearly 200 of them are distributed among three major film firms. The viewers are also finding increasing use in security applications, and police patrol cars are using them to observe suspects in darkness.

In industry the infrared-sensitive viewers are used in determining temperature distribution at heats above 250° C., as well as in warehouse surveillance. In detecting cases of forgery, when an original signature has been mutilated or erased and written over, the viewer has proved particularly useful. Medical applications include psychological and psychiatric study when it is desired to study a subject under conditions of complete surprise to stimuli. The scopes are used also for signaling on land and sea. Standard sensitivity is one candlepower at one mile. With a pulsed infrared light source, signals are good for ten miles, day or night.

Radar Helmet.—Ground observers get an all-weather eye with a new microwave receiver using transistors to reduce weight and power drain. The radar receiver is mounted on helmets designed for the U.S. Air Force's civilian Ground Observer Corps. With the receiver, part-time aircraft spotters can pick up a plane's search, navigation, or fire-control radar. The microwave horn antenna picks up the signal which is passed through a crystal detector. Transistors on a printed circuit board provide a pulse amplifier, and signals from the amplifier are fed directly to lightweight headphones. A four-ounce battery supplies the power required for a week under normal conditions.

Light Amplifier.—Direct amplification of light without electron tubes can be accomplished by a 10-micron film of phosphor sandwiched between conducting plates, one of which is made of electrically conducting glass. Possible applications include X-ray fluoroscopy, photography, and see-in-the-dark devices utilizing ultraviolet sources. The light amplifier may also brighten television images and aid development of picture-on-the-wall screens.

At a demonstration of the principle involved, a fluorescent screen four inches across was illuminated with ultraviolet light from a slide projector. Then d-c voltage was applied to the conducting plates, and a yellowish image was produced. The glow became brighter as the voltage was increased to about 100 volts. Application of ultraviolet light with no voltage on the light amplifier caused only a faint glow. The phosphor film, consisting of zinc sulfide activated with manganese, is vapor-deposited at high temperature and low pressure. The chemical content of

the film determines what radiation wavelengths the light amplifier will accept, and what wavelengths will be returned. (See also **ELECTRICAL DEVELOPMENTS**; **RADIO AND TELEVISION**; and the Index entry, *Electronics*.)

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ELLICE ISLANDS. See **WESTERN PACIFIC ISLANDS, BRITISH**.

EL SALVADOR. The smallest and most densely populated of the Central American republics, El Salvador is bounded on the north by Guatemala, on the east by Honduras, and on the south and west by the Pacific Ocean. Its area is 8,260 square miles, according to a recent survey (the area was formerly thought to be 13,176 square miles). According to the June 1950 census, the population totaled 1,855,917 (July 1954 est., 2,087,999). About 64% of the population was classified as rural. The chief cities (with 1953 urban populations) are San Salvador, the capital (194,618), Santa Ana (109,711), San Miguel (63,429), Nueva San Salvador or Santa Tecla (32,204), and Sonsonate (25,675). Over 90% of the population is of mixed Indian-European descent. Spanish is the official language.

Government.—The Constitution of 1950 vests executive power in a president (Lieut. Col. Oscar Osorio, inaugurated Sept. 14, 1950) who is elected by popular vote for a 6-year term, and is not eligible for an immediate second term. Legislative power is vested in a Legislative Assembly of 52 deputies elected by direct vote for 2-year terms. The governors of the 14 departments into which the country is divided are presidential appointees.

Religion and Education.—Roman Catholicism is the predominant religion, but the constitution guarantees freedom of worship. Primary education is free and compulsory, but lack of funds has made it impossible to provide facilities for all school-age children. According to the 1950 census, some 57% of the population 10 years of age and older was illiterate. A governmental literacy campaign in recent years has shown some results. In 1952 and 1953, as indicated, school enrollment was: primary, 197,188 (1953); secondary, 14,674 (1953); technical, 4,135 (1952); and teacher-training, 1,730 (1952). At the National University in San Salvador there were 2,512 students in 1953.

Finance.—The unit of currency is the colón, equivalent to U.S.\$0.40. The government's fiscal position is highly dependent on coffee production and export; with high coffee prices and large crops in recent years, that position has been relatively strong. Gold and foreign exchange reserves were slightly higher at the end of 1954 (\$47,040,000) than a year earlier (\$45,120,000). The national budget for 1955 provided for expenditures of \$65,100,000, as compared with \$60,780,000 for 1954. Preliminary estimates indicate that actual revenues for 1954 were \$66,100,000; and revenues for 1955 are expected to total \$62,212,774. Prices increased only slightly in 1954, with the wholesale price index of the Central Bank (1939 = 100) at 558.31 in January 1954, and at 535.52 in December. The cost-of-living index for a workingman's family (1937 = 100) rose from 240.30 to 266.40 during 1954.

Production.—Most of the population depends on operations directly related to agriculture. The census of 1950 found that of the 653,409 economically active persons 10 years of age and older, 412,646 were in agriculture, which accounts for over 41% of the gross domestic product. Coffee is the dominant crop, accounting for nearly one half of agriculture's contribution to the gross product, and usually over 80% of the value of exports. The most important food crops are corn, beans, sorghum, rice, and sugar. In 1954 El Salvador was virtually self-supporting in all these items, except for corn.

The 1954-55 coffee crop was estimated at 1,200,000 bags (132.3 pounds each), a 30% rise over the 1953-54 crop. Excellent coffee prices until August 1954 kept export values at a high level. Outlook for the 1955-56 crop is not so favorable.

Cotton cultivation and export continued the upward trend of recent years. The production of lint cotton from the 1954-55 crop is estimated at 60,000 bales, compared with 54,000 from the 1953-54 crop. Some 48,000 bales of the 1954-55 crop were in excess of domestic requirements, and available for export. Indications are that approximately 83,000 acres will be planted to cotton for the 1955-56 crop, compared with 73,000 acres in 1954-55.

Mineral production, never important, fell to a new low in 1954, with small amounts of silver and gold being produced. Deposits of these metals were apparently about worked out.

The few light industries generally increased production in 1954, although output of some lines (for example, tobacco, cigarettes, and beer) dropped slightly. Construction of a \$1.3 million soluble coffee plant began early in 1955. (See also below, *Principal Events, 1955.*)

Foreign Trade.—The value of foreign trade continued upward during 1954 to new record levels. The usual favorable balance of trade was maintained. (Since the beginning of the century, El Salvador has had a favorable balance in all but four years.) The value of exports (mostly coffee shipped to the United States) in 1954 was about \$105 million, compared with \$90 million in 1953. Imports for 1954 were approximately \$87 million, as compared with \$72 million in 1953. In 1954 the United States continued to import the bulk of El Salvador's exports, and to supply over half of her imports.

Transportation and Communications.—Two railway companies operate in El Salvador, with a total main track of 385 miles, and connections with the rail systems of Guatemala. The San Salvador airport is served by 3 international airlines. The highway system is better than average for Central America: about 375 miles of paved roads, connecting all the principal cities and seaports, and linking El Salvador with Guatemala and Honduras; 375 miles of other improved all-weather roads; and perhaps 1,200 miles of unimproved dirt roads and trails. The Inter-American Highway runs through the country, with only 21 miles of its 197 miles unpaved. Late in 1955, work was about to begin on a 190-mile, all-weather Pacific coastal highway, largely financed by a loan from the International Bank for Reconstruction and Development.

Principal Events, 1955.—Chief political interest in 1955 centered around the campaign for the presidency. Although by October no date had been set for the election, it was expected to occur in September 1956. Campaigning began late in 1954, and increased in intensity throughout 1955, with a number of candidates having registered their parties with the Ministry of the Interior. By fall no candidate had acquired a favorable position, and some businessmen felt that political uncertainty was responsible for weaknesses in some sectors of the economy. There was also a flurry of political excitement when former President Maximiliano Hernández Martínez (1931-44) returned from exile.

Although prosperity carried over from 1954 into 1955, the press and government showed continuing interest in closer economic and political ties with the rest of Central America. This was in part due to the shortage of corn, caused by drought, and by the increasing devotion of agricultural land to cotton culture. A rise in the price of foodstuffs caused concern, and necessitated imports.

The government continued its interest in di-

versification of the economy. A decree in January controlled imports of coarse sacking to protect the domestic henequen bag industry. New legislation favored industry generally by allowing tax-free importation of industrial materials, equipment, and machinery. A fund of 60 million colones (\$25 million) was made available by industrial concerns to back the government's efforts to promote industry. Electricity output was up sharply due to production at the new Río Lempa hydroelectric project.

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EMIGRATION. See IMMIGRATION.

EMPLOYMENT. See BUREAU OF EMPLOYMENT SECURITY; CENSUS DATA, U.S.; LABOR; and the Index entry, *Employment.*

ENDOCRINOLOGY. With the perfection over the past several decades of specific chemical and hormone assay techniques, the art of clinical endocrinology has gradually become more and more exacting. There are now very accurate and well-defined syndromes of overfunction and underfunction of all the endocrine organs. In most instances when definite endocrine disease is found, there is a very specific and satisfactory treatment available. This is in remarkable contrast to previous decades, when clinical endocrinology was a vague and often unsatisfactory clinical art, dependent upon rather impotent therapeutic agents.

Adrenocortical Overactivity.—Recently a new clinical syndrome, primary aldosteronism, has been defined by Dr. Jerome Conn of the University of Michigan. For some time it has been recognized that the adrenal cortex secretes a potent salt- and water-controlling hormone which recently was isolated and called electrocortin or aldosterone. The detection of a patient with functioning adrenocortical tumor which secreted excessive amounts of aldosterone rounds out our knowledge of the syndromes of adrenocortical hyperfunction. Primary aldosteronism is characterized by hypertension, high-serum sodium, alkalosis, tetany, and low-serum potassium without edema.

Other syndromes of adrenocortical overactivity have long been known, such as Cushing's syndrome, due to excessive secretion of cortisone-like substances, and adrenal virilism, caused by oversecretion of male hormone-like substances. Removal of the aldosterone-secreting tumor is curative. All of these conditions are quite rare.

In addition to substitution for well-defined endocrine deficiencies, hormones have been used as nonspecific therapeutic agents in many conditions which cannot be considered true endocrine diseases. The best example of this nonspecific use of hormonal products is the use of cortisone in the treatment of rheumatoid arthritis and other similar conditions.

Growth Hormones.—Testosterone and its various esters are the most potent anabolic and growth-stimulating preparations known to medicine. At the present time there is still no potent pituitary growth hormone available to the practicing physician for the treatment of dwarfism. When used judiciously, androgens (testosterone-like steroids) can produce remarkable benefits in short-statured, undernourished boys who have retarded bone age and inadequate physical development. In the past there has been some hesitation on the part of the physician to use such steroids because of the theoretical possibility of producing premature cessation of growth and of

decreasing spermatogenesis. However, such fears have been dispelled by Dr. Gilbert Gordon of the University of California, and others, who have completed widespread research in this field. In the dosages commonly utilized for this type of clinical problem, no instances of premature growth cessation or sterility have been observed over a period of many years. Until the availability of a clinically practical pituitary growth hormone is accomplished, testosterone and its esters, as well as other androgenic steroids, will remain the most desirable anabolic agents in clinical medicine.

Mental Retardation.—Endocrinologists frequently see mentally retarded children in consultation because of the parents' hope that some glandular therapy will solve the problem. Occasionally among such children are found patients suffering from cretinism or severe juvenile myxedema. In such instances treatment with desiccated thyroid or other potent thyroid hormones frequently works a miraculous cure. However, in the vast majority of cases, mental retardation is due to a congenital defect or birth injury in the central nervous system, and glandular therapy is of no avail.

Crude desiccated thyroid extract from animal glands has long been the standard preparation for the treatment of hypothyroidism. However, recently synthetic sodium levo thyroxin has been found to be active when taken orally. This preparation has all the physiologic effects of the crude drug and in addition the advantages of accurate standardization. Tri-iodothyronine has also been found to have all of the physiologic effects of sodium L-thyroxin, but on a weight basis it is far more potent; the onset of action is more rapid, and the duration of effect is briefer. It is thought by some that sodium L-thyroxin is the thyroid hormone secreted by the thyroid gland, but that in the peripheral tissues it is modified to tri-iodothyronine which may be the peripherally active hormone.

New Hormone Preparations.—The ingenuity of the steroid biochemist and the experimental endocrinologist continues to keep the clinician supplied with new and increasingly potent and desirable preparations. It has been found that the unsaturation of a portion of the cortisone or hydrocortisone nucleus makes available a group of steroids which have many of the desirable effects of cortisone without some of the undesirable salt- and water-retaining effect. Also, milligram for milligram, these "delta" analogues, known as prednisone (Meticorten) and prednisolone (Meticortelone), are far more potent than the parent cortisone or hydrocortisone molecule. They find their main use in the treatment of rheumatoid arthritis, bronchial asthma, and other conditions for which cortisone or hydrocortisone were formerly employed.

Insulin, the hormone secreted by the islet cells of the pancreas, has been further modified by combination with metallic zinc to produce an intermediate-acting insulin known as Lente insulin. The action of Lente insulin is similar to that of NPH insulin, but has the advantage of no foreign proteins such as protamine or globin. The use of such an insulin preparation will be of most value in those patients who have proved to be allergic to some of these other long-acting insulin preparations.

17-alpha-hydroxyprogesterone-caproate, a long-acting progesterone preparation, will soon take its place among the many potent long-acting parenteral steroid hormone preparations. For-

merly, progesterone, when given in large doses, had a very short action and caused severe pain at the site of injection. A single injection of the new material, however, has a duration of two to three weeks and is virtually painless.

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ENESCO (originally ENESCU), **Georges**, Rumanian violinist and composer: b. Dorohoi, Rumania, Aug. 19, 1881; d. Paris, May 4, 1955. Leader of the contemporary school of Rumanian composers, he was also regarded as one of the world's outstanding violinists.

Enesco began playing the violin at the age of four, and three years later was enrolled in the Vienna Conservatory, where in 1892 he won first prize for violin playing and harmony. In 1894 he entered the Paris Conservatory for further study and won another conservatory prize for his virtuosity with the violin. He also became proficient on the cello, organ, and piano. The successful production by Edouard Colonne in 1898 of Enesco's orchestral work, *Poème Roumain*, contributed to his reputation as a composer.

After leaving the conservatory in 1899, he toured as a violinist for a year, and for a short time performed as court violinist for Queen Elizabeth of Rumania. Subsequently he settled in Paris where, except for concert trips, he remained throughout the rest of his career, although he never applied for French citizenship. He made his debut in the United States on Jan. 2, 1923, as guest conductor of the Philadelphia Orchestra at Carnegie Hall, New York, and thereafter until the early 1950's made frequent trips to the United States, both to conduct and to play the violin.

Enesco was known particularly for the encouragement and aid he gave to promising young musicians, in connection with which in 1912 he established a prize for works by young Rumanian composers. About 1927, Enesco began his famous association with the brilliant young violinist, Yehudi Menuhin, and served as his musical mentor into the 1940's. Later, Enesco added formal teaching to his activities, and in 1948 he joined the faculty of the Mannes College of Music in New York, where he taught a rigorous course in the interpretation of chamber music.

As a composer, Enesco produced relatively few works, but he succeeded in developing an idiom that was peculiarly his own. His early work reveals influences of Wagner and Brahms, but with the composition of his opera, *Oedipe* (begun in 1921), which was performed at the Paris Opera in 1936, his music became basically Rumanian in character. He also composed two symphonies, three orchestral suites, three violin sonatas, songs, piano pieces, chamber music, and several orchestral works in smaller forms. His two *Rumanian Rhapsodies*, with melodies based on Rumanian folk music, and his *Symphonie Concertante* for cello and orchestra are his best-known musical works.

ENGLAND. See GREAT BRITAIN.

ENGLISH LITERATURE. During 1955, a number of new novelists clamored for deserved attention, admirable poetry came from the pens of older and younger writers, and the time proved ripe for an unusual number of attractive critical and autobiographical works. Only the drama seemed incapable of competing successfully with American and French imports, or with the dramatic offerings of radio and television.

Fiction.—Both experienced practitioners of fiction and novices published novels that deserved and won critical esteem. I. Compton-Burnett's *Mother and Son* displayed her familiar acerbity in its study of the destructive effects of a dominating woman on her husband and their middle-aged son. Aldous Huxley's short novel, *The Genius and the Goddess*, met with a mixed reception. Here, a middle-aged American physicist recalled his relations with an emotionally immature scientific genius, his wife, and their adolescent daughter. The narrator's affair with the "earth-Goddess" wife cured him of his priggish puritanism, but the suspicious and adoring daughter's resentment led to the seemingly accidental death of the mother and daughter. In *Homer's Daughter*, Robert Graves fictionalized ingeniously and robustly Samuel Butler's theory that the *Odyssey* was the work of a woman. Graves' choice was Nausicaä, and the novel gave a vivid account of the experiences out of which she was to fashion the great epic.

Of the novels by somewhat younger writers, Evelyn Waugh's *Officers and Gentlemen* was perhaps the most widely discussed. The sequel to *Men at Arms* gave the later stages in its hero Guy Crouchback's "long love affair with the army"—stages that carry him through Commando training in Scotland and a belated share in the disastrous Cretan expedition, to disillusionment with the officer whom he had most admired. Elizabeth Bowen's *A World of Love*, which found its plot in the effects on a closely related group of the discovery of the dead hero's love letters, proved to be a reworking in a curiously oblique style of two of her favorite themes: life in an Irish country house and a young girl's initiation into love.

Perhaps the most distinguished historical novel of 1955 was *Roman Wall*, by the Englishwoman who writes under the pseudonym of Winifred Bryher. Set in the 3d century A.D., the novel recreated persuasively the life of a town on the frontier of the Roman Empire, at the moment when it was threatened by the barbarous Alemanni. Less ambitiously, the veteran Ray C. Hutchinson told in *The Stepmother* of a gracious Canadian woman's attempt to cope with the memory of her husband's first wife and to save the son from the psychological damage his crippled mother had done him. Joyce Cary's *No Honour More* completed the trilogy begun with *Prisoner of Grace* and *Except the Lord*. The chief characters in the series are Nimmo, an unscrupulous politician, his divorced wife, and Jim Latter, earlier the father of her child, and now her husband. The novel, a *tour de force* of first-person narrative and characterization, ends in inevitable violence. *The Acceptance World*, the third volume in Anthony Powell's series, *The Music of Time*, continued the chronicle of the lives of young men making their devious ways on the periphery of society in the 1930's.

A number of younger novelists bid successfully for the attention and esteem of readers and critics in 1955. Chapman Mortimer's *Mediterraneo*, told of primitive revenge among gypsies and acrobats in a skillfully created Andalusian setting. *Drinkers of Darkness*, by the Irishman Gerald Hanley, portrayed with grim power the effect on a group of Europeans of the cultural strains and tensions of life in contemporary Africa. The popular theme of the anti-hero reappeared in several excellent novels. Percy H. Newby's *The Picnic at Sakkara* described the misadventures of a well-intentioned professor in the

bafflingly alien atmosphere of Egypt under King Faruk. The poet Dennis J. Enright's *Academic Year* told competently a similar tale of another academic bungler in a well-documented Alexandrian setting. Kingley Amis' *That Uncertain Feeling* traced amusingly the hapless adventures of a lower-class Welsh librarian in upper-class society. John Bayley's first novel, *In Another Country*, exposed his inexperienced hero to the inevitable complications of life in the army of occupation in Germany. Perhaps the most brilliantly inventive novel of the year was Nigel Dennis' *Cards of Identity*, a report on the fantastic case histories of members of the Identity Club, who had discovered the means to abnegate one's imperfectly possessed personality and to assume another's.

Drama.—A number of new plays warranted some attention in 1955. J. B. Priestley's *Mr. Kettle and Mrs. Moon* exhibited genially the revolt of a bank manager and the prim wife of a big estate agent against the restrictions of their conventional lives. Douglas Home's *The Reluctant Debutante* made comedy of the efforts of an unscrupulous and insensitive mother to launch her daughter socially.

Of the new playwrights, Dennis Cannan was represented by two effective comedies of manners in the Shavian manner. *Misery Me!* played intelligently with the relationship of a young intellectual bent on self-destruction and a glum young woman, beset by two lovers, a Communist and a capitalist, intent on each other's elimination. In *You and Your Wife*, he explored the comic possibilities of a young intellectual's espousal of the novel doctrine that bourgeois domesticity is the foundation of human happiness. Philip King offered two workmanlike plays. *Serious Charge* studied the effect on a young bachelor clergyman of the charge of homosexuality made by a defensive young spiv, but did not carry the theme through to its aesthetically logical conclusion. Less seriously, *Sailor Beware!* made fun out of the ancient farcical situation of a heavy-handed working-class mother's successful interference with a pair of young lovers' marriage plans.

The now-familiar subject of the plight of a nuclear physicist suspected of treason was treated in Norman King's first play, *The Shadow of Doubt*; its distinction lay in his creation of the scientist as a recognizable human being. The most eagerly awaited play of the year was *The Mulberry Bush*, the first dramatic effort of the esteemed writer of fiction, Angus Wilson. Although the play had the somewhat cluttered effect of a dramatized novel, it was redeemed by its fresh characterization of a family of reformers and their unsympathetic offspring, and by the sharpness and distinction of the dialogue. The most unusual play of the year was *Waiting for Godot*, by Samuel Beckett, an Irishman long resident in France. Out of the dialogue of four characters: two tramps, a callous master, and his slave, Beckett wrought a curiously disturbing and evocative philosophical discussion of the quest for some meaning in life.

Poetry.—The solidification of the achievements of certain poets who made their reputations in the 1920's or 1930's was indicated by the appearance of the *Collected Poems* of Robert Graves and Stephen Spender. Graves's prolific productivity as historical novelist and re-interpreter of myths has tended to obscure his distinction as an austere intellectual and witty, if stylistically crabbed, poet. Spender's volume proved to be not only a selection but also a sometimes unhappy revision of the poems to which he now

gives his critical approval. William Empson's *Collected Poems* confirmed the opinion that his poetry, no less than his criticism, is the product of one of the most original and subtle of contemporary minds. His deceptively simple conversational manner almost diffidently expresses a tough, complex, and individual life-view. The belated appearance of Hugh MacDiarmid's *In Memoriam James Joyce* betrayed the Joycean influence in its wide-ranging and challenging preoccupation with language rather than in its difficult, if powerful, philosophical passages. Robert Conquest's *Poems*, his first volume, represented the fastidious garnering of the work of two decades. His most successful poems explored sturdily the apparent inconsistencies between the poet's view of the world and that of the mid-20th century scientist.

Of poetry written by writers who first attracted attention during or since World War II, the most eagerly considered volumes were Lawrence Durrell's *The Tree of Idleness* and William S. Graham's *The Nightfishing*. These volumes, despite the diversity of their settings, were alike in their rich and precise sensory images and in their attempts to set forth these details within a framework of personal, if sometimes elusive, philosophy. Laurie Lee's *My Many-Coated Man* worked deftly in a light, almost rococo vein. Ronald Bottrall's *Adam Unparadised*, despite its stylistic indebtedness to Browning and Pound, struck an individual note of introspective and psychological subtlety. Clifford Dymont's *Experiences and Places* exploited with realistic fidelity his observations of life in the English midlands. In Kingley Amis' *A Frame of Mind*, an acute critical sense played over some of the more absurd aspects of contemporary culture. Martyn Skinner's *The Return of Arthur*, in a brilliant approximation of the manner of Byron's *Don Juan*, described the Orwellian plight of England in 1999 and recounted Arthur's unsuccessful attempt to restore it to chivalry and Christianity. Wilfred Watson's *Friday's Child* was the first significant manifestation of Dylan Thomas' influence on his younger contemporaries.

Criticism.—The critical productions of the year 1955 were far less impressive in quantity than in quality. The most widely ranging work of applied criticism was Sir Maurice Bowra's *Criticism and Inspiration*, which, after a reinterpretation of the classical doctrine of inspiration in modern psychological terms, gave fresh evidence of the writer's extraordinary linguistic equipment and critical insight in the treatment of such very diverse figures as Horace, Dante, Hölderlin, Pushkin, and Hardy.

The other noteworthy critical works suggested an intensification of interest in English 18th century figures. Peter Quennell's *Hogarth's Progress* discussed the painter as a depicter of dramatic narrative rather than pure artist. R. W. Ketton-Cremer's *Thomas Gray* renounced the task of solving the riddle of the poet's baffling personality in favor of a lively defense of his now unfashionable poetic achievement. Mrs. Lilian Had-dakin's *The Poetry of Crabbe* concerned itself with a close analysis and fresh evaluation of a limited but highly individual poet.

A. O. J. Cockshut's *Anthony Trollope* demonstrated by means of close critical analysis the presence in his author's later novels of powers not exhibited in the popular Barsetshire series. F. R. Leavis' overpolemical *D. H. Lawrence* proved valuable chiefly for its sympathetically revealing analyses of the major novels.

Biography and Autobiography.—Twenty years after the death of T. E. Lawrence, he became the subject of the most heatedly discussed autobiography and biography of the day. By the terms of his will, the publication of *The Mint*, his account of his experiences as an unidentified recruit in the Royal Air Force, became possible only in 1955. Its belated appearance aroused intense interest but, in the main, occasioned profound disappointment. Its style was frequently distinguished, if mannered; the effect of its content, however, was overwhelmingly monotonous, since, aside from his sharp sketches of sadistic officers and kindly but obscene-mouthed privates, it was a self-pitying record of physical discomforts and psychological distresses. Richard Aldington's *Lawrence of Arabia* was a detailed and, at times, unscrupulous defense of the position that Lawrence's fame as a war hero was undeserved—in fact, that it was consciously manufactured. Flora Armitage's *The Desert and the Stars* proved to be a far more judicious, if not definitive, biography of this still ambiguous figure.

Less controversial biographies concerned conspicuous late Victorian or Georgian figures. E. P. Thompson's *William Morris, Romantic to Revolutionary*, achieved a considerable success in its attempt to establish its subject's greatness as a man, if not as a poet or craftsman. John B. Morton's memoir of his friend, *Hilaire Belloc*, though perhaps naturally uncritical, wrought a living portrait of this variously gifted and vital eccentric. Lady Cynthia Asquith, in *Portrait of Barrie*, drew lovingly on her memories of her long and close association with him, but did not succeed in solving the riddle of his elusive personality or in explaining the exhaustion of his vein of fanciful creativity. Certainly the most adroit and diverting biography of the year was Anthony Glyn's tactful but sophisticated life of his grandmother, *Elinor Glyn*, the sensationally successful author of *Three Weeks*, and a fantastic, though shrewd, denizen of the vanished Edwardian era.

In the field of autobiography, the award for charm should unquestionably go to the poet Richard Church's account, in *Over the Bridge*, of his boyhood in "a small lower-middle-class household, at the slow end of the Victorian era," in Battersea. His astute portraits of his parents and his touching picture of his devotion to his gifted older brother prepare the way for his early discovery that poetry was to be his "weapon." *The Flowers of the Forest*, the second volume of David Garnett's autobiography, covered the years from 1914 to 1923, including his first success as a writer of limited but distinct gifts. C. S. Lewis' *Surprised by Joy* traced illuminatingly the experiences through which, in his boyhood and young manhood, he moved out of atheism into Christian faith. The first volume of John Lehmann's autobiography, *The Whispering Gallery*, combined an account of his boyhood and youth and literary reminiscences of the 1930's, in which, as editor of *New Writing*, he played a memorable part.

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ENTOMOLOGY. See Index entry, *Insects*.

EPISCOPAL CHURCH. See PROTESTANT EPISCOPAL CHURCH.

ERITREA. An autonomous unit of Ethiopia, on the Red Sea coast of Africa. Estimated area, 47,900 square miles; pop. (est. 1953), 1,020,000. Asmara (est. pop. 90,000) is the capital; Mas-

sawa (27,000) and Assab (10,000) are ports. The population consists of Tigrinya-speaking Coptic Christians and Tigré-speaking nomadic Moslems in the north, Arabic-speaking Moslems along the coast, and Negro tribes in the southwest. There are also some 17,500 Italians.

An Italian colony prior to World War II, Eritrea was federated with Ethiopia in September 1952, in accordance with a United Nations decision of 1950. Eritrea has self-rule in local affairs; Ethiopia is responsible for defense, foreign affairs, currency, customs, communications, and trade. Eritrea has an elected 68-member Representative Assembly and a chief executive chosen by the assembly. On Aug. 8, 1955, Fitaurari Asfaha Woldemicael was named chief executive, replacing Dejasmatch Tedla, who resigned on July 29.

Barley, corn, wheat, coffee, tobacco, fruits, potatoes, and vegetables are grown in the uplands. The lowlands yield gum arabic, fibers, dates, and oil seeds. Flocks provide hides, meat, and dairy products. Industries include pottery, wines, bricks, matches, soap, glass, caustic soda, and paint. Chief minerals are salt (190,000 metric tons in 1953) and sulfur (2,500 in 1952). Railroads total 191 miles; motor vehicles, 3,405 (1954). In 1952 there were 2 daily newspapers with a total circulation of 6,000.

ESPIONAGE. See Index entry, *Subversive Activities*.

ESTONIA. An independent republic since 1918, Estonia was forcibly annexed by the USSR in 1940, and reannexed by force at the end of World War II as the Estonian Soviet Socialist Republic. The United States government does not recognize this annexation.

Area and Population.—Estonia's area is 17,370 square miles, and the population, 1,200,000 (est. 1954). Approximately 150,000 of the original Estonian population have been deported to the interior of the USSR, most of whom have been imprisoned in Arctic labor camps. These exiles have been replaced by Russians, Belorussians, and central Asians. Half the population of the Estonian capital, Tallinn, is now Russian. The USSR does not trust the native Estonians, and is slowly repopulating Estonia with other peoples deemed more loyal. Principal cities are Tallinn, 147,000 (est. 1944); Tartu, 60,100 (1938); and Parnu, 21,500 (1938). Principal religions (1939) are Lutheran, 78.2%, and Greek Orthodox, 19%.

Government.—Like other Soviet republics of the USSR, Estonia has its own legislative Soviet, and Council of Ministers (cabinet) with both executive and legislative powers. Of the 30 members of the Estonian cabinet, only one is a native-born Estonian, the remainder being either Russians, or Russified Estonians born and raised in the USSR. Even this cabinet, however, has virtually no autonomy, and functions mainly as a local agent for the execution of orders from the USSR central government. Today most Estonian laws are copies of USSR edicts, or laws of the Russian Soviet Republic. All key governmental posts are in the hands of the 31,000-man Estonian Communist Party, which is primarily an urban organization. Many of the party members are Russians. Of the 11-man bureau governing the party, only 2 are native Estonians. The others are Russians or Estonians from the USSR. All elections are single slate, with no candidates for office nominated except those approved by the Communist Party.

Economy.—In 1955, Estonian agriculture was about 98% collectivized, with 936 collective farms renting their large farm machinery from 69 state-owned machine-tractor stations. The average collective farm has 6,750 acres of land, and employs 145 families. There also are 80 state farms. Altogether, about 347,000 people work on both collective and state farms.

The chief agricultural occupation is dairy farming. Sale of livestock products accounts for 79% of Estonian collective farm income. Much of Estonia's meat, butter and eggs is now shipped to Leningrad. Because of peasant resistance to

collectivization, Estonian agriculture was declining in 1955. The milk production of collective farms was lower than in 1954; output costs on state farms remained high; and vegetable harvesting in the fall of 1955 was extremely slow.

Both heavy and light industries in Estonia have doubled in size since World War II. Oil-shale mining remained the chief industry in 1955, with most shale being converted into gas and piped to Leningrad and Tallinn. Shipbuilding and the manufacture of electrical machinery are other major industries, with the majority of their production being shipped to the remainder of the USSR. In general, Estonian industry today is a supply base either for Leningrad or for the Soviet Army and Baltic Fleet.

On Nov. 1, 1955, a new giant hydroelectric power station began operation on the Narva River, the power of which is used by both Estonian and Leningrad industries. All construction chiefs for the river dam and power station were Russian.

The 1955 planned budget provided for the total expenditure of 1,161,446,000 rubles (\$290,-361,500), of which 674,411,000 rubles were to be spent by the Estonian central government, and 487,035,000 rubles by city, town and rural district authorities. Of the tax revenues collected in Estonia during 1955, the major portion will not go to the Estonian government but will be taken by the USSR. Estonia will retain only 19.2% of its sales tax revenue, and 25% of its income tax receipts and machine-tractor station earnings.

It is estimated that the standard of living in Estonia today is about one third of the pre-World War II level, and roughly one eighth of the present living standard in the United States. The average Estonian worker earns from \$75 to \$150 per month (at the legal rate of exchange of 4 rubles to one dollar), yet he pays approximately \$4 for a pound of butter, and \$1.30 for a pound of sugar. A man's shirt costs about \$25; a pair of men's shoes, \$80; and a suit, \$350.

The USSR has built many launching platforms for guided missiles along the Estonian coasts, where there are also large concentrations of landing craft.

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ETHIOPIA. An empire in eastern Africa. Area (including Eritrea, q.v., federated with Ethiopia in 1952), about 457,000 square miles; pop. (est. 1951), about 16 million. Chief cities: Addis Ababa, the capital (400,000); Asmara, capital of Eritrea (90,000); Dessie (36,000); and Dire-dawa (30,000). The Amhara, the ruling minority, live chiefly in the north. They are of Hamitic-Semitic origin and of the Coptic Christian faith. The Galla, forming about half the population, are of Hamitic descent and include Moslems, pagans, and a few Christians. Pastoral Danakil and Somali inhabit the east, and the Nilotic Bantus the southwest. There are some 40 languages and dialects, chief of which are Amharic (the official language), Galla, and Tigrinya.

Government.—Emperor Haile Selassie I (b. 1891) was crowned king in 1928 and emperor in 1930. On Nov. 4, 1955, the emperor promulgated a new constitution, replacing that of 1931. The constitution, 6 years in preparation, provides for universal suffrage for the first time in Ethiopian history. The lower house of the Ethiopian Parliament is to be popularly elected. The emperor, however, retains his imperial veto over legislation, the right to dissolve Parliament, and the power to appoint judges and cabinet ministers. The emperor may legislate by decree when Parliament is not in session, but

Parliament may abrogate such decrees. The constitution also provides for equal protection of the law for all citizens and guarantees freedom of speech and of the press. The Ethiopian Orthodox Church is established as the state church.

Education.—About 60,000 pupils attend government schools and an additional 55,000 attend Coptic Church schools. Addis Ababa has 6 secondary schools with about 2,450 students, 2 teacher-training schools, and a few technical, commercial, and handicraft schools. There is an agricultural college at Ambo.

Finance.—Official budget data are not published. For the fiscal year ended Sept. 9, 1954, unofficial estimates place revenue at Eth.\$106,340,000, and expenditure at Eth.\$99,994,461. The Ethiopian dollar equals U.S.\$0.4025. United States allotments of aid to Ethiopia in the period April 1948–March 1955 totaled U.S.\$8,612,000.

Production.—Despite the abundance of fertile land and resources, output is limited by primitive techniques and inadequate transport. Cereals production, chiefly durra and teff, approximates 1.4 million metric tons annually. Coffee, the chief export crop, was estimated at 680,000 bags (132.3 pounds each) in 1954–55 (prelim.). Pulses and oilseeds are produced both for export and home consumption. Sugarcane, tobacco, cotton, and plantains are grown on a small scale. Meat and dairy products, hides, and skins are yielded by the large herds of cattle, sheep, and goats. Salt, gold, and platinum are the chief minerals exploited. In 1953 there were 123 manufacturing establishments employing 10 or more workers; wage earners numbered 9,700; and gross value of output totaled Eth.\$37.2 million. Over half the industrial output was accounted for by textile plants, oil and soap factories, and tobacco and cement plants.

Foreign Trade.—For the year ended Sept. 9, 1954, exports totaled Eth.\$174,622,688; imports Eth.\$155,176,409. Coffee constituted 65.2% of the value of exports. Other exports included cereals and pulses, oilseeds, and hides and skins. Chief imports are cotton textiles, petroleum products, motor vehicles, sugar, and other foodstuffs and manufactures. The United States, Ethiopia's chief customer, took 31.8% of exports and provided 13.9% of imports.

Transportation and Communications.—A French company operates the 487-mile railway from Addis Ababa to Djibouti, French Somaliland; 421 miles of the line is in Ethiopia. The only other railway is a 191-mile line in Eritrea. There are some 3,000 miles of primary and 4,000 of secondary roads. The 1951–54 highway program, undertaken with United States aid, involved improvement of some 2,050 miles of roads at an expenditure of Eth.\$42 million. (See also HIGHWAYS.) The government-owned Ethiopian Airlines is operated under a management contract by Trans-World Airlines. Motor vehicles in 1954 numbered 15,437; telephones, 5,825.

Principal Events, 1955.—Celebration of the 25th anniversary of Emperor Haile Selassie's accession to the throne took place in Addis Ababa, November 2–3. The emperor promulgated a new constitution on November 4, providing for universal suffrage and a popularly elected lower house of Parliament. The new constitution guaranteed freedom of speech and of the press and other democratic liberties. The emperor also announced that the nation's civil, penal, commercial, and maritime laws had been codified.

To honor the emperor, a Silver Jubilee Fair was held in the capital, November 5–December 4. It was hoped that the fair would stimulate business, which had been suffering a decline since late 1954 due to the fall in world coffee prices. The Export-Import Bank of Washington on October 3 announced a \$24 million credit to

Ethiopia for the purchase of commercial aircraft and the development of commercial aviation facilities.

ETHNOLOGY. See Index entry, *Anthropology*.

EUROPE. United Nations estimates place the area of Europe (exclusive of USSR and European Turkey) at 1,903,500 square miles, and the mid-1954 population (exclusive of USSR) at 406,500,000. (See separate articles on individual countries, and the Index entry, *Europe*.)

EUROPE, Council of. See COUNCIL OF EUROPE.

EUROPEAN COAL AND STEEL COMMUNITY. Organized in 1952 to provide a free trade area for the coal and steel industries of Belgium, France, the German Federal Republic, Italy, Luxembourg, and the Netherlands, the ECSC has become one of the most important international cooperative organizations. (For the organization of the ECSC, see EUROPEAN ORGANIZATIONS.)

Production.—Community coal production in 1954 amounted to 241,600,000 metric tons, an increase of 2% over 1953, and the highest total since World War II. Steel production reached 43,700,000 metric tons, an increase of 10% over 1953 and 4.6% over 1952, the previous record year.

Loans.—In order to develop production facilities, loans are made by the High Authority to various individual enterprises in member countries for 25-year periods at an interest rate of 4.1%. In April 1954 the United States granted a loan of \$100 million to the High Authority through the Export-Import Bank of Washington. This loan, running for 25 years with an interest rate of 3½%, had been allocated by the end of June 1955 to 54 firms, as follows: thermal power stations, \$46,570,000; colliery installations, \$30,980,000; iron ore mines, \$18,750,000; and cokerries, \$3,700,000. Although the American and the High Authority's loans covered only 20% to 30% of any given investment, their low rates of interest forced loans from other sources (\$350–\$400 million) to carry lower than normal interest rates.

Taxes and Subsidies.—In order to supply various established funds with capital, the High Authority levies taxes on the coal and steel produced within the community. Because the funds had reached a satisfactory level, the High Authority reduced the 0.9% tax to 0.7% on July 1, 1955, and to 0.45% on Jan. 1, 1956.

The High Authority has ended subsidies for an estimated 25% of Belgian coal production. Production of anthracite coal will no longer be subsidized, and the High Authority and the Belgian government have decided that three mines in the Campine region can already meet the competition of other areas.

Principal Events, 1955.—Although tariffs, quotas, and currency restrictions were removed within the community by the establishment of common markets for coal and iron ore (Feb. 10, 1953), scrap iron (March 1, 1953), standard steels (May 1, 1953), and special steels (Aug. 1, 1954), subsidies to part of the industry, differences in tax structure and social insurance policies, cartel restrictions, and varying railway rates remain. It was not until Jan. 20, 1955, that the Council of Ministers undertook to solve the problem of railway transport (multiple terminal taxes at international borders within the community).

On May 1, 1955, multiple (split) tariffs on coal and iron ore were ended and two thirds of the excess terminal charges were cut; the remain-

ing one third were to end a year later. On May 1, 1956, similar treatment was to be accorded steel and scrap, with the remaining one third excess terminal charges to end on May 1, 1957. Despite these improvements, much still remains to be done to harmonize national transport companies so that they do not hinder the growth of a genuine single market.

On Dec. 21, 1954, the ECSC's Court of Justice upheld a French appeal and ruled that the High Authority cannot permit deviations from published list prices. In line with this decision the High Authority requested all steel companies to publish, beginning Jan. 24, 1955, their actual prices and all future price changes. In February the community resorted to sanctions for the first time and imposed fines on two firms, one Belgian and one Italian, for refusing to adhere to the policy of published prices.

The Common Assembly met at Strasbourg, France, on May 10-14, 1955, for its annual regular session, and passed resolutions calling on the Special Council of Ministers to further the integration of Europe in line with the Benelux suggestions to enlarge the community's powers in the economic field. Changes were suggested, especially in transport, electricity and gas production, and atomic energy, and toward the gradual extension of free trade to products other than coal and steel, and the progressive harmonization of the social legislation of the member states.

Meeting at Messina, Sicily, from June 1 to 3, 1955, the Council of Ministers decided to appoint a committee of national representatives to study the problems raised by the Benelux proposals. The committee, including representatives from Great Britain (which became associated with the community on Dec. 21, 1953), began their meetings in July. On September 6 it was announced that progress had been made toward integrating transport, nuclear energy, and power and fuel, as well as toward establishing a common market.

At the Messina meeting the Council of Ministers nominated René Mayer, a former French premier, to succeed Jean Monnet as chairman of the High Authority.

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EUROPEAN ORGANIZATIONS. The following major organizations are designed to achieve collective action among member nations in the military, economic, and other spheres.¹

North Atlantic Treaty Organization (NATO).—Treaty signed by 12 states in Washington, April 4, 1949. Membership (1955), 15 states: United States, United Kingdom, France, Italy, Belgium, Canada, Denmark, Iceland, Luxembourg, Netherlands, Norway, Portugal, Greece (since 1952), Turkey (since 1952), and the German Federal Republic (since 1955). Chief organs (1955):

I. North Atlantic Council (15 states); headquarters, Paris

II. Military Committee (13)²

A. Military Representatives Committee (13)²; headquarters, Washington

B. Standing Group (3); headquarters, Washington

1. NATO Supreme Commands:

a. European Command: Supreme Headquarters, Allied Powers, Europe (SHAPE); Supreme Allied Commander, Europe (SACEUR); headquarters, Rocquencourt (near Paris)

b. Atlantic Ocean Command: Supreme Allied Commander, Atlantic (SACLANT); headquarters, Norfolk, Va.

c. Channel Command: Allied Commander in Chief, Channel and Southern North Sea

¹ Articles on NATO, WEU, ECSC, and Council of Europe will be found under their own headings.

² Iceland has no military representative, and Luxembourg is represented by Belgium.

(CINCCAN); headquarters, Portsmouth, England; and Allied Maritime Air Commander in Chief, Channel and Southern North Sea (CINCMARCHAN); headquarters, Northwood, England

2. Canada-United States Regional Planning Group; headquarters, Washington

3. Channel Committee (4); headquarters, London

4. NATO Defense College

5. Military Agency for Standardization (MAS)

6. European Military Communications Coordinating Committee (EMCCC)

7. Advisory Group on Aeronautical Research and Development (AGARD)

8. Air Training Advisory Group (ATAG)

III. International Staff/Secretariat; headquarters, Paris

(For a more detailed outline of NATO's structure, see North Atlantic Treaty Organization.)

Organization for European Economic Cooperation (OEEC).—Convention signed in Paris, April 16, 1948. Some functions have been transferred to NATO agencies. Membership (1955), 17 states: NATO members (except United States and Canada) plus Austria, Ireland, Sweden, and Switzerland. Headquarters: Paris. Chief organs:

(1) Council (17)

(2) Executive Committee (7)

(3) Secretariat

Western European Union (WEU).—Based on the former Brussels Treaty Organization created under the Brussels Treaty, signed on March 17, 1948, by the United Kingdom, France, Belgium, the Netherlands, and Luxembourg. On May 5, 1955, protocols signed in Paris on Oct. 23, 1954, came into force, transforming the Brussels Treaty Organization into WEU, with the German Federal Republic and Italy as additional members. Chief organs (1955):

(1) Council (7)

(2) Assembly (representatives of WEU nations in the Consultative Assembly of the Council of Europe)

(3) Civilian secretariat; headquarters, London

Council of Europe.—Statute signed in London, May 5, 1949. Purpose: to promote, through recommendation, the development of European unity. Membership (1955), 14 states plus the Saar (associate member): NATO states (except United States and Canada) plus Sweden. Headquarters: Strasbourg, France. Chief organs:

(1) Committee of Ministers (14)

(2) Consultative Assembly (132)

European Coal and Steel Community (ECSC).—Treaty signed in Paris, April 18, 1951 (entered into force July 25, 1952). Purpose: to establish a free trade area for the coal and steel industries of member nations. Membership, 6 states: France, German Federal Republic, Italy, Belgium, Netherlands, and Luxembourg. Headquarters: Luxembourg (city). Chief organs:

(1) High Authority (9)

(2) Special Council of Ministers (6)

(3) Consultative Committee (30-51)

(4) Common Assembly (78)

(5) Court of Justice (7)

MEMBERSHIP IN EUROPEAN ORGANIZATIONS

Country	NATO	OEEC	Coun. of Eur.	ECSC	WEU
Austria.....	no	yes	no	no	no
Belgium.....	yes	yes	yes	yes	yes
Canada.....	yes	no	no	no	no
Denmark.....	yes	yes	yes	no	no
France.....	yes	yes	yes	yes	yes
Germany, West..	yes	yes	yes	yes	yes
Greece.....	yes	yes	yes	no	no
Iceland.....	yes	yes	yes	no	no
Ireland, Rep. of..	no	yes	yes	no	no
Italy.....	yes	yes	yes	yes	yes
Luxembourg.....	yes	yes	yes	yes	yes
Netherlands....	yes	yes	yes	yes	yes
Norway.....	yes	yes	yes	no	no
Portugal.....	yes	yes	no	no	no
Saar.....	no	no	yes	no	no
Sweden.....	no	yes	yes	no	no
Switzerland.....	no	yes	no	no	no
Turkey.....	yes	yes	yes	no	no
United Kingdom..	yes	yes	yes	no	no
United States....	yes	no	no	no	no

EUROPEAN PAYMENTS UNION. An arrangement for multilateral exchange and transferability of currencies, established by members of the Organization for European Economic Cooperation (OEEC) with United States aid, to facilitate trade between member nations pending full convertibility. The EPU became effective on July 1, 1950, and was to expire on June 30, 1952. By

decisions of the OEEC Council, however, the life of EPU has been extended each year. EPU operations are supervised by a 7-member managing board nominated by the OEEC Council.

Operations of the EPU are as follows: (1) At the end of each month each member reports the bilateral end-of-month balances of its monetary area with other members and their monetary areas to the agent (Bank for International Settlements), which establishes a net surplus or deficit for each member. (2) These net surpluses or deficits are settled 75% in gold payments and 25% in credit extended to or by the EPU. Maximum limits (shown in the table) have been established, to which any member's claim on EPU, or its debt to EPU, can rise. (3) Deficits falling outside the established limits are settled fully in gold, and surpluses are settled in accordance with *ad hoc* arrangements between EPU and the country concerned.

EUROPEAN PAYMENTS UNION: MAXIMUM CREDIT LIMITS AND NET SURPLUSES AND DEFICITS OF MEMBER COUNTRIES
(In millions of U.S. dollars)

Member	Maximum credit limits		Cumulative net surplus or deficit (-), July 1950—Oct. 1955*
	As creditor	As debtor	
Austria.....	42.0	42.0	-93.2
Belgium-Luxembourg.....	201.3	216.0	816.6
Denmark.....	117.0	126.1	-227.5
France.....	312.0	334.8	-838.2
Germany.....	625.0	300.0	1,531.2
Greece.....	27.0	...	-290.4
Iceland.....	9.0	9.8	-26.2
Italy.....	123.0	205.0	-468.6
Netherlands.....	213.0	213.0	409.6
Norway.....	120.0	127.4	-265.6
Portugal.....	42.5	42.0	-15.0
Sweden.....	156.0	156.0	79.4
Switzerland.....	212.5	150.0	346.5
Turkey.....	30.0	30.0	-325.5
United Kingdom and Ireland.....	636.0	674.8	-603.9
Totals.....	2,828.0	2,626.9	+3,183.2 -3,181.1

* After mid-November settlements. (Source: International Monetary Fund.)

The chief problems considered by the OEEC Council in its meetings of Jan. 13-14, 1955, and June 9-10, 1955, involved the movement toward convertibility and arrangements to aid in the adjustment thereto. At its June meeting, the OEEC Council decided that the EPU would be continued to June 30, 1956, but could be terminated at any time before then if desired by member countries whose quotas amounted to at least half the total. Beginning with August 1955, settlements would be made on a basis of 75% gold and 25% credit, as compared with 50% gold and 50% credit in the period July 1954-July 1955. As soon as EPU came to an end, a European Monetary Agreement would come into operation, administered by a managing board similar to that of EPU. The European Monetary Agreement would consist of two interrelated structures, a European Fund and a Multilateral Clearing System. The European Fund would provide short-term credit to member countries whose balance-of-payments situation required it. Capital of the fund would be \$600 million (\$271,575,000 from the residue of EPU capital and \$328,425,000 in contributions from member countries). The Multilateral Clearing System would ensure that, under conditions of convertibility, any member country could obtain temporary financial accommodation. If the EPU had not been terminated by March 31, 1956, the OEEC would review the

conditions on which EPU might be renewed after July 1, 1956, and would also review the provisions of the European Monetary Agreement.

EUROPEAN UNION. See WESTERN EUROPEAN UNION.

EVENTS OF THE YEAR. See the CHRONOLOGY at the front of this volume.

EXCHANGE RATES. Exchange rate developments in the 12 months ending Oct. 31, 1955, are summarized below.

Bolivia.—The par value agreed with the International Monetary Fund (IMF) remained nominally at 190 bolivianos per U.S. dollar. Since mid-1954, no exchange rate is directly applicable to exports because these are made by or through government agencies. Imports are made at the 190 rate, but are subject to varying surcharges so that effective rates range up to 15 times the 190 rate. In the free market, confined to invisibles, the boliviano depreciated from about 1,900 to 3,000 bolivianos per dollar from December 1954 to September 1955.

Brazil.—Brazil continued its complex system of multiple rates. Export rates, which are administratively determined, were depreciated in all categories and for all currencies at the beginning of 1955. Since then additional effective depreciation has occurred by shifting many categories of goods to more depreciated rates. Import transactions continued to take place at both nonfluctuating rates for favored goods and at fluctuating and considerably more depreciated rates for all other goods. Most nonfluctuating rates were substantially depreciated during the year, but still remain at levels several times more favorable than the fluctuating rates. These latter vary according to the goods imported and the currency used in payment. As of September 1955, effective export rates ranged from 36 to 50 cruzeiros per U.S. dollar, and import rates from about 19 to 425 cruzeiros.

Chile.—During 1955 the Chilean peso continued to depreciate. Whereas at the end of 1954 the principal rate for both exports and imports was 200 pesos per U.S. dollar with a number of "essential" imports made at a rate of 110, by the fall of 1955 the principal rate had depreciated to 300. The 110 and 200 rates remain in effect but have considerably less application. The free rate, used primarily for invisibles, depreciated from 315 to 750 pesos per U.S. dollar from December 1954 to September 1955.

Colombia.—In February 1955, Colombia eliminated the differential rate that had been in effect for coffee exports, thereby making the rate of 2.50 pesos per U.S. dollar applicable to practically all trade transactions. In April 1955, however, a number of minor exports and a substantial volume of imports (so called less-essentials) were shifted from the 2.50 rate to the free market. For these transactions, the rate as of October 31 approximated 4.00 pesos per U.S. dollar.

Iran.—Iran continued its policy of gradual appreciation. Buying and selling rates as of Oct. 31, 1955, were 75 and 76.5 rials per U.S. dollar. In December 1954, rates were 78 and 82 buying and 84.5 selling. In February 1955 the buying rate in effect as of October 31 was established and the effective import rate was changed to 79.50. In August 1955 the import rate was further changed to the October 31 level.

Indonesia.—In September 1955, Indonesia abolished the structure of tax rates on imports and established two fixed rates—17.21 and 22.95 rupiah per U.S. dollar for most imports. Auction

rates (quotations not yet available) were established for luxury imports. The export rate continued unchanged throughout the period at 11.36 rupiah per U.S. dollar.

Nicaragua and Pakistan.—These countries agreed with the IMF on changes in par value from 5.00 to 7.00 and from 3.309 to 4.762 cordobas and rupees, respectively, per U.S. dollar on July 1 and July 31, 1955. In Nicaragua, at the same time, effective import rates of 8 and 10 cordobas were discontinued. Otherwise the systems remained unchanged.

Paraguay.—Effective rates as of Oct. 31, 1955, ranged from 15 to 49 guaranies per U.S. dollar for exports, and from 21 to 75 guaranies for imports. Although during the past year there

PAR VALUES OF CURRENCIES OF MEMBER
COUNTRIES OF THE INTERNATIONAL MONETARY
FUND
(As of October 31, 1955)

Country	Currency Unit	Par value (Units per U.S. dollar)
Afghanistan.....	afghani	 ¹
Australia.....	pound	4.464
Austria.....	schilling	26.00
Belgium.....	franc	50.00
Bolivia.....	boliviano	190.00
Brazil.....	cruzeiro	18.50
Burma.....	kyat	4.762
Canada.....	dollar	 ²
Ceylon.....	rupee	4.762
Chile.....	peso	110.00
China.....	yuan	 ¹
Colombia.....	peso	1.950
Costa Rica.....	colon	5.615
Cuba.....	peso	1.000
Denmark.....	krone	6.907
Dominican Republie.....	peso	1.000
Ecuador.....	sucre	15.00
Egypt.....	pound	3.482
El Salvador.....	colon	2.500
Ethiopia.....	dollar	2.484
Finland.....	markka	230.0
France.....	franc	 ³
Germany.....	Deutsche mark	4.200
Greece.....	drachma	 ¹
Guatemala.....	quetzal	1.000
Haiti.....	gourde	5.000
Honduras.....	lempira	2.000
Iceland.....	krona	16.29
India.....	rupee	4.762
Indonesia.....	rupiah	 ¹
Iran.....	rial	32.25
Iraq.....	dinar	3571
Israel.....	pound	 ¹
Italy.....	lira	 ¹
Japan.....	yen	360.0
Jordan.....	dinar	3571
Korea.....	hwan	 ¹
Lebanon.....	pound	2.191
Luxembourg.....	franc	50.00
Mexico.....	peso	12.50
Netherlands.....	guilder	3.800
Nicaragua.....	cordoba	7.000
Norway.....	krone	7.143
Pakistan.....	rupee	4.762
Panama.....	balboa	1.000
Paraguay.....	guarani	21.00
Peru.....	sol	 ⁴
Philippines.....	peso	2.000
Sweden.....	krona	5.173
Syria.....	pound	2.191
Thailand.....	baht	 ¹
Turkey.....	lira	2.800
Union of South Africa.....	pound	3571
United Kingdom.....	pound	3571
United States.....	dollar	1.000
Uruguay.....	peso	 ¹
Venezuela.....	bolivar	3.350
Yugoslavia.....	dinar	300.0

¹ Par value not yet established. ² On Sept. 30, 1950, Canada introduced an exchange system under which the exchange value of the Canadian dollar is allowed to fluctuate so that exchange transactions in Canada are not necessarily based on the par value of 1.100 Canadian dollars per U.S. dollar established on Sept. 19, 1949. ³ No par value agreed with the IMF since Jan. 26, 1948. ⁴ In November 1949, Peru introduced an exchange system under which the par value of 6.50 soles per U.S. dollar agreed on Dec. 18, 1946, applies to no transactions. No new par value has been proposed.

has been little change in the range of existing rates, a number of new rates within this range and representing substantial depreciation for various transactions were established.

Thailand.—In the year 1955, Thailand made the free rate applicable to all exchange transactions by first, at the beginning of 1955, making the free rate partially applicable to rice export proceeds, and by later (in August and September 1955) making the free rate totally applicable to rice, tin, and rubber export proceeds. The free rate had already applied to all other transactions.

In October 1955, the Canadian dollar, which throughout the earlier part of 1955 was at a slight premium over the U.S. dollar, fell to par. In other countries employing free rates for all or a large portion of exchange transactions (Lebanon, Peru, Switzerland, and Syria) rates remained relatively stable throughout the year.*

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Economist, International Monetary Fund.

EXHIBITIONS. See Index entry.

EXPLORATION. See GEOGRAPHY AND EXPLORATION.

EXPLOSIONS. See Index entry.

EXPORT-IMPORT BANK OF WASHINGTON. The basic purpose of the bank is to facilitate and assist in the financing of both the export and import trade of the United States.

Public Law 570, 83d Congress, 2d Session, 68 Stat. 677, amending the Export-Import Bank Act of 1945, became effective on Oct. 11, 1954, when Glen E. Edgerton, president, Lynn U. Stambaugh, first vice president, and Hawthorne Arey, director, entered office. Vance Brand and George A. Blowers were subsequently appointed directors to complete the five-man bipartisan Board of Directors. In July 1955 the bank announced appointment of its nine-man Advisory Committee, which is broadly representative of production, commerce, finance, agriculture, and labor. Roy C. Ingersoll was designated chairman. The Advisory Committee will meet at least once a year to consult with the bank on its program. Following the resignation of Glen E. Edgerton, Samuel C. Waugh was appointed president of the bank on Oct. 4, 1955.

The year ended Aug. 31, 1955, witnessed a continuing uptrend in the lending activities of the bank. New applications were received at a rate over three times the previous three-year average, and the number of credits authorized during the first half of the calendar year 1955 was larger than for any previous six-month period since the bank was established. The bank has continued its practice of assisting exporters in financing specific transactions on a case-by-case basis. In addition, it has undertaken, in appropriate cases, to establish credit lines for exporters under the terms of which they are appraised in advance, in fairly specific terms, as to how far the bank may be willing to go in financing their exports to specific countries. In the year ended Aug. 31, 1955, the bank had authorized 108 exporter credit lines in a total amount of \$152,-970,000.

Although most requests for assistance in 1954-55 originated with United States suppliers, the bank continued to receive and, in appropriate

* For a more detailed account of exchange rate changes during the year, and for current information on exchange rates and exchange control systems in general, consult *International Financial Statistics*, published monthly by the International Monetary Fund.

cases, to approve requests of foreign entities and governments for credits to finance the acquisition of United States materials, equipment, and services for developmental projects to be undertaken abroad.

The cumulative total of credit authorizations as of Aug. 31, 1955, was \$7.3 billion. Total loans outstanding amounted to \$2.6 billion, and the unutilized portion of established active credits was \$810.7 million. Total earned surplus amounted to \$367.1 million. A dividend of \$22.5

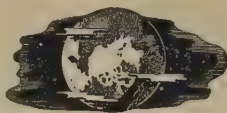
million on the bank's capital stock of \$1 billion was paid to the treasurer of the United States at the end of the fiscal year 1955.

EDWARD S. CONGER,
Assistant Secretary.

EXPORTS. See INTERNATIONAL TRADE and the section on foreign trade in articles on the individual countries.

EXPOSITIONS. See FAIRS AND EXHIBITIONS.

EYES, Diseases of the. See OPHTHALMOLOGY.



FAROE (or FAROE) ISLANDS. A group of 21 islands (18 inhabited) in the North Atlantic between the Shetland Islands and Iceland. Area, 540 square miles; pop. (est. 1954), 33,000. The capital and chief city is Thorshavn (4,390). The islanders exercise home rule and send two representatives to the Danish Folketing. Sheep raising and fishing are the chief occupations. On April 21, 1955, the villagers of Klaksvig, on Bordö Island, violently opposed an order of the Danish government removing a local physician accused of collaboration with the Nazis in World War II. Minor outbreaks again took place in September and November, and 14 Klaksvig men were placed on trial for violence and rebellion.

FAIRS AND EXHIBITIONS. The following article reviews major developments of 1955 in two sections: (1) Agricultural Fairs; and (2) International Trade Fairs. For references to related subjects, see the Index entry, *Shows*.

AGRICULTURAL FAIRS

The fear that state and county fairs and provincial exhibitions would wane in popularity because of competition from various forms of commercial entertainment evidently was groundless. During 1955 the fairs of the United States and Canada had a most successful season, except in a few localities. Record and near-record attendance marks were registered by most of the larger fairs, and the smaller county events had a prosperous season.

Improvement of fair properties has continued on a large scale. The Oklahoma State Fair (Tulsa) has received approval of a bond issue for \$2.1 million in plant improvements, including an exhibit building to cost \$870,000. The Red River Exhibition (Winnipeg) has a new \$2 million arena. The Canadian National Exhibition (Toronto) is at work on a new \$3 million women's building. The York, Pa., Interstate Fair added a new coliseum in 1955. These are only a few examples of improvements being made at leading fair grounds.

Four widely separated major fairs still hold the records for attendance. Topping all in 1955 was the Canadian National Exhibition (Toronto) with an attendance of 2,809,500, only slightly under that of 1954. Ranking second was the Texas State Fair (Dallas) with over 2,000,000; third, the Los Angeles County Fair (Pomona, Calif.) with 1,021,909; and fourth, the Minnesota State Fair (St. Paul) which set a new record of 1,008,101.

With few exceptions, fairs throughout the

United States had attendance marks close to or above those of previous years. One exception was the Wisconsin State Fair (Milwaukee), which was hard hit because of a polio epidemic. Among the larger attendance marks were: the Illinois State Fair (Springfield), 950,000; Michigan State Fair (Detroit), 786,758; California State Fair (Sacramento), 752,303; Indiana State Fair (Indianapolis), 590,000; Missouri State Fair (Sedalia), 542,175; Iowa State Fair (Des Moines), 505,000; Ohio State Fair (Columbus), 505,000; Virginia State Fair (Richmond), 399,330; New Jersey State Fair (Trenton), 400,000; New Mexico State Fair (Albuquerque), 365,000; and Colorado State Fair (Pueblo), 240,000.

Large district fair attendance marks included: Reading, Pa., 240,819; Spencer, Iowa, 175,000; Owatonna, Minn., over 150,000; Southern California Exposition (Del Mar), 244,567; and Davenport, Iowa, 82,783.

In Canada, the Pacific National Exhibition (Vancouver, B.C.) drew an attendance of 750,792; the Central Canadian National Exhibition (Ottawa), 431,197; the Exposition Provinciale (Quebec), 360,000; the Provincial Jubilee Exhibition (Regina, Sask.), 203,342; and the Greater Winnipeg Exhibition (Winnipeg, Man.), 150,000. The exhibition at Brandon, Man., topped its 1954 mark, while that at Edmonton, Alta., showed reduced attendance because of rain and excessive heat.

NAT GREEN,
Chicago Representative, "Radio-Television Daily"; Former Manager, Chicago Office, Ringling Bros.-Barnum & Bailey Combined Shows, Inc.

INTERNATIONAL TRADE FAIRS

The more important developments in international trade fairs in 1955 were: the greater interest displayed in this form of trade promotion by several countries of the Far East; the continuing development of the international vertical or industry exhibit; and the greatly increased United States participation in trade fairs throughout the world.

Twenty-three international trade fairs were scheduled to open their doors in the Far East in 1955. The increasing reliance of the Far East on this means of trade promotion reflects the desire of the countries of this region to develop their international trade as well as their confidence in the effectiveness of this institution as a business producer.

Vertical, or industry, exhibits increased in both size and number during 1955, reflecting the

emergence of new industries and products in that year of world economic expansion, as well as the growing popularity of those international exhibits where the products of but a single, or a related group, of industries were offered for sale.

In 1955 the United States greatly expanded its international trade fair participation program. This program, administered by the Department of Commerce, consists of two closely integrated parts: the central government-industry exhibits, and the trade fair missions.

The United States central government-industry exhibits emphasize some theme describing American life under the free enterprise system, American industry's production for peace, or how America's science and industry can help raise standards of living. Products of American industry, loaned or given to the government, and which serve to underline the exhibit theme or the product emphasis of the fair itself, are on display at the central exhibit.

The trade fair missions, composed of Department of Commerce specialists and businessmen selected for each fair on the basis of their specialized competence, staff trade information centers at those fairs selected for United States participation. Each trade information center is a small "field office" of the Department of Commerce and an extension of the commercial services of the United States embassy in the fair country, where visitors to the fair can come for information on doing business with United States firms and to request the services offered by the Department of Commerce to help in promoting trade.

Government activities in exhibiting are intended to strengthen and support displays by private business which, for many years, has participated in international fairs. In 1955 the relationship between the two types of exhibits was made clear to all observers by a symbol—the head of the Statue of Liberty done in gray on a red, white, and blue background.

By the end of 1955, the United States government had participated in 24 international trade fairs held in Bangkok (December 1954), Frankfurt, Milan, Lyons, Brussels, Hannover, London, Tokyo, Paris, Palermo, Toronto, Barcelona, Djakarta (Indonesia), Stockholm, Karachi, Salonika, Bari, Vienna, Berlin, New Delhi, Addis Ababa (Ethiopia), Bogotá (Colombia), Ciudad Trujillo (Dominican Republic), and Phnom Penh (Cambodia). At three of these—Lyons, London, and Toronto, the government had only a trade information center; and at one, Phnom Penh, a central exhibit only.

F. PRESTON FORBES,
*Director, International Trade Development
Division, Bureau of Foreign Commerce,
U.S. Department of Commerce.*

FALKLAND ISLANDS. The principal among some 200 islands comprising this British crown colony in the South Atlantic Ocean (area, exclusive of dependencies, 4,618 square miles; pop., 2,212 in 1954) are East Falkland (2,580 square miles), on which is Stanley, the capital (pop., 1,135), and West Falkland (with adjacent small islands, 2,038 square miles), lying some 300 miles east of the Straits of Magellan.

Most important of five dependencies is South Georgia (area, 1,450 square miles; pop., 1,500 in the whaling season); the others, scattered southeastward to the Arctic, are the South Shetlands (1,800 square miles); South Orkneys (240 square miles); South Sandwich (130 square miles); and Graham Land, the last forming part of the Antarctic continent (known by the United States

as the Palmer Peninsula). The colony's population is almost entirely of British stock.

A governor (Oswald Raynor Arthur, assumed office April 1, 1954) is assisted by a 7-member Executive Council (including 3 nonofficials) and an 11-member Legislative Council, the latter having a nonofficial majority of one. Revenue in 1954 totaled £241,741; expenditure, £221,931. Education is compulsory. A government school in Stanley had about 180 pupils in 1954; in addition, 7 settlement schools, with 10 traveling teachers, were maintained in the country districts.

Sheep raising is the colony's principal industry (599,905 sheep raised on 2,875,520 acres in 1953-54). Exports in 1954 were valued at £506,163 (wool, £453,300; hides and skins, £34,553; tallow, £1,975; casings, £560; frozen meats, £15,775); and imports, £484,545. Aggregate exports (Falkland Islands and dependencies), including whale oil production at South Georgia, were valued at £5,882,660 in 1954; imports, £3,172,912. The colony has an internal government air service. Interisland transport is maintained by a government motor vessel, 3 privately owned coasters, and a ship of the Falkland Islands Company; the latter also conveys passengers and mails to South America.

By May 1955, British bases in the Antarctic numbered 16, including 6 in Graham Land reoccupied in 1954. In the course of expeditions by the Falkland Islands Dependencies Survey, a new base was surveyed and occupied in 1955 at Anvers Island in the South Shetlands, and another at Horseshoe Island on Marguerite Bay, about 150 miles south of the Antarctic Circle—the latter the most southerly point claimed by Great Britain. Parts of the area are claimed also by both Chile and Argentina. The latter government sent a large-scale expedition to the Antarctic in 1955, and announced on January 17 that a scientific base (the southernmost of several Argentinian bases set up in recent years) had been established on the shore of the Weddell Sea, 800 miles from the South Pole, apparently near the site of the Vahsel Bay base for the British Commonwealth 1956-57 transpolar expedition.

Argentina and Chile renewed in November 1954 their annual agreement with Great Britain to exclude gunboats south of latitude 60° during the Antarctic summer, but in 1955 both governments rejected a British offer to submit the conflicting claims of Antarctic sovereignty to arbitration. Accordingly the United Kingdom government in May 1955 submitted the disputes to the International Court of Justice, to which documents were presented supporting the British claim of title to the Falkland Islands dependencies, based on historical discoveries dating from 1675 to 1843, and on "a long record of effective occupation." (See also ANTARCTICA.)

FAMILY DATA. See Index entry, *Families*.

FARM CREDIT SYSTEM. Farmers and their marketing, purchasing, and service cooperatives in the year ended June 30, 1955, borrowed \$2.4 billion from the Farm Credit System, which is supervised by the Farm Credit Administration. This all-time high was \$218 million, or 10% more than in the previous year.

The Farm Credit System includes 1,100 national farm loan associations, 498 production credit associations, 12 land banks, 12 production credit corporations, 13 banks for cooperatives, and 12 intermediate credit banks. Each of the 12 Farm Credit District organizations includes a land bank, a production credit corporation, an intermediate credit bank, and a bank for cooperatives. The Central Bank for Cooperatives is located in Washington, D.C.

On June 30, 1955, farmers and their cooperatives owned capital stock of \$198 million in the system, an increase of \$11 million in the year.

Funds to make loans are obtained primarily by selling bonds and debentures in investment

markets. As of June 30, 1955, \$1.1 billion in land bank bonds was outstanding; \$793 million in intermediate credit bank debentures; and \$110 million in debentures of the 13 banks for cooperatives.

Farmers obtained 57,000 farm mortgage land bank loans for \$403 million through their 1,100 national farm loan associations in the fiscal year 1955. This was 34%, or \$101 million, more than in the previous year. At the end of the 1955 fiscal year, farmers had 351,000 land bank loans outstanding for \$1.4 billion, the largest amount since 1943, and 13% more than a year earlier. Farmers paid \$178 million on their land bank loans: \$102 million in matured principal and interest, and \$76 million ahead of schedule. Farmers also cut the cost of their farm mortgage credit by \$3.7 million, the amount returned in dividends on the stock they own in their local national farm loan associations.

Farmers obtained 272,000 operating credit loans for \$1.3 billion from their 498 production credit associations. While the number of loans increased only slightly, the amount was up 8%.

Farmer-members of 121 associations received \$792,000 in dividends, compared with \$592,000 paid by 86 associations in the 1954 fiscal year. Farmer-members of 30 of the dividend-paying associations also received \$418,000 in patronage refunds.

Farmer ownership of production credit associations reached a new high, with 419 of the 498 associations completely member-owned on June 30, 1955, compared with 354 a year earlier.

More farmers' cooperatives were using the 13 banks for cooperatives on June 30, 1955, than at any time in the banks' 22 years of operations. The 2,129 borrowing farmers' marketing, purchasing, and service cooperatives had loans outstanding of \$317 million, up 4% from the previous year. Of the \$500 million that cooperatives borrowed in the year, \$315 million was for operating capital, \$131 million for commodity loans, and \$54 million for facilities. Operating capital loans increased 13% and facility loans were up 9%, but commodity loans declined 19%.

The 12 federal intermediate credit banks providing funds for lending institutions made loans and discounts of \$1.9 billion. Of this total, 87% was for production credit associations and provided the bulk of their lending funds, 8% was for other financing institutions, 4% was for the 13 banks for cooperatives, and less than one half of 1% was for farmers' cooperatives.

R. C. ENGBERG,

*Chief, Research and Information Division,
Farm Credit Administration.*

FARM STATISTICS. See Index entry, *Farm*.

FARMERS HOME ADMINISTRATION. Loans made and insured by the Farmers Home Administration in the fiscal year 1955 reached \$293,190,000, the highest figure in the agency's history.

The insured farm loan program was greatly expanded during 1954-55. A soil and water conservation loan program was introduced about Oct. 1, 1954, to provide for soil conservation, water development (conservation and use), and drainage. Accordingly, loans were introduced for such improvements as construction and repair of terraces, ponds, waterways and erosion control structures, and ditches and canals for irrigation and drainage. Sodding, subsoiling, pasture improvement, brush removal, land leveling, tree planting, well drilling, and the purchase of pumps, sprinkler systems, and other irrigation

equipment may be financed through soil and water conservation loans. Such loans totaled \$19,491,000, of which \$15,469,000 was insured.

Private lenders provide the funds for insured loans, and the FHA makes and services the loans, and guarantees repayment. The volume of insured loans rose from \$9,500,000 in 1954 to \$47,402,000 in 1955, owing to increased participation by lenders and the use of insured loans in financing soil and water conservation.

During the 1955 fiscal year, approximately 135,000 loans were made to farm families, compared with 131,000 in 1954. Including farmers who already had loans, some 248,000 families worked their farms with Farmers Home Administration credit during 1955.

Production and subsistence loans to operators of family-type farms for the purchase of farm equipment, livestock, fertilizer, seed, and for other expenses totaled \$133,592,000. With these funds, owners and operators were enabled to develop balanced farming systems and make full use of their resources. Approximately 75% of the funds was invested in farm equipment, livestock, and other capital improvements.

Farm ownership loans for the purchase of and development of family-type farms, including construction and repair of farm houses and other essential farm buildings, totaled \$50,932,000, of which \$31,933,000 was provided through the insured loan program. Both the amounts loaned and insured set all-time records.

Approximately \$89,175,000 was advanced to permit farmers to continue normal operations under emergency conditions, including \$19,404,000 in special livestock loans.

FHA loans are available only to farmers who cannot obtain needed credit from other sources. Borrowers are required to refinance their loans as soon as possible. Applications for loans are made at the 1,500 county offices of the agency, serving agricultural areas throughout the United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. The eligibility of applicants is determined by local county committees composed of three members, at least two of whom are farmers.

During the fiscal year 1955, collections on principal and interest, including collections on insured loans, amounted to \$257,927,000, compared with \$194,539,000 in 1954. Loans outstanding as of June 30, 1955, totaled \$896,739,000.

R. B. McLEAISH,
Administrator.

FASHIONS. Fabrics.—Fabrics in the year 1955 were enormously varied and temperamentally in accord with prevailing fashions. Textures, weights, and looks contributed positively to the sliver-slim silhouettes. Spring suitings and coatings weighed ounces less, felt smooth and flat to the touch, and, in general, presented a trim, well-nourished appearance.

Wool, silk, linen, and cotton—used alone or compounded with each other or with synthetic yarns—were woven with dry, close surfaces. Classic men's wear suitings were the prototypes of these fabrics: worsted, serge, gabardine, and flannel in glen plaids, hound's tooth checks, heathers, and plains.

Tweeds, whatever their yarn ingredients, maintained perennially high ratings, but were divested of some weight, bulk, and bumps. Heather and gorse were played down in favor of genteel urbanity. This fresh invasion of breeze-weight fabrics made the year-round wardrobe

idea increasingly plausible to consumers on a seasonal buying schedule.

Crisp-bodied silks dominated the spring's dress scene: pongee, shantung, surah, and the inevitable crepe for day; and taffeta and peau de soie for dusk onwards. Chiffon floated in at night.

A slew of summertime's bright cottons and silks showed a bias for the Far East: sari prints, bleeding Madras plaids, and swirling Paisleys. Plaid hit the jackpot; all the Scottish clans piped their way into coat, suit, dress, and sportswear circles, with Black Watch most in evidence.

Men's wear suiting fabrics remained popular throughout the winter. Deep-pile and knitted-look wools were much in evidence for heavy coats. All markets from hats to shoes gave fur, both real and fake, a workout. Interest was stimulated in a fur-like coating, blended of Dynel and Orlon, which did its best to look like beaver or bear. Other fur-like fabrics popped up frequently.

Wool jerseys, bantam-light broadcloths, and wools scored in dresses with round-the-clock potential. For evening, satin was the big success. Orientally flavored damasks, metallic-threaded brocades, and lamé were also highly esteemed.

Color.—After the first crocus announces spring, navy blue is seldom far behind. This color again was the 1955 leader in coats, suits, and dresses. Other blues fared well, too. Spring shades as a whole were on the whitish-but-clear side and in pleasantly vivid casts. Beige showed in nutshell nuances—cashew, peanut, and walnut—and there was a fair share of gray, black, and white.

Summer was a high time for yellow and brown. The freshest prints depicted abstract, blurry conceptions of botanical and marine life.

Winter liked all the browns. Gold and red, brilliant or antiqued, proved good, as did *soignée* black. In 1955, the smart way to strut one's color was to stick to the same one, from top of head to tip of toe.



COURTESY OF HARPER'S BAZAAR

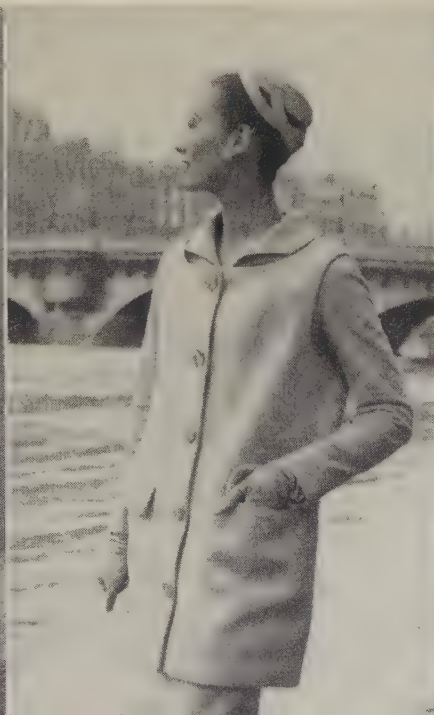
The "hattier" hat, featured by Balenciaga in 1955.

Silhouette.—Continuing headlong during 1955 in the direction indicated for several fashion seasons, the silhouette was streamlined to racing-car proportions. It cast its svelte shadow on every price, type, and size line, including even juniors, usually the loudest partisans of wasp waists and full skirts. Shoulders were narrow and natural, and sleeves were slender cut and set in high armholes. The bustline was a slow curve, while the waistline remained unclutched, inches below its normal position. The new body focal point was the hips, flat and molded. European and American designers both emphasized this silhouette concept.

The suit with a longer jacket was a year-round success. Hemlines of straight and gently

(Left) A short evening sheath with a v-back in satin brocade; (center) Givenchy's sleeveless tweed tunic coat, worn over a jersey suit; (right) polo coat in sheared raccoon, accented by a chignon and tote bag in natural fur.

COURTESY OF HARPER'S BAZAAR



fitted jackets were put up anywhere between knee and thigh for extremists, at hipbone and cautiously below for moderates. Tunics, straight or molded from the waist like riding jackets; box shapes, tapered at the hips; and blazers and cut-always all got a lion's share of attention. The tailoring of these jackets, as precise as for men's jackets, featured sharp, narrow revers; flap pockets; and neatly buttoned, double-breasted closings. Skirts were predominantly straight, their hiplines often delineated by a yoke. Others swung in pleats—accordion, box, or inverted—from the waist or a molded yoke. Many of these suits were sold in three pieces with an overblouse.

The slim, tubular coat did well in 1955. Its vertical line was established by the use of low-placed pockets and half belts sitting beneath hipbone level. A compromise toward the full was achieved in the A-line coat, a Dior ingenuity, which was close-fitting at top and which widened toward the hemline.

Daytime dresses included the unadorned sheath with or without belt; the long-torso bodice mounted on narrow or pleated skirts; and shirt-waist and coat styles, slim or belled.

The major look for informal evening was covered. Short, Chinese-derived sheaths counted on opulent fabrics, like satin, or on understated, elegant ones, like broadcloth, to give them nighttime status. Many had matching slim coats or box jackets for a costume effect. Detachable overskirts and panels sometimes accompanied them to lend mobility.

In separates, overblouses gave tuck-ins a run for their money. They hung over slim and yoked full skirts. Sweaters, too, had great appeal. Inches longer and knitted in bulky stitches, they jacketed dresses and skirts. Endorsing the overblouse way, they added soft necklines and hipband detailing. They appeared in sheath form, tailored and short, high-style and ankle-length.

Millinery.—The hatless head in 1955 was an unfashionable one. Against the vertically directed silhouettes, hats asserted themselves in extravagance of size and shape. The most chic hats attained the circumference of meat platters and the depth of vegetable bowls. In spring, they leaned back on the head in straw and felt, looking like overturned flower pots. In fall they sat square on the brow or else tipped to one side. Fur and fuzzy bodies were executed in these deepened, widened shapes.

Footwear.—The spectator pump, an old-timer, was back in style. With its perforated toe and cropped heel, it complemented suits. Designers improvised on the spectator theme with sling-back, crosshatched-front effects for dressy offerings. Pumps and flats came in glove-soft leathers and were trimmed down a full half inch at the heel. Two-color, two-leather shoes, colored soles, and printed leathers for uppers and linings were innovations.

Accessories.—Accessories worked hard to animate the dignified clothes. In jewelry, pins were massive and were cast in the images of crosses, buckles, and bowknots; branches and leaves; and birds, bees, and butterflies. Bracelets were spectacularly sized, too, in gilt and stone-studded cuff shapes, while earrings favored big, button types. Rhinestone jewelry emulated diamond settings with comparative success. Baroque pearl and bead mixtures, in spring's clear tints and winter's blackened ones, were bunched for necks and wrists.

Handbags clung mainly to their long, lean

contours. There were many of patterned leather and fabric early in the year, and of genuine and ersatz fur in winter.

The longer, slimmer-bodied glove was in the limelight in 1955, crushed down to meet less-than-wrist-length sleeves.

Men's Clothes.—The most popular men's business suit in 1955 was single-breasted, natural-shouldered, and narrow-lapeled, and was cut along easy, comfortable lines. Three-button varieties provided competition for the two-button styling. Dark colors, summer and winter, gained growing support because of their conservative looks. Charcoal grays and browns, and high-style olive green were all-year favorites. For suits and shirts, wash-and-wear fabrics in synthetic and natural blends lent their wrinkle-and-wilt resistant and air-conditioned properties.

Colored shirts for business, particularly in pin checks and stripes, won acceptance because they looked well with darker-toned suits. The dictatorship of the white shirt was shaken, but by no means overthrown. Heavy cotton walking shorts, cut with slim legs and flat hips, won greater popularity.

Sports shirts, such as cotton jersey pullovers, owed their convertible-collar and bateau-neck treatments to continental styling influences. Footwear designs were also continentally inspired. Shoes were flexibly constructed, lower cut, and more sparingly detailed, either with one-, two-, or three-eyelet fastenings, or as moccasin-type slip-ons. Black reasserted itself as a rival to brown for everyday wear.

Fashion Critics' Award.—Fashion's most coveted honor, the Coty American Fashion Critics' Award for outstanding creative achievement in fashion design, went to Jean Campbell of Sport-whirl, designer of separates and sport clothes; Anne Klein of Junior Sophisticates, designer of day and evening clothes in junior sizes; Herbert Kasper of Arnold and Fox, dress designer specializing in elegance at a moderate price; and Adolfo of Emme, trend-setter in millinery.

EVELYN FRANZEN,
Fashion Consultant; Editorial Staff,
"Woman's Day."

FATS AND OILS. World production of fats and oils and oil-bearing materials apparently reached another all-time high in 1955. Production of fats and oils was large in most areas, the notable exception being the Mediterranean region where output of olive oil fell to the lowest level since 1950. World production of soybeans, cottonseed, and peanuts, however, reached new peaks, while output of flaxseed and lard also increased.

In the United States, by far the world's largest exporter and producer of fats and oils, the 1955 soybean crop was estimated at 372 million bushels, 8% above the previous record of 1954.

United States flaxseed production in 1955 was the largest since 1948 and the third biggest of record. Peanut production was 70% more than the small crop of 1954, and the largest since 1950. Cottonseed output was larger than in 1954, while lard production was the largest since 1951.

The estimated production of fats and oils for the year ending Sept. 30, 1956 is 14.4 billion pounds, compared with an estimate of 13.6 billion for the year ended Sept. 30, 1955, and a 1937-41 annual average of 8.7 billion pounds.

World output of soybeans in 1955 was expected to reach a peak of nearly 764 million bushels, an increase of 6% over the 1954 revised estimate.

World peanut production was forecast at a record 12.1 million short tons, an increase of 5% over both 1954 and 1953. United States production provided the most significant increase. Harvests in Africa were also considerably larger than in 1954, while production in Argentina was down.

World flaxseed production was forecast at 139 million bushels, 14% more than the revised estimate of 122 million bushels for 1954. All major producing countries had larger production in 1955 than in 1954, except Argentina. The biggest increase was in Canada, where 1955 production (21.5 million bushels) was nearly double that of 1954.

World exports of fats, oils, and the oil equivalent of oilseeds reached a peak of almost 7.3 million tons in the calendar year 1954. The forecast for 1955 was 7.2 million tons. As the principal exporter, the United States was able to cut down sharply its government-held stocks of food fats and oils. The large world trade reflected lower prices; government sale for export on a bid basis; a high level of economic activity in Europe; reduced domestic production in Japan, Spain, and Argentina; and various United States government programs, such as those which enabled other countries to buy United States agricultural commodities with their own currencies.

PRODUCTION OF MAJOR OIL CROPS

	Soy-beans (1,000 bushels)	Flaxseed (1,000 bushels)	Peanuts (1,000 short tons)	Cottonseed (1,000 short tons)
United States.....	371,898	42,985	869.4	6,043
China-Manchuria.....	330,000		2,400	
India.....		15,520	4,256	2,352
Africa.....		3,295	3,113	
South America.....	3,674	20,690	367	1,520
World.....	763,870	139,020	12,132.5	19,450

CLARENCE J. ENZLER,
Administrative Officer, Office of the Secretary,
U.S. Department of Agriculture.

FAULKNER (originally **FALKNER**), **William Harrison**, American author: b. New Albany, Miss., Sept. 25, 1897. Considered by some critics as the outstanding living American novelist, he was awarded (May 2, 1955) the Pulitzer Prize for the best fiction of 1954 for his massive allegorical-symbolic novel, *A Fable*.

Born into a poor Southern family with a long aristocratic tradition, Faulkner grew up in Oxford, Miss., the "Jefferson" of his novels set in the South. After a desultory education, he joined the Canadian Flying Corps, and later served with the British Royal Air Force in France. Returning to Oxford in 1918, he spent two years (1919-21) as a student at the University of Mississippi and two years (1922-24) as university postmaster. Dismissed from the latter post, he eventually drifted to New Orleans, where, while working for a newspaper, he met the author of *Winesburg, Ohio*, Sherwood Anderson, who encouraged him to write. After *Soldiers' Pay* (1926), there followed a series of powerful novels of the Deep South which depict in violent and apocalyptic terms, not only the social history of the Southern aristocracy—its feudal supremacy, its degeneration, and its displacement by a vulgar commercial oligarchy—but also, and more important, the tragedy of modern man in the throes of spiritual disintegration. For "his powerful and artistically independent contribution to the American novel," he was awarded the 1949 Nobel Prize in literature in November 1950.

Faulkner's Pulitzer Prize-winning novel, *A Fable*, was nine years in the process of composition and is regarded by many critics as his greatest achievement. Taking place in the trenches of France during World War I, its story—clearly suggesting a parallel with the life of Christ, and the Passion Week in particular—tells, in the tortuous but powerful Faulknerian manner, of the conflict between a corporal in the French Army, who is the leader of a peace movement among the common soldiers of both sides, and the commander in chief of the Allied forces, who does everything in his power to recommence the bloody struggle.

Faulkner's other works (novels, unless otherwise indicated) include: *The Marble Faun* (poems, 1924); *Mosquitoes* (1927); *Sartoris* (1929); *The Sound and Fury* (1929); *As I Lay Dying* (1930); *Sanctuary* (1931); *These Thirteen* (stories, 1931); *Light in August* (1932); *The Green Bough* (poems, 1933); *Pylon* (1935); *Absalom, Absalom!* (1936); *The Unvanquished* (1938); *The Wild Palms* (1939); *The Hamlet* (1940); *Go Down Moses and Other Stories* (1942); *Intruder in the Dust* (1948); *Knight's Gambit* (stories, 1949); and *Requiem for a Nun* (novel, partly in play form, 1951).

FAURE, Edgar, French public official: b. Béziers, Hérault, France, Aug. 18, 1908. After World War II, during which he fought in the French underground and later was an official in the Free French government of Gen. Charles de Gaulle, he entered politics in 1946 through his election to the French National Assembly as a Radical Socialist. He served as a minister in successive cabinets from 1949, and held office as premier briefly in January-February 1952. He again became premier on Feb. 23, 1955.

During 1955, Premier Faure successfully pressed for the ratification of the Paris agreements by the French Council on March 27. In July he participated in the Geneva Conference (q.v.) of the heads of government, and on October 5 he issued a joint statement with Chancellor Konrad Adenauer of West Germany reaffirming support of the plan for Europeanization of the Saar.

A major problem facing Faure and his government was the formulation of a successful French North African policy. With respect to Morocco and Tunisia (qq.v.) his program was, in effect, to grant some measure of home rule. Toward this end, on April 22, Faure signed protocols of an agreement establishing a basis for future Tunisian autonomy. For Algeria (q.v.), the premier enunciated a program of greater integration with France, while at the same time projecting democratic reforms at the local level.

On November 29 the National Assembly refused, by a vote of 319 to 219, to give Faure's government a vote of confidence, after Faure had insisted on early elections for a new assembly. By resorting to a little-used constitutional procedure, Faure dissolved the assembly, thus necessitating the early elections on which he had insisted. In the meantime he remained in office as caretaker premier pending the elections in 1956. (See also FRANCE.)

FEDERAL BUREAU OF INVESTIGATION. The Federal Bureau of Investigation, the investigative arm of the U.S. Department of Justice, was established in 1908 by Attorney General Charles J. Bonaparte. The investigative jurisdiction of the FBI, strictly federal in scope, is based upon laws enacted by the U.S. Congress and directives issued by the president and the attorney general.

A fact-gathering agency, the FBI presently has jurisdiction over more than 140 federal investigative matters. Its primary objective is the

investigation of violations of specific federal laws within its jurisdiction, and the collection of evidence in such cases. Its investigative activities include the fields of domestic intelligence and general crime. The FBI also engages in cooperative functions designed to be of assistance to local, county and state law-enforcement agencies and to other agencies of the federal government. FBI headquarters are located in Washington, D.C., and 52 field offices are maintained in major cities throughout the United States and in Alaska, Puerto Rico, and Hawaii.

Intensive investigative activities continue in the field of domestic intelligence. These investigations have become increasingly difficult because of the security measures adopted by the Communist Party and its extensive underground operations. During the 1955 fiscal year, 21 additional Communist Party leaders were arrested; and trials of Communist Party leaders charged with violating the Smith Act resulted in 18 verdicts of guilty. From 1948, when 12 members of the national board of the Communist Party were indicted, through June 1955, 131 Communist Party leaders were arrested on Smith Act charges, and 90 were convicted in federal court; however, two of these were granted new trials.

During the 1955 fiscal year, the FBI conducted investigations concerning a number of organizations which have been cited as subversive by the attorney general under Executive Order 10450. Additionally, facts concerning other groups were reported to the Department of Justice so that determinations might be made as to their character. The facts gathered by the FBI concerning subversive organizations are promptly reported to the Department of Justice and to other interested agencies of the federal government. The FBI does not cite organizations as subversive, nor does it recommend that such citations be made.

Convictions in cases investigated by the FBI during the 1955 fiscal year totaled 10,615, as compared with 10,511 during the previous fiscal year. These convictions represented 96% of the persons who were brought to trial in FBI cases. Of this number, 92.4% were on pleas of guilty. Sentences resulting from these convictions totaled 29,296 years 3 months and 26 days. In addition, 6 life sentences were imposed. Apprehensions of fugitives in FBI cases totaled 10,182 for the fiscal year 1955.

During the 1955 fiscal year, fines, savings and recoveries in cases investigated by the FBI totaled \$59,664,535. In addition, Renegotiation Act claims adjusted in favor of the government totaled \$5,588,587. Included in the property recovered in cases investigated by the FBI were 14,254 automobiles.

Cooperation with local, state and federal law-enforcement agencies continues to be a vital part of the FBI's operations. The facilities of the FBI Laboratory and Identification Division are available to these agencies on a cost-free basis. During the 1955 fiscal year, the FBI Laboratory received 27,664 requests for assistance involving 133,724 scientific examinations of 118,398 specimens of evidence, as compared with the 126,518 examinations conducted in the fiscal year 1954.

Widely known as the nation's central repository for fingerprints and the best-known service unit of the FBI, the Identification Division, during the 1955 fiscal year, received 5,175,694 fingerprint cards from 12,704 contributors, an average of more than 20,000 fingerprints each working day. Fugitives identified through fingerprint

comparisons totaled 13,491. As of June 30, 1955, the Identification Division had 135,990,686 fingerprint cards in its files, representing approximately 71,000,000 persons.

As another of its cooperative services, the FBI lends its assistance in the training of law-enforcement officers. In promoting the program of police training, two sessions of the FBI National Academy were held during the 1955 fiscal year. With the completion of its 55th session in June 1955, the FBI National Academy had graduated 2,984 men representing police agencies in every state in the United States, Alaska, Hawaii, Puerto Rico, the Canal Zone, and several foreign nations. During the 1955 fiscal year, the FBI also participated in 2,315 police training schools held on a local basis. These schools are designed to assist all police officers in fulfilling their responsibilities in the field of law enforcement.

As additional aids to law enforcement, the FBI issues two publications—the *FBI Law Enforcement Bulletin* and the *Uniform Crime Reports*. The former, published on a monthly basis, serves as a medium for the exchange of ideas between law-enforcement agencies. The latter, published annually and semiannually, is a statistical analysis of local crime, and is based on reports submitted by more than 5,700 law-enforcement agencies throughout the United States. (See also *CRIME—U.S. Crime Statistics*.)

J. EDGAR HOOVER,
Director, Federal Bureau of Investigation.

FEDERAL CIVIL DEFENSE ADMINISTRATION. A vital arm of the United States security program, FCDA was created by congressional act (Public Law 920) approved on Jan. 12, 1951, to protect America's people, property, and production in event of enemy attack.

FCDA is charged with developing a national program to minimize casualties and damage from enemy attack, and to maintain maximum civilian support of the nation's armed forces. However, primary responsibility for civil defense action is vested in the states and their political subdivisions, with the federal government providing coordination and guidance.

(Realization that modern warfare creates problems which are not limited by geographic lines brought demands in 1955 that civil defense be accepted as a phase of the "common defense" for which the federal government is constitutionally responsible. It appeared probable that legislation to give the federal government greater responsibility and control would be introduced in Congress in 1956.)

FCDA assumed a second responsibility in 1953 when President Eisenhower transferred to it the duty of coordinating the activities of all federal agencies in natural disaster relief.

In August 1955, FCDA's ability to cope with natural disasters was put to its sternest test when hurricane floods in the Middle Atlantic and New England states caused damage expected to approximate \$500 million. Civil defense volunteers were credited with saving uncounted lives and with helping to keep the damage toll down. FCDA allotted \$6.5 million in disaster funds and brought a score of federal agencies into a cohesive all-out relief and rehabilitation program, with the total United States expenditures expected to approach \$100 million.

FCDA planning against military attack is based on assumptions that potential enemies have the capacity of delivering on targets thermonuclear weapons capable of destroying entire cities;

that the most logical targets are some 90 to 100 cities in 70 "critical target areas" housing industrial or military concentrations; that ground bursts of weapons with the destructive power of millions of tons of TNT, creating enormous clouds of radioactive material that falls back to earth over thousands of square miles, make the entire nation vulnerable; but that an effective defense to save millions of lives is possible.

The defense calls for evacuation of critical target cities, moving populations outside a circle, 12 to 15 miles from any presumed aiming point; shelter for all those evacuated and for everyone within the likely fallout area; care and feeding for all dispersed individuals in predetermined reception areas; and full rescue, support and recovery efforts by all areas remaining unaffected by the attack.

The defense of the 70 critical target areas was recognized as a national problem after the Atomic Energy Commission announcement (February 1955) that fallout from a hydrogen bomb test in the Pacific had covered an area of 7,000 square miles.

Fallout was taken into consideration during Operation Alert 1955 (June 15-17) when 54 mainland cities were presumed to have been hit by bombs ranging in power from 20 thousand to 5 million tons of TNT equivalent.

Some target cities held partial or theoretical evacuations. Exercise evaluations indicated that 8½ million people would have died in such an attack, but 2½ million more would have been saved from the few cities ordering evacuation. Another 8 million would have been fatally stricken, many by radiation.

After these tests, Congress appropriated \$10 million to FCDA to begin survival studies in critical target cities and their environs. These are to determine evacuation feasibility, corrective construction necessary to speed evacuation, relocation sites, shelter availability, and related subjects.

In addition to the funds for survival studies, FCDA's 1956 fiscal year appropriation includes \$12,125,000 for operations, \$12,400,000 for contributions (matching funds with states), \$32,650,000 for stockpiling of emergency supplies and equipment, and \$1,005,000 for financing delegations to other departments.

VAL PETERSON,
Administrator.

FEDERAL COMMUNICATIONS COMMISSION. The FCC's 21st year of operation (fiscal year 1955) saw the United States served by nearly 800,000 radio transmitters and some 54 million telephones. Radio broadcast station authorizations approached the 6,300 mark. Radio operator authorizations included over 986,000 commercial and 136,000 amateur licenses.

George C. McConaughy became chairman of the FCC on Oct. 4, 1954, to fill out the unexpired term of George E. Sterling, who resigned. The commission operated during the year on appropriations of \$6,911,769. Personnel numbered 1,094. With the vast expansion in communications, the commission's administrative burden has more than doubled in the past five years.

National Defense.—The FCC continued its activities in the coordinated defense effort of government agencies and the communications industry. Of particular importance is CONELRAD (Control of Electromagnetic Radiation), a plan to prevent the use of radio signals as guide "beams" by hostile aircraft. The plan has been



"Operation Alert," civil defense test on June 19, 1955, clears New York City's normally congested Times Square.

applied to broadcast, aviation, and public safety stations. About 1,300 AM broadcasting stations are cooperating. During the year the commission set up a priority system for telephone and telegraph communication in the event of a national emergency.

International.—International carriers offer telegraph and telephone service to virtually all points of importance in the world. International radiotelephony reached a record 1.1 million calls in the calendar year 1954. Work was started on twin submarine telephone cables across the North Atlantic and between the United States and Alaska. Under a requirement that Western Union divest itself of its international cable system, that company announced that it was negotiating to sell those facilities. The commission participated or was represented in 10 international meetings during the year.

Common Carriers.—Over 54 million telephones were in operation as of June 30, 1955. The telephone industry handled a daily average of 186 million local and 6.8 million long distance calls during the 1955 fiscal year. The Bell System, which handles about 83% of the business, now provides 6.2 million telephone circuit miles by microwave radio. It also furnishes over 67,000 miles of broad-band channels (mostly by radio) in relaying programs to 363 TV stations in 200 cities. Over 600 mobile radiotelephone systems are in operation.

Western Union, the domestic telegraph carrier, handled 152 million messages on its land system in the calendar year 1954. As a means of speeding service, the number of Desk-Fax installations were increased to 20,000 and the teleprinter tieline installations to 23,000.

Safety and Special Radio Services.—Authorizations in these nonbroadcast radio services rose to over 300,000 during the fiscal year 1955. The nearly 50 classes of radio stations employ close to 770,000 fixed and mobile transmitters. Station authorizations as of Sept. 30, 1955, were distributed mainly among the following categories: marine, 52,908; aviation, 44,183; industrial, 26,357; land transportation, 21,608; public safety, 19,153; amateur, 139,628; common carrier, 2,001; experimental, 661; and miscellaneous, 2,704. The most extensive growth of radio has been in the fields of industry and commerce. Action was taken during the year to establish a permanent licensing policy for private microwave systems.

Broadcast.—As of Sept. 30, 1955, broadcast authorizations collectively exceeded 6,400, of which 4,185 were for program outlets (with

3,921 on the air) and the remainder were pickups and other adjuncts. Of the 581 authorized commercial TV stations, 473 were on the air. Over 90% of the population was within service range of at least one TV station, and about 75% was served by 2 or more stations. The commission is taking steps to assist UHF (ultra-high-frequency) stations to operate on a comparable basis with VHF (very-high-frequency) stations. Of 34 educational TV stations, 15 were operating. The number of TV channels reserved for education rose to 258. AM radio station authorizations numbered 2,884, of which 2,771 were on the air. Commercial FM stations decreased to 555 (538 on the air). Of the 131 authorized educational FM stations, 124 were operating.

Field Engineering and Monitoring.—The FCC's field engineering and monitoring work was conducted through 6 regional offices, 24 district offices, one ship office, 6 suboffices, and 18 monitoring station. Activities included policing of traffic in the radio spectrum, giving bearings to ships and planes in distress, giving radio operator examinations, and other functions. Interference complaints during fiscal 1955 approximated 18,000, of which over 15,700 involved broadcast, and most of these commercial TV. Under commission encouragement, 437 local TV interference committees functioned in 412 communities. With the aid of mobile units, 105 unlicensed transmitters were uncovered. Budget limitations reduced the number of radio station inspections to about 7,200 (10,500 in fiscal 1954).

Research.—Much time was spent in developing VHF-UHF tropospheric propagation curves, as well as techniques for predicting service signal strengths under different terrain conditions. A study is under way on the relative merits, over greater distances, of line-of-sight microwave relays, as compared with tropospheric scatter relays. Rules were finalized for type acceptance of certain radio equipment. The commission's laboratory at Laurel, Md., studies various methods of transmission and reception in their service and interference aspects, interference to radio reception from electrical equipment, and new uses for radio, and tests certain transmitting equipment. It also develops and calibrates apparatus used by FCC field engineers. (See also RADIO AND TELEVISION; TELEGRAPHY; TELEPHONE.)

GEORGE O. GILLINGHAM,

Chief, Office of Reports and Information.

FEDERAL CROP INSURANCE. Development work on All-Risk Crop Insurance in 1955 by the Federal Crop Insurance Corporation was highlighted by the start of a concerted effort to strengthen the soundness of its operations from a business standpoint through a wider spreading of the insurance risk between commodities and geographic areas. Soybean insurance was started in 1955, barley was scheduled to be insured in 1956, and additional crops are to be added in future years. Insurance operations are being restricted to counties whose production and insurance history indicate that sound all-risk insurance of crop production costs can be developed and operated.

The corporation's experiences in 1954 and 1955 emphasized the high-risk nature of all-risk crop insurance, which was initiated by the government because this basic farm insurance was not available from private sources.

In 1955, catastrophic winter wheat losses struck a large area of the Southwest due to continued drought, wind, and insect infestation. Tor-

rential rains and floods caused heavy tobacco losses in some areas, particularly in Connecticut. Promising corn fields in some areas of the Midwest turned into total or partial failures during extreme heat waves. Drought devastated one of the lower-risk cotton counties resulting in insurance indemnities of more than \$500,000.

In 1954 the corporation's premium income was about \$23,000,000 for \$355,000,000 of crop insurance protection. Due to adverse crop conditions in several major wheat insurance areas, indemnities totaling over \$28,000,000 were paid to insured farmers.

In 1955, insurance was being operated in 794 counties: wheat was insured in 400, tobacco in 127, cotton in 101, corn in 102, multiple crops in 83, flax in 50, dry edible beans in 17, soybeans in 6, and citrus crops in 2. In some counties, two crops are insured under separate contracts.

The multiple plan of insurance is being converted to a more practical basis. While several crops will still be insured under the policy, losses will be settled separately for each insured crop, and premiums computed separately. There will be considerably more premium income, and more losses will be paid under the new multiple plan. In those counties where the older plan has operated satisfactorily, it will be continued for the present.

C. S. LAIDLAW,

Manager, Federal Crop Insurance Corporation.

FEDERAL DEPOSIT INSURANCE CORPORATION.

During the fiscal year ended June 30, 1955, there were five cases in which disbursements by the Federal Deposit Insurance Corporation were necessary to protect depositors of insured banks. Disbursements in these cases were \$3.1 million, and there remained unpaid claims of \$79,619.

From the beginning of operations in 1933 to June 30, 1955, the corporation has disbursed \$333 million in cases involving 427 banks in serious financial difficulties. This total consists of \$331.4 million for the protection of depositors and \$1.6 million to facilitate the termination of liquidations. Involved were approximately 1,400,000 depositors, with total deposits of about \$563 million. Full recovery of deposits was made available, in the form of deposits at other banks, payments by the corporation, or receivers' dividends, to all but 2,795 depositors. Losses to depositors were less than \$2 million. By June 30, 1955, the corporation's actual recoveries, plus estimated additional recoveries on disbursements to protect depositors, were \$302.6 million. Thus the loss from such disbursements was an estimated \$28.8 million.

Total assets of the corporation on June 30, 1955, amounted to \$1,717,189,827, of which \$1,711,528,619 consisted of United States government securities and accrued interest on such securities. Liabilities, including credits to insured banks toward future assessments, amounted to \$126,649,160. The \$1,590,540,667 excess of the corporation's assets over its liabilities is the deposit insurance fund, representing accumulated assessments and investment income in excess of losses and expenses in the past.

For the calendar year 1954, assessments on insured banks, at the rate of $\frac{1}{12}$ of 1% of their average deposits, amounted to \$144,056,518. Expenses and losses of the corporation totaled \$7,802,352, leaving net assessment income of \$136,254,166. Of this amount, \$54,501,666 (40%) was added to the corporation's deposit insurance

fund, and \$81,752,500 was credited to insured banks. Investments and other sources provided the corporation with \$37,358,064 of income in addition to that from assessments.

As of Dec. 31, 1954, the 13,541 insured banks held deposits totaling \$203.2 billion. Based on studies made in the past, it is estimated that 55.3% of this total, or \$112.4 billion, was insured. On that date the deposit insurance fund of \$1,542,697,382 was equal to 0.8% of total deposits in insured banks and to 1.4% of estimated insured deposits.

The Board of Directors of the Federal Deposit Insurance Corporation is composed of H. E. Cook, chairman; Ray M. Gidney, comptroller of the currency, vice chairman; and Maple T. Harl.

H. E. Cook,
Chairman.

FEDERAL HOUSING ADMINISTRATION. See HOUSING.

FEDERAL LAND BANKS. See FARM CREDIT SYSTEM.

FEDERAL MEDIATION AND CONCILIATION SERVICE. This service, created by the Labor Management Relations Act, 1947, is an independent governmental agency charged with the duty of assisting parties involved in labor-management disputes affecting commerce (other than rail and air transportation industries) to settle their differences through conciliation and mediation. The service possesses no power to compel the parties to settle, nor does it have any law-enforcement authority. It relies solely on the persuasive techniques of mediation and conciliation to bring the disputant parties to agreement without resort to work stoppages and to settle those which do occur.

Under the provisions of the Labor Management Relations Act, 1947, as amended, a party to a collective bargaining contract desiring to modify or terminate such contract must serve written notice on the other party 60 days prior to the expiration or modification date. If a settlement is not reached within 30 days thereafter, Section 8 (d) of the act specifies that such parties notify the service and any state or territorial agency. Upon receipt of such notification the service may offer its facilities to the parties if the dispute falls within its jurisdiction.

The service may intervene in labor-management disputes at the request of one or both of the parties or on its own motion, when, in its judgment, the dispute threatens a substantial interruption to interstate commerce. If state or other conciliation services are available, the federal service avoids intervening if the dispute would have only a minor effect on interstate commerce.

The service encourages the parties to conduct their own collective bargaining without governmental assistance. When such assistance is required, the mediator assumes the role of a neutral third party.

In the fiscal year ending June 30, 1955, over 35,500 dispute situations came to the attention of the service, and mediators were assigned to render assistance in 13,982 cases.

The service also maintains a roster of qualified private arbitrators from which panels are submitted upon the joint request of the parties. The cost of arbitration is paid by the parties.

The headquarters of the service are located in Washington, D.C., where the director and a small staff coordinate activities, establish policy, and conduct administrative affairs. Eight regional offices are set up throughout the United States.

A staff of about 225 mediators are assigned to these offices and other highly industrialized centers.

JOSEPH F. FINNEGAN,
Director.

FEDERAL NATIONAL MORTGAGE ASSOCIATION. See HOUSING.

FEDERAL POWER COMMISSION. Originally established in 1920, and organized as an independent agency in 1930, the Federal Power Commission has jurisdiction conferred by the Federal Power Act, the Natural Gas Act, certain sections of the Flood Control and River and Harbor acts, as well as by other statutes and executive orders.

Natural Gas.—During the fiscal year ended June 30, 1955, the commission issued 140 certificates covering 4,900 miles of natural gas pipelines and the installation of compressor units aggregating 259,000 hp. at a total estimated cost of \$465,324,000. As of June 30, 1955, commission authorizations since Feb. 7, 1942, the date when the present certificate provisions of the Natural Gas Act became effective, included more than 64,000 miles of pipelines and 4,400,000 hp. in compressor units, estimated to cost \$4,852,000,000.

As a result of the U.S. Supreme Court decision of June 7, 1954, in the Phillips Petroleum Company case, the commission assumed jurisdiction over sales of natural gas made by independent producers in interstate commerce for resale. During the 1955 fiscal year, 6,047 applications for certificates were filed by independent producers, of which 1,093 were disposed of by the commission.

Electric Power and Flood Control.—During this 12-month period the commission completed the processing of 128 applications of various types relating to hydroelectric projects, authorizing approximately 1,520,950 hp. of new capacity. As of June 30, 1955, 650 licenses were outstanding for projects designed to provide for a total ultimate installation of approximately 15,545,000 hp. Of this amount, approximately 9,844,000 hp. was already installed.

In December 1954, loads of the electric utilities reached a peak of 81.3 million kw., a growth of almost 9% in 12 months. Generating capacity increased 11.1 million kw. during 1954 to a total of 102.6 million. In the year ending June 30, 1953, the utilities added about 18,900 circuit miles of lines of 22,000 volts or higher for a total of about 265,000 circuit miles of transmission lines.

The commission staff, in cooperation with the Corps of Engineers, Department of the Army, and the Bureau of Reclamation, carried on some 101 investigations of river basins and reservoir projects, involving over 75 streams, with a view to determining the hydroelectric power potentialities of flood-control and other water-control projects.

Rates.—During the year ended June 30, 1955, approximately 1,201 gas and electric interstate rate filings were processed. Included were rate reductions amounting to approximately \$6,396,324, which were either required or authorized, and proposed rate increases of \$92,521,779 per year. Corresponding amounts for the preceding year were \$1,051,810 and \$146,510,300, respectively.

The commission permitted \$2,784,979 of the proposed increases filed in 1954 to become effective, because they were either fully supported or were contained in rate schedules for industrial

use only, and thus not subject to suspension. The remainder of the proposed increases—about \$89,736,800—were suspended pending hearings. Of this amount, all involved gas suspensions. On June 30, 1954, due to the lapse of the statutory period of five months beyond which the commission cannot suspend increases in rates, \$88,665,800 per year of these suspended gas increases were—on application—effective subject to the refund of any portion subsequently disallowed by the commission. At the beginning of the year there was a backlog of \$131,250,800, which, when added to the gas suspensions during the year, made a total of \$220,987,600 in suspended gas rates requiring commission action. Companies withdrew \$35,340,300, and the commission allowed \$31,832,800 and disallowed \$19,113,900. At the close of the year, the commission's dockets included \$134,700,600 of proposed gas rate increases under suspension which were filed during or prior to 1954.

As a result of the decision in the Phillips Petroleum Company case, the commission received from independent producers during the 1955 fiscal year 10,978 rate filings, including 2,633 rate increases totaling \$30,888,356, of which 124 amounting to \$12,145,189 were suspended and 2,509 totaling \$18,743,167 were allowed.

In addition to the rates filed by private utilities, the commission processed 220 contracts for the sale of electric energy from federal projects subject to commission review under the Bonneville Act, the Fort Peck Act, and the Flood Control Act of 1944.

JEROME K. KUYKENDALL,
Chairman.

FEDERAL RESERVE SYSTEM. Established under the Federal Reserve Act in 1913, the Federal Reserve System comprises 12 regional banks and their 24 branches. The system as a whole is under the supervision of a Board of Governors, assisted by the Federal Open Market Committee and the Federal Advisory Council.

Board of Governors.—The Board of Governors consists of 7 members appointed by the president, with the advice and counsel of the Senate. It exercises broad supervisory powers and formulates monetary credit and operating policies for the system as a whole. Members of the board in 1955 were: William McC. Martin, Jr., chairman; C. Canby Balderston, vice chairman; M. S. Szymczak; James K. Vardaman, Jr.; A. L. Mills, Jr.; J. L. Robertson; and Charles N. Shepardson. Each of the regional banks is under the supervision of its own board of directors and to some extent acts independently of the other Federal Reserve banks.

Member Banks.—Membership in the Federal Reserve System in June 1955 was held by 6,619 banks, of which 4,789 are national banks and the balance are state-chartered institutions which are voluntary members of the system.

Stabilization Policies.—During 1955, the policy of flexible economic management of the Federal Reserve System was brought into sharp relief due to the inflationary pressures generated by the expansion of credit, particularly in consumer and home mortgage categories and in loans for industrial expansion. The effect of credit expansion in private business had repercussions on both U.S. Treasury and Federal Reserve operations. Between January and July, banks sold a large volume of government securities, increased their borrowing from Federal Reserve banks, and re-

duced their excess reserves to support their volume of private loans. The increase in loans during the first half, amounting to some \$4 billion, was actually accomplished with a decline of about \$1 billion in total loans and investments in banks, reflecting the reduction of bank holdings in securities.

The Federal Reserve tightened the availability of credit by limiting its purchases of government securities, making it necessary for banks to borrow, and in January and February, sold \$1.3 billion of securities to absorb reserve funds. Margin requirements in stock markets were increased from 50% to 60% in January and to 70% in late April. From March until June, Federal Reserve banks increased reserve requirements for members and used open-market operations to diminish excess reserves; and discount rates were advanced from $1\frac{1}{2}\%$ to $1\frac{3}{4}\%$. Late in August, independence of action by the regional banks was demonstrated when the Cleveland Federal Reserve Bank imposed rediscount rates of $2\frac{1}{4}\%$ from $1\frac{3}{4}\%$. This action was followed by other Federal Reserve banks until in November the discount rate was $2\frac{1}{2}\%$, the highest in 21 years. Commercial banks in money centers raised minimum rates in all loan categories as pressure from the Reserve System increased through November. The restrictive measures taken by the Federal Reserve System, supplemented by the increase of 2% in down payments on home mortgages insured by the Federal Housing Administration, and conferences with private lenders to initiate measures of voluntary credit restraint, were shown to have an effect in dampening the expansion of speculative credit.

As the year-end drew nearer, all economic indicators were strong, except agriculture. Forecasts for 1956 were optimistic and the economy seemed to be proceeding with a "wait and see" attitude.

Federal Debt Management.—Despite the independence exercised by the Federal Reserve System in measures to stabilize the economy, the system is in a difficult position due to its additional responsibility as fiscal agent for the government. So long as deficit financing and the huge federal debt continue, the Federal Reserve banks must temper their actions in money management, as applicable to the public, by cooperating with the U.S. Treasury in federal debt management. The government, at the close of its 1955 fiscal year, reported a \$4.2 billion deficit and secured a temporary increase in the statutory debt limit to \$281 billion. On July 26, the federal debt was estimated at \$276.774 billion. No one can tell with certainty the actual dollar amount of the debt, as approximately \$80 billion reported in the debt total represents appropriations made which are as yet unexpended. This total shifts in the day-to-day operation of the government, but the total of outstanding obligations that must be marketed, the volume of issues to be refunded, and the spacing of maturities are only some of the problems in the administration of the Federal Reserve System. Government authorities were cheered in November by a report that tax collections had been larger than estimated, insuring a Treasury cash surplus for the fiscal year 1955. (See also BANKS AND BANKING; CONSUMER CREDIT.)

JOHN DE JONG,
Associate Director, News Bureau, The American Bankers Association.

FEDERAL SUPPLY SERVICE. See Index entry.

FEDERAL TRADE COMMISSION. In 1915 the Congress of the United States established the Federal Trade Commission as an independent government agency to safeguard free and fair competition for the nation. Under its statutory authority, the commission issues its own orders prohibiting illegal competitive activity. This law enforcement affects the sale of billions of dollars in goods and services. Orders range from prohibitions against individual merchants who misrepresent to the public the quality of their merchandise, to prohibitions breaking up price fixing conspiracies involving entire industries.

In 1955, for example, the commission terminated a monopolistic conspiracy among an international union of fishermen, its members, and the majority of canners in the Alaska salmon industry. In that case the commission said the effect of the conspiracy was unlawfully to raise the price the public had to pay for salmon. In the same year the commission negotiated 105 stipulations with businessmen requiring changes in advertising of such varied products as vitamin pills, hay fever remedies, greeting cards, dog foods, and fur coats.

Outstanding among its major actions was the commission's continuing drive against false advertising in the multi-billion-dollar accident and health insurance industry, a task begun the latter part of 1954. Thirty-one insurance firms thus far have been charged with misrepresenting the terms of their policies. Four of these firms have agreed to orders setting up standards for their advertising.

As a "body of experts," the commission also makes studies of the nation's significant economic problems and publishes its findings. In 1955 the commission's major contribution in this field was its *Report of Corporate Mergers and Acquisitions*. This report was characterized as "turning a factual searchlight on an economic problem whose dimensions have been obscured by lack of current information." The purpose of the report was to provide Congress, the Department of Justice, and the commission with facts needed to determine what corrective action should be taken.

The commission's case work deals with two broad categories of law violations: deception and monopoly. In the antideceptive field, the commission proceeds under the authority of the Federal Trade Commission Act, the Fur Products Labeling Act, and the Wool Products Labeling Act. The latter two embody congressional intent to require truthful labeling and advertising of these commodities. The FTC Act, on the other hand, gives the commission the broad power to prohibit "unfair methods of competition" and "unfair and deceptive acts and practices."

The same act empowers the commission to correct evils in the antimonopoly field. In addition, the commission has corrective authority under the Clayton Antitrust Act outlawing discriminations in price, exclusive-dealing and tying arrangements, corporate mergers, and interlocking directorates when their effect may be substantial lessening of competition or a tendency toward monopoly.

Under the Flammable Fabrics Act, the commission prohibits the importation and sale in the United States of dangerously flammable wearing apparel.

The commission enforces two additional statutes, the Export Trade Act, requiring the commission to supervise export associations granted conditional exemption from the antitrust laws, and the Lanham-Trade-Mark Act.

The commission does not depend entirely on its mandatory procedures to enforce the law. It also utilizes cooperative measures to correct or prevent unfair competitive practices.

In addition to employing the stipulation as a quick and inexpensive measure to assure truthful advertising, the commission also establishes trade practice rules for entire industries. These rules cover not only advertising but also other practices in the industry where unfairness might develop. The commission promulgates rules for specific industries following conferences with the industry members at which their special problems are discussed and solutions satisfactory to the commission are agreed upon.

Once formulated, these rules furnish guides for an industry in advertising its products and in dealing with its customers and competitors. For example, the rules established for the \$2.5 billion radio and television manufacturing industry control such matters as the use of the word "free" in advertising, representations concerning the effectiveness of TV antennas, guaranties, unlawful price discriminations, and imitation of established trademarks and trade names.

The 13 sets of rules adopted in the fiscal year 1955 achieved a 20-year high for activity in this field.

During the year the commission issued 36 antimonopoly complaints, an increase of 28.8% over the ten-year average covering 1944 to 1953. Thirty antimonopoly cease and desist orders were issued for an increase of 40.2% over that same period. In the antideceptive field, the 125 complaints issued represented a 49.3% increase over the 1944-53 average; and the 82 cease and desist orders, a 9% increase.

In September 1955 Commissioner John W. Gwynne became chairman of the five-man bipartisan commission, succeeding Edward F. Howrey, who resigned. Sigurd Anderson, former governor of South Dakota, and William C. Kern were sworn in as new members to fill the vacancies created by the departure of Mr. Howrey and James M. Mead, whose term expired. The remaining members of the commission are Lowell B. Mason and Robert T. Secrest.

JOHN W. GWYNNE,
Chairman.

FEDERATION OF MALAYA. See MALAYA, FEDERATION OF.

FEED GRAINS. See GRAINS.

FENCING. See SPORTS, GAMES, AND SHOWS.

FERTILIZERS. See Index entry.

FIGS. See FRUITS.

FIJI. This South Pacific group of 322 islands (about 106 inhabited), lies 1,100 miles north of New Zealand. It constitutes a British crown colony, to which was added in 1881 the dependency of Rotuma (18 square miles; pop., 4,134 in 1954), comprising a cluster of small islands 220 miles northwest of the Fijian archipelago. The aggregate area of Fiji is 7,036 square miles; population, 333,389 (December 1954 est.), including 160,303 Indians, 143,100 Fijians, 16,208 whites, and 3,985 Chinese. Largest inhabited islands are Viti Levu (4,010 square miles), on which Suva, Fijian capital and chief seaport (pop., 25,395), is situated and Vanua Levu (2,137 square miles).

The governor (Sir Ronald Herbert Garvey, appointed Jan. 11, 1952) is responsible for the administration of Pitcairn Island (q.v.), and is British representative in relation to Tonga (q.v.). He is assisted by a 9-member Executive Council

(including one Fijian and one Indian), and a 31-member Legislative Council (including 5 Fijians, who also constitute the Fijian Affairs Board, and 5 Indians). In 1955, Rata Sir Lala Sukuna was appointed to the newly created office of speaker of the Legislative Council.

An estimated budgetary surplus of about £F284,000 for 1954 was reported. Revenue was estimated at £F5,137,389 for 1955; expenditure, £F5,063,426 (£F111 equals £100 sterling).

The government spent £F580,805 (or 12.5% of total expenditure in 1954) in operating or financially aiding 486 primary schools (1,478 teachers, 58,835 pupils). Fifteen government, denominational, and other schools provided post-primary education for 1,932 pupils.

Major agricultural crops are sugar (58,236 acres in 1954; 136,921 tons exported); rice (34,966 acres; 24,472 tons produced); and coconuts (167,540 acres; 37,584 tons of copra produced). Mineral production in 1954 included 78,411 ounces of gold, 17,794 ounces of silver, and 5,707 tons of manganese ore. Exports valued at £F11,239,985 in 1954 included raw sugar (£F5,540,645), gold (£F1,081,915), coconut oil (£F2,153,343), and copra (£F324,424). Trade with Great Britain and Commonwealth countries represented 91.16% of the total.

Highways aggregate 1,083 miles (636 miles of all-weather roads), and sugar companies operate 440 miles of narrow-gauge railway. Some 31,597 passengers used the Nadi Airport in 1954, and 1,552,118 tons of freight were handled. Fiji Airways operates internal services. The colony is also served by Tasman Empire Airways, which operates services to Tonga, Western Samoa, the Cook Islands, and Tahiti, and by Qantas Empire Airways, Canadian Pacific Airlines, and Pan American Airways.

FINANCIAL AND ECONOMIC REVIEW. Major financial and economic developments in the United States and Canada in 1955 are summarized in separate articles on specific economic subjects. For a reference guide to these subjects, see the Index entry, *Financial and Economic Review*.

FINE ARTS. See ARCHITECTURE; DANCE; MUSIC; PAINTING, SCULPTURE, AND PRINTS; THEATER.

FINLAND (SUOMEN TASAVALTA). A republic of northeastern Europe, bordered by Norway, Sweden, and Soviet Russia. Area, 130,119 square miles (including 12,190 of inland water); pop. (est. Dec. 31, 1954), 4,248,773, of which about 34.2% is urban and about 9% is Swedish-speaking. Chief cities and populations (Dec. 31, 1954): Helsinki (capital), 403,970; Turku, 110,084; and Tampere, 109,902. Vital statistics for 1954 (prelim.): birth rate, 21.3; death rate, 9.1; and infant mortality rate, 30.7. Life expectancy at birth in the period 1946–50 averaged 58.6 years for males and 65.9 for females.

Government.—Finland's unicameral Parliament consists of a Riksdag (House of Representatives) of 200 members elected directly for a four-year term. The president of the republic is chosen for a six-year term by an electoral college elected by the people. President Juho K. Paasikivi was re-elected in 1950 for a term ending in 1956. Following the elections of March 7–8, 1954, seating in the Riksdag was: Social Democrats, 54; Agrarians, 53; People's Democratic Union (including Communists), 43; National Union (Conservative), 24; People's Party, 13; Swedish People's Party, 13. Dr. Urho Kekkonen, Agrarian, heads a Social Democratic-Agrarian coalition which took office on Oct. 20, 1954.

Education and Religion.—Illiteracy is virtually nonexistent in Finland. In 1954 there were 241 elementary schools in the towns (106,429 pupils) and 6,131 school

districts in the country (435,341). Secondary schools included 201 lyceums (88,554) and 144 middle schools (26,347). There is also an extensive network of agricultural, commercial, technical, and teacher-training schools. Higher institutions include the state university at Helsinki (8,207 students in 1953–54) and 2 smaller private universities in Turku, one Swedish and one Finnish. The national church is the Evangelical Lutheran Church; other faiths have complete freedom. About 95% of the population is Lutheran.

Finance.—Revenue in 1954 totaled 213.1 billion markkaa; expenditure, 204.7 billion, leaving a surplus of about 8.3 billion. Expenditure for 1955 was estimated at 231 billion markkaa, including 25.2 billion for subsidies, 19.4 billion for children's allowances, and 13 billion for unemployment relief. The Finnish markka exchanges at a rate of 230 per U.S. dollar.

Production.—Principal domestic industries are metals and machinery, shipbuilding, ceramics, glass, textiles, building materials, rubber, chemicals, foodstuffs, and tobacco products. Export industries are dominated by the forestry group; major products and output in 1954 (in thousands of metric tons) were: chemical pulp, 1,573; paper, 847 (including 456 of newsprint and 165 of kraft paper); paperboard, 255; and plywood, 346. In the 1954–55 logging season, timber felling totaled a record 38.1 million piled cubic meters, about 14.7% over the previous year's cut. Copper ore (1954 smelter production: 28,080 metric tons) is the chief mineral; zinc and iron ores, asbestos, pyrites, and nickel are of lesser importance. Output of electric power (mainly hydraulic) was 5.64 billion kw.-hr. in 1954, a rise of 4.5% over 1953. Led by the export industries, the industrial production index (base: 1948 = 100) rose from 127 in 1953, to a record 142 in 1954. National income in 1954 aggregated 652.4 billion markkaa (605.3 billion in 1953).

Agriculture is featured by small, independent holdings. Due to unfavorable weather conditions, output was about 4% below that of 1953, bread grains alone of the major crops showing an increase. Chief crops and 1954 yields in thousands of bushels were: wheat, 10,000; rye, 5,750; barley, 13,800; and oats, 61,000. Output of potatoes totaled 1,079,000 metric tons; milk, 2,900,000; butter, 48,400; and cheese, 23,000.

Foreign Trade.—Exports in 1954 totaled 156,542 million markkaa; imports, 150,982 million. Forestry products comprised about 80% of exports; metal products, ships and parts, and foodstuffs contributed most of the remainder. Chief imports were machinery and equipment, iron and steel products, chemicals, coffee, cereals and other foodstuffs, fuels, cotton, and wool. Great Britain took 21.7% of Finland's 1954 exports; the Soviet Union, 21.5%. Britain provided 15.8% of imports; the USSR, 13.4%.

Transportation and Communications.—Finland's railway network (almost entirely state-owned) totaled 3,057 miles in 1954; public highways and roads, 39,400. The merchant marine included 613 vessels totaling 675,544 gross registered tons at the end of 1953. The domestic airline is Aero Oy; foreign lines operate into Helsinki; Passenger cars numbered 70,795 at the beginning of 1955; telephones, 408,351 (1953); radio receiver licenses, 905,317 (end of 1953). Finland had 64 daily newspapers in 1952 with a total circulation of 1.2 million.

Principal Events, 1955.—A high point in post-war Soviet-Finnish relations was attained in 1955. Following a conference in Moscow, September 16–19, between Soviet leaders and a Finnish delegation headed by President Juho K. Paasikivi and Premier Urho Kekkonen, a protocol was signed on September 19, renewing for

20 years the Soviet-Finnish defense alliance of 1948. At the same time, an agreement was concluded providing for the withdrawal of Soviet forces within three months from the military base on the Porkkala Peninsula (12 miles from Helsinki), which had been leased by the Soviet Union for 50 years under the Finnish Peace Treaty of 1947. In addition to the written agreements, the Soviet Union was reported to have pledged the return of the remaining Finnish war prisoners and civilians interned in the USSR, and to have withdrawn its objections to Finnish participation in the Nordic Council. Earlier in the year, a Soviet-Finnish trade treaty concluded on January 24 had contained a provision for a Soviet gold loan to Finland of about \$10 million. The protocol and agreement of September 19 were ratified by President Paasikivi on October 7, and by the Supreme Soviet of the USSR on October 11.

Aided by record output levels in domestic and export industries, the Kekkonen government's anti-inflation program appeared to have achieved a fair measure of success in 1955. Adopted in late 1954, the program sought to keep prices down by increasing subsidies to farmers and abolishing taxes on consumer goods. At the same time, controls on wages were removed. Limitations on credit expansion were imposed on Feb. 14, 1955, when the Bank of Finland decreed a partial sterilization of new bank deposits. With the lifting of wage controls, wages moved upward early in the year. On March 26 a 10-day strike of 24,000 civil servants in the lower salary brackets ended with a 10% pay rise for these and other government workers. The farmers then threatened a delivery strike in early April, demanding an increase in prices of farm products. The strike was avoided when the government agreed to peg farm income at a level corresponding to the general wage level. Despite these developments, the cost-of-living index rose only 2% in the first nine months of 1955.

M. J. G.

FIRES AND FIRE LOSSES. According to estimates of the National Fire Protection Association, fire losses in the United States for the calendar year 1954 totaled \$1,016,915,000, a decrease of 0.5% from the 1953 loss of \$1,021,720,000. The 1953 estimate included one \$45,000,000 fire (General Motors transmission plant at Livonia, Mich., on August 12), the largest industrial loss in history. Fire damage to buildings and their contents was valued at \$875,450,000 in 1954, \$889,120,000 in 1953, and \$793,500,000 in 1952.

Estimates made by the National Board of Fire Underwriters for the 12-month period ending Aug. 31, 1955, indicate a loss of \$869,773,000, or a decrease of 1.4% from the \$882,353,000 for the corresponding period ending Aug. 31, 1954. Estimates for the first 8 months of the calendar year 1955 show a decrease of 0.2% from losses during the same period of 1954.

According to the National Fire Protection Association's Department of Fire Record, as compiled from reports submitted by the fire marshals of the various states, there were approximately 774,600 building fires in the United States in 1954. It is estimated that there were 4.5 such fires per 1,000 population, or approximately one per 222 persons throughout the nation. An additional 1,218,700 fires involving aircraft (300), motor vehicles (161,500), forests (176,900), rubbish, grass, and brush (820,000), and miscellaneous categories (60,000) increased the num-

CLASSIFICATION OF LARGE-LOSS FIRES, 1954

(Individual loss of \$250,000 or more)

Classification	Number	Dollar Loss
Manufacturing	75	\$ 36,144,500
Warehousing	54	36,504,500
Aircraft	54	68,715,000
Mercantile properties	54	23,098,000
Lumber yards	10	4,000,000
Schools	9	2,962,000
Churches	6	2,677,000
Forest fires	6	3,994,000
Hangars	6	5,532,500
Garages	5	1,313,500
Bowling alleys	4	1,356,500
Hotels	4	1,500,000
Apartments	3	1,600,000
Armories	2	800,000
Electric generating plants	2	3,800,000
Laboratories	2	700,000
Office buildings and banks	2	656,000
Piers and wharves	2	750,000
Prisons	2	840,000
Vessels	2	2,250,000
Miscellaneous	9	3,166,500
Total	313	\$202,360,000

ber of fires of all types to 1,993,300.

Although it is not customary to attach a dollar value to the relatively insignificant property damage inflicted by rubbish, grass, and brush fires, the cost of extinguishing them represented a major percentage of the nation's 1954 fire bill.

T. SEDDON DUKE,
President, National Fire Protection Association.

FISH. See Index entry.

FISH AND WILDLIFE SERVICE. During 1955 the Fish and Wildlife Service's program emphasized the new partnership concept of cooperation with other federal, state, and private agencies in wildlife administration.

International Activities.—Participation by the United States in international conservation organizations has continued to bring benefits to the American fisherman. The Pacific halibut fishery, under the supervision of the International Pacific Halibut Commission, broke all catch records during 1954. The sockeye salmon fishery of the Fraser River System, managed by the International Pacific Salmon Fisheries Commission, produced the largest runs since the organization of the commission in 1937. Service officials are members of these commissions.

Inland Fisheries.—The Great Lakes Fisheries Convention was ratified by the United States and Canada in June 1955 and went into force in October. Implementing legislation is expected to be introduced in the second session of the 84th Congress.

Fish Restoration.—Funds appropriated for the Dingell-Johnson program from the excise tax collections on sport fishing tackle permitted the apportionment of \$4,532,800 to the states, Alaska, Hawaii, Puerto Rico, and the Virgin Islands for sport fish restoration activities. For the first time in program history, physical development and habitat improvement projects exceeded research activities.

Wildlife Restoration.—For the 17th consecutive year, the cooperative wildlife restoration program continued to play a key role in the nation's wildlife conservation efforts. Financial support for the program, derived from the income from the excise tax on sporting arms and ammunition, reached \$10,266,257, a decrease of 15% from the previous year. The principal field of interest continued to be improvement of wildlife habitat through a variety of creative and restorative actions.

Control of Predators and Rodents.—The fiscal year 1955 marked the 40th anniversary of federal participation in organized cooperative predator and rodent control work. Major effort was devoted to long-established projects to protect livestock from predators such as coyotes and bobcats. Control work in several western states was handicapped by drought conditions. Predator control work in Alaska was reduced, with emphasis shifted to protection of caribou and reindeer in the Arctic range and other big game species in southeastern Alaska. Service personnel assisted in community rat and mouse control projects as part of a current nationwide Grain Sanitation Program sponsored by industry and government.

New Wildlife Refuges.—The first federal wildlife refuge in Kansas was officially created in June 1955. Known as the Kirwin National Wildlife Management Area, the new 10,800-acre refuge is superimposed on lands acquired by the Bureau of Reclamation for the impoundment of waters in connection with the Kirwin Irrigation Project in Phillips County. Wildlife management will be coordinated with recreational use. Both ducks and geese will utilize the refuge.

A small refuge of 112 acres, located in an area on the eastern end of Long Island, was donated to the government by Mrs. Elizabeth A. M. Tilton of Southampton, N.Y. The property faces richly vegetated shoal waters which serve as an excellent feeding area for waterfowl.

Licenses.—Hunters and sport fishermen in the United States reached the record-breaking total of 32,654,199 individuals in the fiscal year ending June 30, 1954, and they paid almost \$85 million for fishing and hunting licenses and federal duck stamps. Fishing, as in past years, remained the most popular outdoor sport, with 18,580,813 men and women paying \$38,927,735 for all categories of state licenses, permits, and stamps. Hunters totaled 14,073,386, and they paid \$46,047,781 for state resident and nonresident licenses, permits, tags, and stamps, including \$4,542,860 for Migratory Bird Hunting Stamps.

Saltonstall-Kennedy Program.—With an allocation of \$3 million from the Saltonstall-Kennedy Act, approved by the president on July 1, 1954, the service began a new research program designed to help the ailing commercial fishing industry expand production and develop new markets for fishery products. Biological studies, utilizing \$1,434,200, were begun on more than a dozen fish and shellfish species. Development projects, amounting to \$1,441,000 were started on exploratory fishing, gear and equipment, technological advances, statistics, and educational and marketing programs.

Economic Survey.—To obtain an authentic measurement of the national interest in hunting and fishing, the service signed a contract in June 1955 for a survey to be made on the amount of time and money that American sportsmen spend annually in the pursuit of these sports. No national survey of this scope has ever before been made. The published results will be used by federal and state game and fish administrators in planning their programs.

(See also MARINE BIOLOGY.)

EDNA N. SATER,

Chief, Section of Current Information, Division of Information, U.S. Fish and Wildlife Service.

FISHERIES INDUSTRY. Landings.—Fisheries landings in the United States in 1954 were 5% greater than in 1953, owing especially to larger

catches of food fish. The catch in 1955 was expected to be 4% below that for 1954. Monthly wholesale prices through November 1955 were slightly lower than in 1954. In November 1955 the U.S. Bureau of Labor Statistics wholesale index for fish and shellfish was 112.0, or 9.2 points higher than a year earlier.

The year 1955 showed minor decreases in most major fisheries, particularly salmon, tuna, and Maine sardines. Alaska herring catches gained considerably. Marketing problems plagued the tuna and groundfish industries. The demand for frozen fish sticks continued to increase, and it was expected that production might reach 70 million pounds in 1955, as compared with 54 million in 1954.

The catch in the United States and Alaska totaled about 4.7 billion pounds in 1954, according to estimates of the U.S. Fish and Wildlife Service, as compared with 4.47 billion pounds in 1953, and a probable 4.5 billion pounds in 1955. From 24% of the catch, packers produced 863 million pounds of canned products, worth \$331,018,000. About 42% of the catch, plus processing waste, yielded by-products and bait worth \$81,571,000. Thirty-two per cent of the catch was used fresh or frozen, and 2% was cured.

Approximately 158,000 fishermen and transporters operated 90,450 vessels and boats in 1954, and fishermen averaged a catch of 29,800 pounds per man. Fishermen received \$345 million for the 1954 catch, \$7 million less than in 1953. Processing of the catch by 103,000 shore workers in 3,800 plants, and its distribution increased the value to \$1,070 million.

In 1954, for the ninth consecutive year, the menhaden fishery produced the industry's largest landings—875,000 tons, the greatest catch of a single species ever taken by American fishermen. The 1955 catch was expected to be slightly less.

The Pacific sardine catch, which had averaged over 500,000 tons annually from 1934 to 1945, rebounded from only 4,700 tons in 1953 to 67,000 tons in 1954, and would have been larger if the canned sardine market had been better. Prospects were brighter for 1955. The canned pack increased from only 63,612 cases in 1953 to 1,338,000 cases in 1954, but was far less than the record of 5,070,805 cases in 1950. The 1955 pack will be larger than in 1954, but both production and marketing continued to be hampered by imports of foreign sardines.

The 1954 canned salmon pack increased 6% to 4,163,000 cases, but decreased to about 3,600,000 cases in 1955. The continuance of conservation regulations closing certain areas in Alaska and shortening seasons in other areas reduced salmon catches considerably. The 1954 canned tuna pack of 10,889,000 cases, including the output from Hawaii and Puerto Rico, is expected to be slightly larger in 1955 because of increased imports of frozen tuna for canning. The canned anchovy pack in California decreased to 506,000 cases in 1954, 52% less than for 1953. The canned Maine sardine pack of 2,935,000 cases in 1954 was 5% over the 1953 total, but the pack is not expected to total much more than 1 million cases in 1955.

Menhaden, herring, Pacific sardines, "trash" fish, and processing waste were utilized in 1954 to produce 256,915 tons of fish meal, valued at \$32,753,000; 21,865,000 gallons of marine-animal oil, worth \$12,805,000; and fish solubles, valued at \$10,592,000. Shell products were valued at \$15,999,000.

Fresh fish landings in Boston, Gloucester, New Bedford, and on Cape Cod, Mass., in 1954 amounted to 491,649,000 pounds, valued at \$31,243,000, an increase of 9% in volume but a decrease of 6% in value from 1953 levels. San Pedro, Calif., led all ports in 1954 with landings of 190,500 tons, mainly tuna, sardines, and mackerel. Lewes, Del., received 154,000 tons, mainly menhaden; Reedville, Va., 117,500 tons, mostly menhaden; Gloucester, Mass., 116,000 tons, mostly ocean perch, groundfish, and whiting; Boston, Mass., 75,700 tons, mostly groundfish; Empire, La., 72,000 tons, primarily menhaden; Cameron, La., 67,500 tons of menhaden; and San Diego, Calif., 65,000 tons, mostly tuna.

Exactly 65,638 skins were taken in 1955 from the federally supervised fur seal herd on the Pribilof Islands (q.v.). Dressed and dyed skins sold at public auction in St. Louis, Mo., averaged \$94.14 in the fall of 1955, as compared with \$92.81 in the spring and \$76.92 the previous fall.

Frozen Fish Storage.—On Dec. 1, 1955, frozen fish holdings totaled 190 million pounds, as compared with a five-year average of 188 million pounds. Freezings of 281 million pounds during the first ten months of 1955 were 16 million pounds above those for the same period in 1954. Fillets (mainly ocean perch, haddock, and cod), shrimp, whiting, halibut, salmon, and bait and animal food made up the bulk of the freezings.

Foreign Trade.—Foreign trade in fishery products amounted to \$283,859,000 in 1954, up 4% from 1953 levels. Imports increased 3% to \$252,332,000, and exports were up 13%, accounting for \$31,527,000. Imported edible products set a new record for volume, 803,389,000 pounds, and for value, \$203,645,000. Principal increases in imports in 1954 consisted of fresh and frozen groundfish fillets and tuna. Imported nonedible products decreased 2% to a value of \$48,687,000.

Exported edible products declined to 62,724,000 pounds, valued at \$16,238,000. Exported nonedible products were valued at a record \$15,289,000. Imports of groundfish fillets during the first ten months of 1955 totaled 113,698,000 pounds, 5% less than for the same period in 1954.

A. W. ANDERSON,

Chief, Branch of Commercial Fisheries, U.S. Fish and Wildlife Service.

FITE, Warner, American philosopher and author: b. Philadelphia, Pa., March 5, 1867; d. Philadelphia, June 23, 1955. Twenty years a teacher of philosophy at Princeton University, he retired as Stuart professor of ethics emeritus in 1935.

Fite's interest in philosophy had been aroused by reading James Martineau's *Types of Ethical Theory* during his senior year at Haverford College, from which he was graduated in 1889. His graduate work for the University of Pennsylvania under Professor George S. Fullerton ("really my only teacher of philosophy") included a year at Philadelphia (Episcopal) Divinity School, and two years at German universities, after which he received the Ph.D. degree in 1894. His teaching posts before going to Princeton in 1915 included Williams College and the universities of Chicago, Texas, Indiana, and Stanford.

"I seem to have been nobody's disciple," he once remarked, although he expressed gratitude to Josiah Royce for positive stimulation, and to John Dewey for negative stimulation. He was a personal friend of Dewey, with whose philosophy

he sharply disagreed. Fite expressed great approval of "the disorderly philosophy scattered through the essays, novels, and poems of the Spanish author, Miguel de Unamuno y Jugo, who called himself a 'paradoxist.'" For himself, Fite declared, "only persons are real and only persons are significant," requiring primary emphasis in philosophy upon the "inner life" of man. This "personal idealism," which he said was not subjectivism and not a system, formed the basis of the intense individualism of the private person, which in turn was the basis of his early works: *Introductory Study of Ethics* (1903), *Individualism* (1911), *Moral Philosophy: The Critical View of Life* (1925), and *The Living Mind* (1930). His last two works were unorthodox critical studies: *The Platonic Legend* (1934) and *Jesus the Man* (1947). Fite was the master of a lucid, urbane, pungent, and epigrammatic style, which he used with great boldness in what some critics regarded as "aristocratic" attacks upon the schools of ethics which exalt society and its institutions at the expense of the individual.

HAROLD A. LARRABEE,

Ichabod Spencer Professor of Philosophy, Union College; author of "Reliable Knowledge" and other works.

FLAXSEED. See Index entry.

FLEMING, Sir Alexander, Scottish physician and bacteriologist: b. Lochfield, Darvel, Scotland, Aug. 6, 1881; d. London, England, March 11, 1955. Regarded as one of the most important events in the history of modern medicine, the discovery of penicillin by Dr. Fleming in 1928 introduced the era of such miracle antibiotics as streptomycin, aureomycin, and terramycin.

Educated at Kilmarnock Academy, St. Mary's Hospital Medical School, and the University of London, Fleming received his licentiate from the Royal College of Physicians and was made a member of the Royal College of Surgeons in 1906. In the latter year he also became professor of bacteriology at the University of London, and undertook research at the university's St. Mary's Hospital, serving as an assistant to Sir Almuth Wright, the vaccine pioneer who introduced the anti-typhoid inoculation to medicine. During World War I he was a captain in the Royal Army Medical Corps. After the war he returned to his research work at St. Mary's Hospital, from which he retired in November 1954 as director of that institution's Wright-Fleming Institute of Microbiology. He was appointed Hunterian professor and Arris and Gale lecturer at the Royal College of Surgeons in 1919 and 1928, respectively.

In 1922, Dr. Fleming discovered lysozyme, an antiseptic substance found in the whites of eggs



Sir Alexander Fleming
(d. March 11, 1955)

BRITISH INFORMATION
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and in human tears. But it was not until September 1928 that a fortunate accident led to his discovery of penicillin. He had left exposed some culture plates of *Staphylococcus aureus*, and returning to his laboratory a few days later, found that a mold spore had settled on a specimen and had grown into a colony. About to discard the plates, he noticed that the bacteria had failed to grow in the neighborhood of the mold, indicating that some unknown substance had killed the bacteria. Similar to the ordinary fungus growth on cheese and bread, the mold was later identified as *Penicillium notatum*, belonging to the genus *Penicillium*. Fleming published the promising results of further experimentation in the *Journal of Experimental Pathology* in 1929.

With the outbreak of World War II and the consequent need for a more effective treatment of wound infections, Drs. Howard W. Florey and Ernst B. Chain of Oxford University initiated a systematic search for clues to the discovery of such a treatment. They found Fleming's report, and shortly afterward, with the financial assistance of the Rockefeller Foundation, corroborated his findings (1939). Obstacles to large-scale production were overcome in 1941 when Dr. Florey went to the United States to assist in establishing mass production of the drug. Penicillin proved of tremendous value in healing wounds suffered by British and American servicemen during World War II.

Besides sharing the Nobel Prize in medicine (1945) with Drs. Florey and Chain, Sir Alexander was honored by a number of medical societies and universities both in Great Britain and abroad, and, along with Dr. Florey, was knighted in 1944. His biography, *Fleming, Discoverer of Penicillin*, by Laurence J. Ludovici, has been published both in Great Britain (1952) and the United States (1955).

FLEMING, Philip Bracken, American army engineer and public official: b. Burlington, Iowa, Oct. 15, 1887; d. Washington, D.C., Oct. 6, 1955. During the administrations of Franklin D. Roosevelt and Harry Truman, Maj. Gen. Philip Fleming won a reputation as a gifted administrator in a number of public agencies, including the Public Works Administration, the Wage and Hour Division, and the Federal Works Agency.

On graduation in 1911 from the U.S. Military Academy, where he stood first in his class, Fleming followed the usual army career for some years, serving in the Corps of Engineers. He returned to West Point in 1926, where he was manager of athletics for seven years. His appointment as executive officer and deputy administrator of the PWA in 1933 was the first of a long series of government posts he was to hold. After his abilities as an administrator and as a trouble shooter had been demonstrated in his supervision of the Passamaquoddy Bay project (1935-36), he was assigned the task of reorganizing the Resettlement Administration, of which he was coordinator in 1936-37.

After a return to the army as district engineer in St. Paul, Minn., where he worked on projects for the improvement of the upper Mississippi, he resumed government work in Washington in October 1939 as administrator of the Wage and Hour Division of the Department of Labor. Two years later President Roosevelt appointed him administrator of the Federal Works Agency, a position he held until he became chairman of the U.S. Maritime Commission in 1949. Meanwhile, in 1942, he had been advanced to the rank of

major general. Following service as undersecretary of commerce for transportation (1950-51), Fleming was named ambassador to Costa Rica by President Truman, who awarded him the Distinguished Service Medal for his long and distinguished government service. Fleming held the ambassadorial post until 1953.

FLOOD CONTROL. This problem so generally associated with great rivers of the intermountain states of the United States came to bear with a vengeance on the Northeast in 1955. It came first on the tail of Hurricane Diane in mid-August. There were rainfalls of up to 12 and 14 inches within 24 to 48 hours, causing violent flash floods on tributary streams in a broad belt across eastern Pennsylvania, New York, and southern New England.¹ Then again in early October, an "extra tropical" storm hit much of the same area of southern New England, taking a smaller but serious toll in lives and damage among Connecticut's shore communities as rainfall of up to 12 inches over a three-day period caused streams to swell at a time when tides along the coast also were abnormally high.

The extensive damage to industrial towns and resort areas in the August deluge, and to residential communities and communications in October, focused new attention on flood control plans for the Northeast.² The severity of the August floods raised a question of whether flash floods on tributary streams can be controlled. (Existing federal flood control laws were written with major river systems in mind.) There is a certain amount of protection which federally supported projects could provide, and a new look at existing federal plans was being taken by Corps of Engineers offices throughout the Northeast. There remains a certain amount of protection which local communities must provide in the nature of small dams, floodways, and flood-plain zoning, to keep people from encroaching on lands that belong to the rivers. Much consideration was being given to these local efforts, too, as 1955 came to a close. The difficult problems are those of educating people to the risk involved in building on land vulnerable to floods, and of selling the value of flood control.

The subject of flood insurance gained considerable attention as an outcome of the year's disasters. Insurance companies are generally agreed that no flood insurance can be written privately. At the end of 1955, a congressional committee was studying possible legislation to put public money behind insurance against flood damage.

Until recent years, it was the Southeast and not the Northeast which was associated with floods due to tropical storms. In Florida in 1955 there was completed a key unit in the flood protection scheme developed as a result of hurricanes of years ago. The first pumping plant of a \$300 million plan for central and southern Florida flood control was put in operation in March.

¹ A final summary released to newspapers by the federal government on Oct. 30, 1955, indicated that floods in the Northeast in August killed 179 persons, seriously injured 6,992, destroyed 813 homes, and caused \$457,674,044 in damage. Pennsylvania and Connecticut led in the number of deaths (88 and 77, respectively); Connecticut and Massachusetts, with estimated damage of \$215,245,004 and \$110,412,808, respectively, suffered the most property damage.

² The U.S. Army's Corps of Engineers estimated that an investment of \$60 million in projects already authorized in Connecticut, Massachusetts, and Rhode Island could have saved \$50 million in the damage done by the August flood. Likewise, \$43 million worth of planned and authorized projects still unbuilt in Pennsylvania might have cut \$20 million from the total damage done there by the August storm.

This plant has six pumping units each capable of raising 360,000 gallons per minute through a lift of over 11 feet. In time of flood this plant will take rainfall off a highly developed truck farming area behind West Palm Beach.

Also completed in 1955 was a major pumping station for flood control in Louisville, Ky. This installation is said to be capable of lifting nearly three million gallons per minute. Called the Beargrass Creek pumping plant, it is intended to take the entire flow of the creek it straddles and lift it into the Ohio River in time of flood. It would thus keep Beargrass Creek flowing without allowing high water in the main river to back up the stream and flood adjacent properties.

In Dallas, Texas, major storm drainage works were pushed by the Corps of Engineers to carry Turtle Creek flood waters into the Trinity River and thus save future flooding of an industrial area. The \$10 million Dallas project relates to major reservoirs already completed upstream.

Australia.—There were disastrous floods in southeast Australia early in 1955, with damage estimates ranging to \$120 million. Several dams burst, requiring construction of new flood control works.

China.—It was reported in 1955 that floods and flood damage were increasing in Communist China, in spite of the number of recent river control projects. Floods were reported to have reached such proportions, in fact, that flood news was being critically censored.

(See also DAMS; RECLAMATION; SOIL CONSERVATION; and the Index entries, *Floods* and *Flood Control*.)

ARTHUR J. FOX, JR.,
Associate Editor, "Engineering News-Record."

FLOODS. See Index entry.

FLORIDA. South Atlantic state, United States; admitted to the Union, March 3, 1845. The "Everglade State" ranks 21st in area and 17th in population (1955) among the 48 states.

Area and Population.—Area: 58,560 square miles (land, 54,262; inland water, 4,298), divided into 67 counties. Population: (1950) 2,771,305; (est., July 1, 1955) 3,364,000. Urban places with 1950 populations (unless otherwise specified) above 10,000 are as follows:

Bradenton.....	13,604	Miami.....	249,276
Brownsville—Brent		Miami Beach.....	46,282
Goulding.....	20,269	North Miami.....	10,734
Clearwater.....	15,581	Ocala.....	11,741
Coral Gables.....	19,837	Orlando.....	52,367
Daytona Beach.....	30,187	Panama City.....	25,814
Fort Lauderdale.....	62,906 ¹	Pensacola.....	43,479
Fort Myers.....	13,195	St. Augustine.....	13,555
Fort Pierce.....	13,502	St. Petersburg.....	96,738
Gainesville.....	26,861	Sanford.....	11,935
Hialeah.....	19,676	Sarasota.....	18,896
Hollywood.....	22,798 ²	Tallahassee ³	38,100 ³
Jacksonville.....	204,517	Tampa.....	124,681 ⁴
Key West.....	26,433	Warrington.....	13,570
Lake Worth.....	15,315 ²	West Palm Beach.....	51,015 ³
Lakeland.....	30,851		

¹Unincorporated. ²Capital. ³Special census, 1955.
⁴Not including annexations which, in a special census of Jan. 21, 1954, totaled 92,100.

Executive.—Chief state officers in 1955:

Governor: LeRoy Collins (Democrat)

Secretary of State: R. A. Gray

Treasurer: J. Edwin Larson

Comptroller: Clarence M. Gay

Attorney General: Richard W. Ervin

Supt. of Public Instruction: Thomas D. Bailey

Constitution and Judiciary.—The present constitution went into effect in 1887. The Supreme Court comprises seven justices; chief justice in 1955 was E. Harris Drew.

Legislature.—The Legislature (Senate, 38 members; House of Representatives, 95) convenes in odd-numbered years commencing the first Tuesday after the first Monday in April.

The 1955 biennial session (April 5–June 3) appropriated \$405,087,125 for the 1955–57 biennium, largest in the state's history. Additional revenue was to



HOTEL FONTAINEBLEAU

Hotel Fontainebleau, opened in 1955 at Miami Beach, Fla.

be raised from sales tax revisions and an increased share in racing receipts.

Approval was given to a constitutional amendment providing for three district appeals courts; the Road Department was reorganized under a continuing executive director; a Highway Code was enacted; and, to stimulate tourist and industrial activities, a Development Commission (representing a consolidation of the Advertising and Improvement commissions) and a Development Credit Corporation were established.

In the field of education, local school authorities were empowered to assign children to schools for which they are best adapted; a Council for the Study of Higher Education was created; driver education was provided for public schools; and \$500,000 was appropriated for atomic research and a nuclear reactor for the University of Florida. In connection with public health and welfare, \$550,000 was appropriated for the purchase of the Salk poliomyelitis vaccine for needy children and expectant mothers; a program was initiated for state-county hospitalization of indigents; a Mental Health Council was established; medical, dental, and nursing scholarships were created; a teaching hospital was established at the University of Florida; and a rehabilitation center was created for alcoholics.

Other legislation increased unemployment compensation benefits, expanded the merit system and improved the retirement system for state employees; and coordinated law-enforcement activities in a Sheriffs' Bureau. Salary increases were provided for the governor (new salary, \$20,000), cabinet members and judges (\$15,000), and legislators (\$15 per diem). The maximum length of the regular legislative session was extended from 60 to 90 days. (See also below, *Principal Events, 1955*.)

Finances.—State treasury receipts (1954–55 fiscal year), \$656,858,582.12; expenditures, \$661,532,266.54; treasury balance, \$1,07,304,341.46. There is no long-term indebtedness.

Taxation.—State tax revenue (1954–55 fiscal year): \$320,770,993.92, including \$80,331,123.63 from the gasoline tax; \$74,026,996.80 from a 3% general sales tax and use taxes; \$32,451,756.36 from the beverage tax; and \$32,709,203.55 from motor vehicle licenses. The state has no individual or corporate income tax and no poll tax.

Banking.—As of June 30, 1955, the state's 79 national banks had \$2,187,498,000 in assets, \$1,642,426,000 in demand deposits, and \$388,663,000 in time deposits; the state's 154 other banks had \$1,151,346,256.60 in assets, \$649,499,064.75 in demand deposits, and \$227,621,261.87 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 15, inclusive. Operating expenditures were \$117,933,304 (\$217.34 per pupil) for public elementary and secondary education in day schools in the 1953–54 school fiscal year. Some \$52,845,914 was derived from local school districts, \$59,827,565 from the state, and \$5,259,825 from the federal government. Expenditures for construction and improvements totaled \$38,424,002. Teachers' salaries averaged \$3,697.66.

In the 1953–54 school year, 1,238 public elementary schools (kindergarten-grade 6) had 13,409 teachers and principals and 415,909 pupils; and 460 secondary schools (grades 7–12) had

FLORIDA

9,533 teachers and principals and 232,700 pupils. There was one state junior college with 197 students and there were three state universities with a faculty of 1,397 and 17,906 students on campus.

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) in the fiscal year 1954-55 totaled \$56,705,946.82, including \$39,667,801.41 for old-age assistance, \$14,575,036.12 for dependent children, and \$1,768,877.68 for the needy blind; a monthly average of 92,730 persons received public assistance. Expenditures for health and welfare institutions were \$14,709,306.30; for correctional and penal institutions, \$2,712,616.99.

FLORIDA WELFARE INSTITUTIONS

Type of institution	No.	Pop. ¹
Hospitals for mentally deficient and epileptic	1	962
Hospitals for the mentally ill	2	8,093
Sanatoriums for the tubercular	4	1,750 ²
Schools for the blind and deaf	1	516 ³
Training schools for delinquent boys	1	661
Training schools for delinquent girls	2	246
Prisons	1	2,236
Prisons for first offenders	1	220
Prison farms	1	309
Prison camps (road and other)	40	2,229 ⁴

¹ As of July 1, 1955, unless otherwise indicated. ² Average, fiscal year 1954-55. ³ School year 1954-55. ⁴ Average, fiscal year 1954-55.

Labor Force.—On July 15, 1955, the labor force was 1,212,300, including 20,900 agricultural workers. Nonagricultural employment was 845,100, and for the full year 1954 averaged 861,600. There were 82,000 unemployed workers on July 15, 1955; and \$11,882,553.38 in unemployment insurance claims was paid to workers during 1954.

Manufacturing.—There were 4,783 manufacturing establishments in 1954. Investment in new plant and equipment in 1953 totaled \$103,205,000. Earnings of production workers in manufacturing averaged \$56.44 in 1954 for an average work week of 41.5 hours, and \$57.82 for 41.3 hours in the first half of 1955.

MAJOR FLORIDA MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
<i>All manufactures</i>	<i>119,000</i>	<i>\$508</i>	<i>\$1,336</i>
Food products	32,000	130	560
Paper and pulp	11,000	66	153
Lumber	16,000	44	106
Chemicals	7,000	41	93
Tobacco	9,000	40	84
Transportation equipment	6,000	33	76
Printing	9,000	38	62
Fabricated metals	6,000	31	52

(Source: *The Blue Book of Southern Progress*, 1955.)

Mining.—The overall value of mineral production in Florida in 1954 was \$106,517,000. In

FLORIDA MINERAL PRODUCTION, 1954

(In short tons, except as noted)

Mineral	Quantity	Value
Clays ¹	371,948	\$ 3,337,130
Peat	37,449	168,004
Petroleum (bbl.)	548,000	2,661,152
Phosphate rock (long tons)	10,437,197	64,499,877
Sand and gravel	3,468,842	16,832,066
Stone ²	14,225,356	2,411,823
Ilmenite	157,157	869,677
Rutile	7,305	820,041
Zirconium concentrate	17,959	14,917,230
Other minerals		

¹ Including fuller's earth, and clays for cement manufacture. ² Value included in "Other minerals." ³ Including stone used for cement and lime manufacture, but not dimensional stone. (Source: U.S. Bureau of Mines.)

1953, the state ranked first in production of phosphate rock, rutile and zirconium concentrates, second in ilmenite, and third in garnet and peat. It stood 27th among the states in value of output in 1953 (\$92,336,000), with 0.64% of the United States total.

Fisheries.—The commercial fish and shellfish catch in 1953 was valued at \$31,523,056. Poundages and values of major species were: shrimp, 58,471,431 (\$21,389,490); mullet, 28,709,218 (\$2,494,666); and snapper, 6,404,293 (\$1,672,444).

Agriculture.—Cash farm income in the first half of 1955 totaled \$374,518,000, and for the full year 1954 comprised \$128,715,000 from livestock and livestock products; \$418,248,000 from crops; and \$3,504,000 from government payments.

In 1954, receipts from principal crops and livestock included: oranges, \$157,976,000; dairy products, \$41,624,000; tomatoes, \$41,578,000; cattle, \$35,521,000; grapefruit, \$29,457,000; and tobacco, \$24,900,000.

The state's 57,543 farms (18,166,675 acres; harvested cropland, 1,937,014) in 1954 averaged 315.7 acres and \$28,466 in value of land and buildings per farm. Some 20,690 farms had telephones and 50,052 had electricity. Livestock on farms (Jan. 1, 1955) included 1,679,000 cattle and 3,854,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 109,352 family and hired workers were engaged in farming.

FLORIDA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Avocados (tons)	5,230	11,800	14,000
Corn (1,000 bu.)	7,966	9,200	11,248
Cotton lint (bales)	17,500	25,000	23,000
Grapefruit (1,000 boxes)	31,440	34,800	38,000
Limes (1,000 boxes)	248	380	360
Oranges (1,000 boxes)	63,090	88,400	91,000
Peanuts (1,000 lb.)	60,206	44,550	59,450
Pecans (1,000 lb.)	4,453	2,560	5,000
Potatoes (1,000 lb.)	5,698	9,786	10,164
Strawberries (1,000 crates)	304*	168	306
Sugarcane for sugar (1,000 short tons)	1,129	1,258	1,172
Sugarcane sirup (1,000 gal.)	1,414	840	800
Sweet potatoes (1,000 bu.)	767	638	675
Tobacco (1,000 lb.)	24,748	32,941	35,094
Tung nuts (tons)	15,490	21,600	12,000

* Average, 1944-53. (Source: U.S. Dept. of Agriculture.)

Tourists.—More than five million tourists visit Florida every year. Income from these visitors in 1955 was estimated by the Florida Chamber of Commerce to be upward of \$960 million.

Transportation and Communications.—State funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$94,218,075.69, and newly completed construction and reconstruction in 1954 aggregated 987 miles.

Highways and roads on Dec. 31, 1954, totaled 55,050 miles (25,134 surfaced). Registered motor vehicles numbered 1,579,502 in 1954, including 1,183,965 passenger cars. There were 12 railroads (1954) operating 6,695.68 line miles, and in 1955, 23 regularly scheduled airlines and 216 airports and airfields (113 commercial and municipal, 55 military, 16 private, and 32 others).

Communication media included (1955) 104 AM and 20 FM radio stations and 16 operating television outlets (11 VHF and 5 UHF); 45 daily newspapers (circulation, 1,141,849) and 171 other newspapers (circulation, approximately 300,000); and (Jan. 1, 1955) 379,874 business and 649,820 residential telephones.

Principal Events, 1955.—LeRoy Collins, a Democrat of Tallahassee, was inaugurated on January 4 as successor to Acting Gov. Charley E. Johns to fill the unexpired term of the late Dan McCarty. A major part of the Collins program

was passed by the Legislature. Outstanding measures included establishment of a 37-member Constitutional Advisory Commission to report to the Legislature in 1957 on the question of the revision of the state constitution; increasing of teachers' salaries by \$200 annually per teacher; provision of \$4 million for expansion of junior colleges; establishment of presidential preference primaries; and authorization of \$281 million for the building of a toll turnpike to extend from the Georgia line, near Jacksonville, to Miami. Two westward spurs, to Tampa Bay and Pensacola, were being considered. (See also above, *Legislature*.)

Because of controversy between large- and small-county blocs, the Legislature failed to reapportion the Senate, as required every ten years by the constitution. Convened by Governor Collins into extraordinary session on June 6, the Legislature passed a reapportionment bill on July 13 which the governor vetoed because, he maintained, it did "not achieve for the people of Florida the representative government the constitution unequivocally assures them." After continuing disagreement, the Legislature recessed on September 29 until June 1956.

Since the constitution requires that the governor shall serve four years and not succeed himself, an important question before the Florida Supreme Court concerns the eligibility of Collins to run for a four-year term after he has served two years of the unexpired term.

The state Supreme Court declared on October 18 that the state constitutional provision requiring segregation in public schools had been nullified by the U.S. Supreme Court decision of May 17, 1954.

In other developments in the state, Mayor Abe Aronovitz, Democrat, resigned as mayor of Miami (effective November 24) and was succeeded by Randall N. Christmas, also a Democrat, who led the ticket in the election of November 15. On March 29, Dr. J. Wayne Reitz was appointed president of the University of Florida. A Circus Hall of Fame, comprising seven buildings which are to house circus memorabilia, was opened along U.S. Highway 41 on the north side of Sarasota on December 15. (See also FLOOD CONTROL; NATIONAL PARKS.)

Legislature and Principal Events by:

A. J. HANNA,

Weddell Professor of History, Rollins College.

FLUORSPAR. See MINERAL PRODUCTION.

FLY AND BAIT CASTING. See SPORTS, GAMES, AND SHOWS.

FOLSOM, Marion Bayard, American public official: b. McRae, Ga., Nov. 23, 1893. A business executive with considerable experience in the field of social planning, he was appointed secretary of health, education, and welfare by President Dwight D. Eisenhower on July 13, 1955 (effective August 1), following the resignation of Mrs. Oveta Culp Hobby.

Graduated from the University of Georgia in 1912, Folsom took his M.B.A. degree from the Harvard School of Business Administration in 1914, and immediately joined the Eastman Kodak Company in Rochester, N.Y. Except for his service as an officer in the Quartermaster Corps of the U.S. Army during World War I, he remained with the company until 1953. In 1921 he was appointed assistant to the president, George Eastman; in 1930, assistant treasurer; in 1935, treasurer; and in 1947, director.

In 1928, seven years before the creation of

a federal social security system, Folsom began developing a social security program at Eastman. In 1930-31, during the worst days of the depression, he devised an unemployment-benefit system involving Eastman and 13 other companies in Rochester, which came to be known nationally as the Rochester Unemployment Benefit Plan. His success in the field of social security planning led to an appointment to the President's Advisory Council on Economic Security (1934-35), in which capacity he helped draft the social security legislation enacted in 1935. He served as a delegate in 1936 to the International Labor Conference in Geneva, Switzerland, and in 1937-38 was a member of the Federal Advisory Council on Social Security.

Folsom was one of the original members of the Committee for Economic Development, a private nonpolitical research association founded in 1942, with which he held a series of jobs leading to the chairmanship which he assumed in August 1949. He also was a director of the United States Chamber of Commerce (1942-48).

At the time of his appointment to the president's cabinet, he was undersecretary of the treasury, a post to which he had been appointed by President Eisenhower on Jan. 22, 1953. As undersecretary he prepared the complete revision of the federal tax laws enacted by Congress as the Internal Revenue Code of 1954.

FOOD. See Index entry.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. Founded in October 1945, the FAO collects and disseminates agricultural information and assists member governments in improving their agriculture (including forestry and fisheries) and in raising their standards of nutrition. In assisting underdeveloped countries (for which program it was granted over \$8 million in 1955 by the Technical Assistance Fund), the FAO acts through the Expanded Technical Assistance Program (ETAP).

The 8th session of the FAO Conference, the organization's governing body, was held in Rome on Nov. 4-25, 1955. Following a review of the organization's planned activities for 1956 and 1957 by the director-general, Philip V. Cardon, the conference raised the FAO's budget from \$6 million in 1955 to \$6.6 million for 1956 and \$6.8 million for 1957. Among the new activities approved by the conference were overall surveys of world resources and the use of nuclear energy in relation to agriculture. The conference appointed S. A. Hasnie of Pakistan to a 2-year term as independent chairman of the 24-nation Council, which meets between conference sessions. In addition, Tunisia was elected as the FAO's 72d member.

Agriculture.—In the Far East, the International Rice Commission sponsored training centers for the study of rice breeding and soil fertility. The FAO approved in principle a regional plant protection agreement for Southeast Asia under the International Plant Protection Convention.

In the Near East, the FAO continued in 1955 to assist in the combined efforts of the area's countries to control the desert locust. Also continued were pasture and fodder development and wheat and barley breeding. In addition, a center was developed for the study of land tenure and related problems.

In Europe, the European Commission for the Control of Foot-and-Mouth Disease was established and began operation in 1955. The European Committee on Agriculture, comprising sen-

ior administrators from the various national ministries of agriculture, met in Rome in 1955; and the Subcommittee on Agricultural Research of the Economic Cooperation Administration (ECA) met in The Hague, where agreements were reached for cooperation in agricultural research projects. In the Mediterranean area, pasture and fodder development work continued, and meetings were held to discuss the outcome of tests of uniformly grown grasses and legumes, and to arrive at methods for the effective control of the olive fly.

In Latin America, the 3d Meeting on Livestock Production in the Americas was held in 1955. The meeting published a report on the status and development of the Americas' livestock industry.

Direct advisory assistance to countries under the ETAP was continued during 1955 and included animal and plant disease control, animal and plant production, irrigation, soil classification and fertility, land settlement, improvement of agricultural cooperatives, and rural industries. For these and other projects, about 300 experts were engaged in 1955.

Economics.—In 1955 the FAO worked toward balancing the underproduction of some food products in certain areas with the overproduction in other areas by encouraging international consultation on the disposal of surplus stocks and by studying ways in which these surpluses can be used to assist underproducing nations. In addition, the basic work of maintaining and improving the FAO's world statistical and economic intelligence service on food and agriculture was continued, and further appraisals of international commodity situations were issued.

Regional consultations on selective expansion of agricultural production and consumption were held or arranged in the Far East, the Near East, and Latin America. Studies were also conducted on the effect of national policies on international production and prices; and, under the ETAP, increased assistance was given to countries in the improvement of marketing methods and the development of agricultural programs and statistical services.

Fisheries.—In 1955 training centers were organized for fishery administrators, in Copenhagen, Denmark, and for inland fisheries, in Bogor, Indonesia. Two of the FAO's major fishery projects were the Hong Kong Marketing Training Center and the Copenhagen Meeting on Fishery Statistics. In addition, work continued on the survey of aquatic resources of the world and on various activities in biology, economics, and technology. Under the ETAP, about 60 fisheries experts were scheduled for work in 30 countries.

Forestry.—Much useful technical and economic information was exchanged at the four regional forestry commission sessions in 1955: at Tokyo, in April, the Asia-Pacific Forestry Commission; at Teheran, in September, the Near East Forestry Commission; at Caracas, in October, the Latin American Forestry Commission; and at Rome, in October, the European Forestry Commission. In 1955 many other technical consultations were organized under the regular program, although fewer experts were in the field than in 1954.

Nutrition.—An expert Committee on Protein Requirements met during 1955. Particular attention was paid to the selective expansion of agricultural production and consumption, to surplus disposal problems, and to extension programs. Home economics activities were extended to the

Far East in 1955, and the governments of the Philippines and Indonesia were assisted in evaluating their present programs as a basis for future development. The FAO worked closely with the World Health Organization (WHO) and with the United Nations Children's Fund (UNICEF) during 1955.

Publications.—The FAO's first ten years of activity, and developments in food production and consumption were reviewed in *State of Food and Agriculture*, published in 1955. Also published in 1955 were: *Report of the Fifth Meeting of the Working Party on Rice Breeding*; *Report of the Fourth Meeting of the Working Party on Fertilizers*; *Report of the Fourth Session of the International Rice Commission*; *Flaying and Curing of Hides as a Rural Industry*; *Bibliography on Land Tenure*; *Manual of Supervised Credit in Latin America*; *Legislation on Fertilizers in Latin America*; *Equipment for Processing Tapioca*; *Cooperative Marketing for Agricultural Producers*; and *Some Recent Developments Affecting Livestock Production in the Americas*. Also published were the regular *Monthly Bulletin of Agricultural Economics and Statistics*; *Yearbook of Food and Agricultural Statistics*; *Yearbook of Fishery Statistics*, Vol. 4; *World Forest Resources*; further parts of *World Forest Planting Manual*; and, with a London publisher, *Fishing Boats of the World*.

PHILIP V. CARDON,
Director-General.

FOOD AND DRUG ADMINISTRATION. Operating under the Department of Health, Education, and Welfare, the Food and Drug Administration enforces the Federal Food, Drug, and Cosmetic Act and four related acts designed to protect the public from potentially harmful, impure, or misbranded foods, drugs, devices, and cosmetics in interstate commerce. These products have an annual commercial value of about \$60 billion for domestic shipments and of \$3 billion for foreign imports.

An amendment (July 22, 1954) to the Federal Food, Drug, and Cosmetic Act provides more expeditious procedures for establishing safe residue tolerances for pesticide chemicals useful for agricultural crops. During the fiscal year 1955, 18 petitions for tolerances or exemptions were filed under the new amendment, and 4 were established after review of the applicants' data on toxicity and FDA evaluation of what residue of the chemical would be without hazard if it remained in the food supply. Tolerances were established in March 1955 for 69 chemicals on which protracted hearings had previously been held.

Foods.—During the fiscal year, 1,234 tons of food was seized because it contained deleterious ingredients, and 3 firms were prosecuted for permitting such contamination. One was an exterminator who was fined and placed on 3 years' probation for careless use in a food factory of "1080," a deadly rodenticide.

Most of the poison-contaminated food seized was grain treated with mercury for seed use and later mingled with good grain, or accidentally contaminated when placed in uncleaned railway cars previously used for commercial chemicals. Frozen shrimp containing a quaternary ammonium preservative, imitation vanilla flavoring containing coumarin, and olives contaminated by glass particles were also seized.

Food seized because it was filthy or decomposed totaled 3,900 tons and, in number, accounted for 88% of the food seizures. Eighty-four of the 94 criminal cases in the food field were based on filth charges.

Both FDA and industry, with the assistance of other federal agencies and state and local officials, are continuing efforts to improve the sanitary handling of food from the farm to the ulti-

mate consumer. Twelve carloads of wheat contaminated by insects and rodents were seized between Jan. 1 and June 30, 1955, and more were voluntarily removed from food channels. These actions were taken after an extensive study and educational program on measures to protect grain from contamination. Programs are under way to improve raw stocks in the dairy industry, to eliminate diseased poultry and to further sanitation in the poultry processing plants, and to deal with rackets in incubator-reject eggs.

Drugs and Devices.—In the 1955 fiscal year, 29 drug and device recalls were made, involving products below labeled potency, nonsterile injectables, an eye solution, marketing without effective new-drug applications, variation from U.S.P. specifications, defective packaging, and untoward reactions when injected. Two devices with mechanical defects were recalled—blood donor and intravenous administration sets.

Illegal sales of prescription drugs were charged in 141 of the 154 drug and device prosecutions. Penalties ranged from nominal fines to \$5,000, and 5 jail sentences were imposed. Many state pharmacy boards have suspended or revoked licenses of pharmacists convicted of illegal drug sales. The remaining 13 prosecutions filed included 9 based on false and misleading curative claims. Others charged faulty composition and failure to bear the labeling required by law.

Applications for 433 new drugs—343 for human use and 90 for veterinary use—were approved after evaluation of their safety, and 2,277 supplemental applications went into effect.

Certification.—After predistribution testing, 329 batches of insulin products and 20,643 batches of antibiotics were certified. FDA also certified 4,655 batches of coal-tar colors, representing 5,140,202 pounds, for use in food, drugs, and cosmetics.

Imports.—Of a total of 24,151 import shipments inspected, 6,167 were refused entry because of failure to meet United States requirements.

Civil Defense.—Foods exposed in May 1955 to atomic explosion are under investigation for toxicity and nutritional values. The tests were conducted in cooperation with the Federal Civil Defense Administration, the U.S. Department of Agriculture, and several industry groups. Similar tests of drugs previously conducted showed that of the 42 common drug items only 2 (insulin and vitamin B₁₂) were reduced in potency. FDA began in June 1955 a training program for state and local officials, designed to help them safeguard food and drug supplies in case of attack.

Citizens Committee Study.—A committee of 14 distinguished citizens was appointed by the secretary of health, education, and welfare to make a study of FDA's activities. The committee recommended that FDA be better equipped to render the degree of consumer protection intended by Congress.

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FOOD RESEARCH. Utilization of Ionizing Radiation in Food Preservation.—No other subject compares with this in general interest to food researchers in almost every branch of the food industry. Federal funds for a concentrated research drive on this effort for the constructive use of atomic energy have been made available in the United States through the Quartermaster Food and Container Institute. Beginning in 1954 this agency has let

contracts to leading food scientists throughout the country.

The comparative radiation dosages (in rep., or "roentgen equivalent physical" units) necessary to kill or inactivate various kinds of organisms and biological systems have been plotted as follows:

Biological material	Lethal or inactivating dose
Man and higher animals	400 to 800
Sprouting vegetables, parasitic round worms, insects	5,000 to 30,000
Vegetative microorganisms	50,000 to 500,000
Bacterial spores	1 to 3 million
Virus, toxins, enzymes	5 to 10 million

From this crude chart, certain facts are immediately evident. The small dosages necessary to kill the human operator, as compared with those necessary for destruction of lower forms of life which may infect foods, points up the absolute necessity of adequate protection from the lethal rays. Thus, while large- and low-cost sources of such radiations in the form of fission products from atomic reactors are potentially available, the necessity of thick concrete or heavy metal screens during transportation and use of such radiations is the chief economic drawback.

The most immediate practical benefits will probably be those which can be accomplished with relatively small dosages. These include the inhibition of sprouting in stored root vegetables, eradication of insect infestation in grains, and destruction of trichinae in pork, all of which can be accomplished without significant damage to the food.

However, the most interesting and revolutionary possibilities are connected with the preservation of perishable foods by destruction of microorganisms. Radiation "pasteurization," that is, destruction of a large percentage of the vegetative microorganisms, can be accomplished with dosages in the range 50,000 to 100,000 roentgens. Thus the refrigerated storage life of various fresh meats may be extended four to five times with such relatively small doses. Surface molds on fruits are likewise destroyed within this range, increasing the life of the packaged products.

Complete sterilization of all kinds of perishable foods by radiation cannot be achieved with very many foods without some impairment of palatability. Radiations kill microorganisms which cause spoilage, but may actually accelerate oxidative changes such as rancidity and discolorations. In addition, the radiations may bring about reactions which do not normally take place, resulting in off-odors which vary in kind and intensity with the food being irradiated. Milk develops very pronounced off-odors at dosages far below those necessary to sterilize. Meats also develop strong "animal-like" odors and green and brown discolorations. The elimination of such undesirable side effects is the most important problem facing researchers in this field today. Measures which have been proved at least partially successful with some foods include exclusion of oxygen during radiation (that is, packaging in inert gases or vacuum), radiation in the frozen state, and addition to foods of chemicals which will protect the color or odor. (See also CANNING INDUSTRY.)

Potato Texture.—Plant histologists and biochemists have greatly increased our understanding of the fundamental causes of differences in texture of cooked vegetables and fruits. As an example, the texture of cooked white potatoes may be mealy, waxy, or sometimes sticky or gummy. The mealiness considered so desirable in

baked or fried potatoes results from a separation during cooking of the small individual cells which make up the potato tissue. The separation is caused by swelling of starch granules within the cells. Thus an excellent correlation has been established between the starch content and the organoleptic scores of different varieties of potatoes. Such high-starch varieties as Russet Burbank (Utah) and Kennebec (Maine) are excellent for baking purposes, whereas the low-starch White Rose (California), Red Pontiac (Wisconsin), and Chippewa (Maine), all soggy or waxy upon cooking, are good for potato salad but less desirable for baking. Stickiness and gumminess are undesirable in all types of cooked potatoes. This condition is caused by actual rupture of the cells during cooking, allowing the starch to come out into solution. Reducing the water content by soaking in salt solution, or storing mature tubers at room temperature until sprouting begins, decreases cell rupture and produces mealiness even in low-starch potatoes.

Soluble Nonfat Dry Milk.—This product, which has become generally available during the past year, dissolves very quickly and completely, even in ice water, is free-flowing (does not cake in packages), and does not foam. The process was developed by D. D. Peebles of the Western Condensing Company, Petaluma, Calif. Conventional low-heat, spray-dried, nonfat milk solids are utilized as the starting material. The already dried milk is introduced into a processing chamber where it is subjected to carefully controlled conditions of time, temperature, and moisture, after which excess moisture is removed. During the process, the product becomes granular, and a sufficient quantity of milk sugar is converted to the less soluble monohydrate to make the product nonhygroscopic.

Improvements in Fruit Jellies.—The time-honored method for the preparation of fruit jelly requires a concentration of the juice, usually achieved by boiling down to evaporate water. The prolonged heat treatment is recognized to be undesirable in several respects. The highly volatile fresh fruit flavors are lost, browning and loss of red pigments may occur, and there is a deleterious effect on the jellying characteristics of pectin. These changes may be minimized by using vacuum evaporators and fractionating columns for stripping volatile flavoring components from the vapor and returning them to the finished jelly. This process is expensive, however, and very few manufacturers are actually using it.

The Food Technology Department of the University of Illinois has recently described a new and simple process for apple jelly which involves boiling only a portion of the total juice to achieve concentration. The sugar and pectin are dissolved in the remaining cold juice, which is added at the end of the boiling-down period, and the whole is heated just enough for sterilization purposes. The resulting jelly is definitely superior in flavor.

Freeze-Dried Meat, Poultry, and Fish.—The process of dehydration from the frozen state at reduced pressures has been applied to various flesh foods with promising results. The dehydrated meat prepared for the armed forces during World War II was precooked ground meat, which rehydrated with difficulty and had limited usefulness. It was not possible to dehydrate such items as steaks or chunks of meat, fish fillets, etc. successfully by ordinary drying methods. University of California scientists have recently described the preparation of a great variety of raw prod-

ucts prepared by freeze-drying. In general, these products rehydrated readily, and flavor and color were not impaired, although there was some dryness of texture. (See also AGRICULTURAL RESEARCH SERVICE.)

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FOOTBALL. See SPORTS, GAMES, AND SHOWS.
FORD FOUNDATION. See EDUCATION; SOCIETIES AND ORGANIZATIONS.

FOREIGN AFFAIRS. See FOREIGN POLICY OF THE U.S.; articles on the major countries; and references under the Index entry, *World Politics*.

FOREIGN AID PROGRAMS, U.S. From the end of World War II to June 30, 1955, the United States spent over \$51 billion on foreign aid programs. Immediately after the war the aims of these programs were relief and economic recovery, chiefly in Europe. The Marshall Plan, however, coming into force in 1948 after the seizure of Czechoslovakia by the Communists, frankly recognized that an important purpose of large-scale aid to European recovery was the curbing of further Communist aggression. In 1949, Congress recognized the need to help European countries rebuild themselves militarily as well as economically under the Mutual Defense Assistance Program (MDAP) and to assist underdeveloped countries to develop under President Harry S. Truman's Point Four Program. The Korean War, beginning in June 1950, further shifted the emphasis from general economic to military aid.

A distinction between military and economic aid cannot, however, be made with much precision. Military aid often goes into basic types of production which strengthen a country's capacity to produce; and conversely economic aid, by increasing health, material well-being, and productive equipment, augments a country's military potential. Increasingly it is being recognized that the separation of United States aid into these two categories has chiefly a tactical significance in influencing the budgets of foreign governments, through making military aid explicitly or implicitly conditioned on adequate appropriations for defense purposes.

Creation of the ICA.—On June 30, 1955, President Dwight D. Eisenhower, reflecting congressional sentiment, terminated the year-to-year emergency types of government organization which had been dealing with foreign aid and established a permanent semiautonomous unit in the Department of State, the International Cooperation Administration (ICA).¹

¹The administration of foreign aid has gone through three major changes since 1951. The Mutual Security Act (October 1951) abolished the Economic Cooperation Administration (ECA) and transferred its functions (together with the Department of State's Point Four Program of aid to Southeast Asia and the Pacific, and the military aid program under the Department of Defense) to a new Mutual Security Agency (MSA). The Mutual Defense Assistance Program (MDAP), including the Defense Support Program (to furnish economic aid in the form of raw materials and production equipment for the manufacture of military equipment and other defense-needed commodities) and the Offshore Procurement Program (under which the Department of Defense contracts for the production of military equipment in certain European countries), was also succeeded by the Mutual Security Program (MSP) of the MSA. Under President Dwight D. Eisenhower's reorganization plans in 1953, the functions of both the MSA and the Department of State's Technical Cooperation Administration (a program of economic and technical aid to South Asia, the Middle East, Latin America, and Africa) were transferred to the Foreign Operations Administration (FOA), which went into effect Aug. 1, 1953, and was ended June 30, 1955.

John Baker Hollister, who had served as executive director of the Commission on Organization of the Executive Branch of the Government, known as the Hoover Commission, was appointed director of the ICA on April 30, 1955, and took office on July 1. He administers only the various economic aid programs, however. Military projects, which the Department of Defense had



INTERNATIONAL COOPERATION ADMINISTRATION

National Catholic Welfare Conference volunteers distribute milk to Pakistani natives under U.S. aid program.

for some time administered *de facto* under the Foreign Operations Administration (FOA), are now explicitly made the responsibility of that department. The departments of State and Defense are directed to coordinate the two types of programs, but no overall coordinator has yet been named.

Developments Through the Fiscal Year 1955.—

Through June 30, 1955, the United States had extended \$51,336 million in net grants and loans for foreign aid, of which \$26,260 million were made during the five-year period 1946–50 before the Korean invasion, and \$25,076 million in the five years thereafter. In the first five-year period military grants amounted to \$1,363 million and other aid to \$24,897 million, whereas in the second five years military grants rose to \$13,300 million and other grants and credits fell to \$11,776 million. During the fiscal year ending in mid-1955, however, the trend toward military aid was reversed. Such aid declined by 28% from the previous year, while nonmilitary grants rose by 23%. The greatest decline in military deliveries has been to western Europe, following the build-up of North Atlantic Treaty Organization (NATO) forces.

In the fiscal year 1955, \$434 million was paid to France, mostly from earlier congressional authorizations, in support of French and other forces in Indochina. After the cessation of hostilities there, \$216 million was paid to the separate states of Cambodia, Laos, and South Vietnam. Korea received \$207 million in economic aid during the year, 36% more than in the fiscal year 1954.

After the enactment of the Mutual Security Act of 1953 the United States government began to accept foreign currencies for the sale of surplus agricultural commodities; through June 1955, more than \$400 million worth of farm products had thus been sold. Most of the proceeds of these sales are used for grants and credits, but the amounts are incorporated into the figures of foreign aid given in Table 1 only insofar as these grants or credits have actually been expended. The Agricultural Trade Development and Assistance Act of 1954 allotted an additional \$700 million for a three-year program of this sort, and in 1955 the act was amended to provide a total of up to \$1,500 million.

Military Aid.—On Aug. 25, 1955, President Eisenhower reported to Congress on the build-up of military and economic strength under the Mutual Security Program (MSP) to June 30, 1955. At that date “our friends and allies” commanded about 180 divisions, 280 air squadrons, and in

TABLE 1—U.S. NET FOREIGN GRANTS AND CREDITS, FISCAL YEARS 1953–55¹
(In millions of dollars)

Major country	1953	Fiscal year 1954	1955 ²
MILITARY GRANTS			
Western Europe (excluding Greece and Turkey).....	\$3,176	\$2,362	\$1,570
Near East (including Greece and Turkey) and Africa.....	314	382	286
Other Asia and Pacific.....	770	714	623
American republics.....	21	45	43
Unspecified.....	35	20	20
Total military grants.....	\$4,317	\$3,521	\$2,543
OTHER GRANTS AND CREDITS			
Western Europe (excluding Greece and Turkey) and dependent areas:			
Austria.....	\$ 47	\$ 20	\$ 8
Belgium-Luxembourg.....	2	-5	-4
Denmark.....	8	4	-1
France.....	290	151	422
Germany.....	19	85	34
Italy and Trieste.....	154	105	45
Netherlands.....	18	13	-18
Norway.....	20	18	3
Spain.....	25	13	30
United Kingdom.....	331	144	106
Yugoslavia.....	108	42	66
Other and unspecified ⁴	65	32	114
Total, western Europe ⁵	\$1,087	\$ 623	\$ 802
Eastern Europe.....	\$ -4	\$ 10	\$ 5
Near East (including Greece and Turkey) and Africa:			
Greece.....	\$ 97	\$ 54	\$ 39
Iran.....	15	68	86
Israel.....	72	60	35
Turkey.....	45	35	47
Other and unspecified ⁴	63	76	121
Total, Near East and Africa.....	\$ 292	\$ 294	\$ 329
South Asia:			
India.....	\$ 46	\$ 30	\$ 64
Pakistan.....	19	83	30
Other and unspecified.....	6	4	6
Total, South Asia.....	\$ 70	\$ 117	\$ 101
Other Asia and Pacific:			
Formosa.....	\$ 94	\$ 76	\$ 76
Indochina.....	24	37	216
Indonesia.....	19	20	14
Japan and Ryukyus.....	-12	82	-22
Korea ⁴	189	152	207
Philippines.....	27	8	15
Other and unspecified.....	17	9	15
Total, other Asia and Pacific.....	\$ 359	\$ 385	\$ 521
American republics:			
Brazil.....	\$ 132	\$ 205	\$ 61
Mexico.....	34	21	14
Other and unspecified.....	30	20	26
Total, American republics.....	\$ 196	\$ 246	\$ 102
International organizations and unspecified areas ¹	\$ 41	\$ 36	\$ 66
Total nonmilitary grants and credits.....	\$2,041	\$1,711	\$1,927
Grand total, all grants and credits.....	\$6,357	\$5,232	\$4,469

Note: Because of rounding, totals do not necessarily add up.

¹ For security reasons military aid furnished under the MSP cannot be shown by country, but only by areas as designated in authorizing legislation. Data for Asia and the Pacific include shipments to Indochina, while those for western Europe include shipments to France, a part of which may have replaced equipment used by the French forces in Indochina. Military aid to Europe includes supplies, services, and contributions to the multilateral construction program of NATO. Grants include agricultural surpluses donated by the government for distribution abroad through United States voluntary relief agencies. ² Preliminary. ³ Negative entry of less than \$500,000. ⁴ Includes aid furnished through international organizations. ⁵ Because of the inclusion of dependencies in the grouping “western Europe,” data shown for other groupings, particularly “Near East and Africa,” are correspondingly understated.

excess of 550 combat vessels. Of these 180 divisions, NATO contributed about 100, in comparison with 12 divisions in 1949. European armed forces rose from 2,500,000 men in 1951 to 3,100,000 men in mid-1955, bringing the NATO total up to 6,000,000, including the 2,900,000 men of the United States armed forces. European NATO air strength had increased from 1,000 to 6,000 planes. Adding these to the 20,000 operational aircraft of the United States gives a total of 26,000 for NATO.

On the financial side, the United States had made an aggregate contribution to the military equipment of 35 friendly nations amounting to \$11.4 billion, of which \$8 billion went to Europe. Not included in these figures is \$2.8 billion in contracts for military items placed by the United States in friendly countries. This substantial effort on the part of one country has induced a doubling of the annual military outlay by European NATO members from the beginning of the Korean War to mid-1955, when it reached \$12.3 billion per year. The United States was spending nearly 13% of its national income in the fiscal year 1955 on defense; the European NATO countries had not risen above 8.7% in 1954-55, the last year for which the figure was available.

Economic Aid.—Military aid contributes to the economic strength of receiving countries. This is conspicuously true with regard to the balances of payments and the gold and dollar reserves of the countries assisted, and indirectly of all countries outside the United States. Western European holdings of gold and dollars rose in the first half of 1955 by \$500 million to a record high of \$13.8 billion. In view of all these facts, the United States has virtually terminated economic aid programs to Europe.

Elsewhere, particularly in the low-income countries, which account for 67% of the world's population but only 15% of the world's income, economic difficulties are less matters of international finance and more matters of real resources: scarcity of capital, lack of skilled labor and technical know-how, high rates of infant mortality, ill health, low levels of economic motivation, etc. Besides humanitarian motives, the United States aid program in underdeveloped countries has the purpose of curbing the inroads of communism in Asia, Africa, and Latin America by reducing unrest from poverty. Three facts—the relatively rapid recovery of Europe, the slow pace of progress in the underdeveloped areas, and increased Communist pressure in South and East Asia—account for the maintenance of economic aid to areas outside Europe during the seven-year period (1949-55) when such aid to Europe fell by a third or fourth each successive year, and even during the fiscal years 1954, 1955, and 1956, when total aid (military and economic) was falling significantly.

A small but important part of United States economic aid carries forward the Point Four Program under the caption of technical cooperation. For the fiscal years 1952 through 1955, annual appropriations for this purpose were \$32 million, \$148 million, \$117 million, and \$116 million; for the fiscal year 1956, President Eisenhower asked for \$172 million, and \$127.5 million was actually appropriated. Some 2,000 Americans and 1,000 foreign nationals are employed abroad in this program, which covers agriculture, economics, medicine, education, fishing, and fiscal surveys. The maintenance of these appropriations seems to bespeak congressional confidence in the good-

will created for the United States throughout the world by these activities.

Since 1950 the United States has also contributed about \$50 million to the much smaller technical aid program of the United Nations, which has aggregated \$80 million in the same period. Some liaison is maintained to prevent reduplication of United States and United Nations activities. Critics who argue that most of the foreign economic aid of the United States should be channeled through the United Nations ignore the important political purpose of United States aid, which could not be served by an international organization.

Foreign Aid Program, 1955-56.—President Eisenhower's special message to Congress on foreign aid, delivered on April 20, 1955, pointed out that the aid program was an essential complement of the general foreign economic program he had outlined in a message of Jan. 10, 1955. "That program," he said, "is designed to develop the economic strength and the security of the free world through healthy trade expansion among the free nations and through an increased flow of investment capital, particularly to underdeveloped areas." Beside the encouragement of United States private investment abroad, these complementary measures included lowering import duties, simplifying customs procedures, and furthering currency convertibility.

The president pointed to cumulative economic progress as a reason for giving no further aid to the original Marshall Plan countries of western Europe. But he strongly emphasized the need for military and economic aid to the "vast arc of free Asia, which extends from the Republic of Korea and Japan to the Middle East," especially threatened by Communist aggression. "The preponderance of funds requested of the Congress will be used to meet the threat there." The foreign aid message requested a total appropriation of \$3,530 million, of which about 77% was for military and 23% for economic aid.

As finally passed on July 28, 1955, after prolonged congressional debate, the foreign aid appropriations bill provided \$2,703,341,750 in new funds; \$302,000,000 was carried forward from a Korean War allocation. The total, \$3,005,341,750, was about 15% less than the sum originally requested by the president and represented a reduction of 42% from the appropriation for the previous year, which in turn was 21% lower than that for the fiscal year 1954.

A conspicuous development of the year 1955 in foreign aid was the strong emphasis placed on South and East Asia. In March, Harold E. Stassen, director of the FOA, outlined the character of administration plans for fighting communism in that area through aid programs. It was indicated that the United States, besides increasing its own outlays substantially, would invite western European governments to share in the Asian program, believing that joint participation would be less open to the Communist charges of imperialism and colonialism. Cooperation was also contemplated on the receiving end. The Colombo Plan powers, which now include all of the countries of the "arc of Free Asia," would act with the donor countries in distributing and utilizing aid much after the pattern of the Marshall Plan in Europe. President Eisenhower issued a special statement on April 11 to highlight the importance of an enlarged program for Asia.

These plans and attitudes of the administration were reflected in the foreign aid appropriation bill in its allocations of \$51 million in eco-

TABLE 2—FOREIGN AID APPROPRIATIONS
FOR THE YEAR ENDING JUNE 30, 1956

Distribution	Amount
General military assistance.....	\$ 705,000,000
Direct support for armed forces.....	317,200,000
Economic aid for defense support:	
Europe.....	85,500,000
Near East and Africa.....	113,700,000
Asia.....	800,000,000
Development assistance (economic aid):	
Near East and Africa.....	73,000,000
South Asia.....	51,000,000
Latin America.....	38,000,000
Technical cooperation:	
General authorization.....	127,500,000
United Nations program.....	24,000,000
Organization of American States.....	1,500,000
Special presidential funds.....	200,000,000
U.N. Relief and Works Agency for Palestine Refugees in the Near East.....	58,366,750
Intergovernmental Committee for European Migration.....	12,500,000
Special assistance in joint control areas.....	21,000,000
U.N. Refugee Emergency Fund.....	1,200,000
U.N. Children's Fund.....	14,500,000
Escapee program.....	6,000,000
NATO.....	3,700,000
Ocean freight charges.....	15,000,000
Mutual Defense Assistance Control Act of 1951 expenses.....	1,175,000
Administrative expenses.....	33,500,000
Total.....	\$2,703,341,750
Previously appropriated funds carried forward.....	302,000,000
Grand total.....	\$3,005,341,750

nomic aid and \$800 million in defense support for Asia (not including the Middle East, which also received funds), and also in the establishment of a \$100 million President's Fund for Asian Economic Development, to be expended in Asia as the president sees fit through June 30, 1958.² (This fund is distinct from another \$100 million special presidential fund, to be used where the president deems advisable in extending aid).

Pros and Cons of Foreign Aid.—Military aid has generally been accepted somewhat fatalistically by the people and Congress of the United States as necessary in a world threatened by communism and totalitarianism. But a great debate has gone on regarding the merits of economic aid. Skeptics believe that European economies would have recovered without aid, and point out that communism is still a strong force in France and Italy. Defenders of the aid programs emphasize the rapid economic strides made in Europe under the Marshall Plan, as compared with Japan, where a systematic program of economic assistance was not launched. Communism might have claimed Greece and Austria without aid, and perhaps even larger countries in western Europe, they maintain.

With regard to economic aid to underdeveloped areas, opponents believe that the United States raises suspicions of imperialism by its offers of assistance, that it encounters overwhelming odds because of adverse cultural and political systems in its attempts to raise levels of living, and that population increases in these areas will swallow up all material gains. The supporters of aid programs do not deny these dangers, but point to the evident risk that low-income countries desiring economic improvement will seek satisfaction under Communist regimes unless

capitalist countries can demonstrate a better way of achieving it.

There is probably, in fact, a strong case for continuing economic aid in the underdeveloped areas, and possibly even for some increase. But the International Bank for Reconstruction and Development (q.v.) emphasizes the limits to what can be accomplished simply by supplying capital from abroad. Much more depends on the country's developing the internal conditions needed for its own economic progress.

(For further references, see the Index entry, *Foreign Aid Programs, U.S.*)

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FOREIGN INVESTMENTS. United States investments abroad increased by nearly \$2.7 billion in 1954, bringing the total to more than \$42 billion. More than half of this increase was in private direct investments as United States business continued to expand its foreign operations apace. At the same time, foreign investments in the United States rose by a record of \$3.1 billion to a total of \$26.8 billion. Most of this growth was concentrated in an increased value of the holdings by foreigners of corporate stocks and in short-term dollar assets.

Developments during the first half of 1955 followed the recent trend. Americans increased their foreign stake by adding to their productive facilities abroad and making additional loans to foreign countries. But contrary to prior years, the \$1 billion increase in these investments during the 6 months ended June 30, 1955, were nearly all in private investments as repayments on government loans and credits nearly equaled the new credits made available to foreign countries.

Direct Investments Abroad.—Nearly three quarters of the net growth of United States investments abroad during the first half of 1955 were the result of the investment of new capital and the reinvestment of earnings in foreign subsidiaries and branches of American corporations. Amounting to about \$350 million each, these additions to American direct investments abroad continued at the level of the preceding year when they amounted to about \$1.4 billion. Based on partial information, the total increase in these investments for 1955 should again amount to at least that figure. This rate of growth of direct foreign investment has characterized the whole postwar period. Since the war, total investments in new foreign plants and facilities amounted to more than \$12 billion, or more than 170% of the investment at the end of World War II.

Canada continued as the most important area for new direct investments, with an indicated volume of \$600 million during 1955, two thirds of which was new United States capital. Increased investments were recorded in manufacturing, petroleum, mining, and finance, with some capital going into other industries. As a result, American direct investments in that country were estimated to be in excess of \$6.5 billion at the end of 1955.

The once rapid growth of direct investments in Latin America slowed to only \$222 million during 1954. While the total for 1955 should be somewhat larger, it is not expected to go to over \$300 million for the year. About one half of the new direct investments in Latin America came from reinvested earnings, while the remainder represented new United States capital.

² The president's Asian fund will presumably be used for long-term loans for river development, exploitation of mineral resources, transportation and communications facilities, and training centers, and for occasional grants. A regional economic organization, similar to the Organization for European Economic Cooperation (OEEC) in Europe, would include 15 countries: Afghanistan, Pakistan, India, Nepal, Ceylon, Burma, Thailand, Laos, Cambodia, South Viet-Nam, Indonesia, the Philippines, Formosa, South Korea, and Japan.

FOREIGN INVESTMENTS

INTERNATIONAL INVESTMENT POSITION OF THE UNITED STATES BY AREA AND TYPE OF INVESTMENT
(As of Dec. 31, 1954; in millions of dollars)

Type of investment	Canada	Latin American Republics	Western Europe	Western European dependencies	Other Europe	Other countries	International institutions	Total
United States investments abroad, total...	9,721	8,670	14,372	683	331	4,503	3,949	42,229
Private investments...	9,706	7,710	4,809	648	15	3,217	504	26,609
Long-term investments...	9,480	6,747	4,093	622	14	2,925	504	24,385
Direct investments ¹ ...	5,939	6,256	2,605	600	...	2,348	...	17,748
Foreign dollar bonds...	1,604	143	160	...	3	306	504	2,720
Securities payable in foreign currencies...	1,727	33	465	...	...	79	...	2,304
Other investments...	210	315	863	22	11	192	...	1,613
Short-term investments...	226	963	716	26	1	292	...	2,224
United States government credits and claims...	15	960	9,563	35	316	1,286	3,445	15,620
Long-term investments ² ...	14	954	9,311	33	308	1,143	3,445	15,208
Short-term investments...	1	6	252	2	8	143	...	412
Foreign investments in the United States, total...	4,078	3,035	13,781	477	60	2,339	2,160	26,768
Private investments...	3,053	2,763	10,901	438	53	2,151	125	19,484
Long-term...	2,332	822	7,340	228	34	239	30	11,025
Direct investments...	1,246	136	2,533	20	...	46	...	3,981
Corporate stocks...	935	417	3,660	118	17	95	12	5,254
Corporate, state, and municipal bonds...	11	49	209	6	...	11	18	304
Other...	140	220	938	84	17	87	...	1,486
Short-term...	721	1,941	3,561	210	19	1,912	95	8,459
United States government obligations...	1,025	272	2,880	39	7	188	2,035	7,284
Long-term...	7	215	428	23	5	21	360	1,059
Short-term ³ ...	1,018	57	2,452	16	2	167	1,675	6,225
Net debtor or creditor position...	5,643	5,635	591	206	271	2,164	1,789	15,461
Long-term...	7,155	6,664	5,636	404	283	3,808	3,559	27,509
Short-term...	-1,512	-1,029	-5,045	-198	-12	-1,644	-1,770	-12,048

¹ Direct investments are given at book value, securities at market value, other investments or assets at their stated value.

² Includes U.S. government subscriptions to the International Bank and Monetary Fund; excludes principal on World War I indebtedness, amounting to \$11.4 billion at the end of 1954. ³ Includes an estimate of \$838 million of United States currency and coin held abroad which cannot be distributed by area. Also included are miscellaneous liabilities of various U.S. government agencies, amounting to \$177 million at the end of 1954. (Source: *Survey of Current Business*, August 1954; *Foreign Investments of the United States*, Government Printing Office, Washington 1953; and estimates by the author.)

All industries benefited from the new investments in the area, but the development of new mineral resources, and the scheduled investment programs in manufacturing industries and in public utilities continued to hold the main interest of American corporations. Investment flows connected with exchange restrictions and changes in foreign exchange rates were not as notable as in some of the earlier years.

Investments in western Europe and its dependencies rose by more than \$200 million during the first half of 1955. About half of this growth was through the investment of new capital. Most of these funds continued to be employed in the build-up of the productive capacity of manufacturing plants, which had been under way since the end of World War II. Indications are that this pattern would continue through 1956.

Additions to direct investments in other countries were about \$100 million for the first 6 months of 1955, but were estimated to amount to about \$250 million for the entire year. Most of these additional investments were again in the petroleum industry, which, during the postwar period, has consistently accounted for most of the growth in this area.

After Canada, with \$5,939 million, the countries with the largest amounts of direct investments at the end of 1954 were Venezuela (\$1,399 million), the United Kingdom (\$1,245 million), Brazil (\$1,050 million), Cuba (\$713 million), Chile (\$633 million), Mexico (\$523 million), Panama (\$433 million), Argentina (\$425 million), and Australia (\$387 million). Middle Eastern countries and European dependencies in that area accounted for about \$1,000 million, concentrated primarily in the petroleum industry.

Broken down by industries, manufacturing continued in first place at the end of 1954 with \$5,655 million. It was nearly equaled by petro-

leum, which accounted for \$5,353 million. Other industries with sizable investment totals were mining and smelting, with \$2,071 million; public utilities, with \$1,545 million; and trade, with \$1,148 million. All other industries accounted for \$1,976 million.

Due to higher market prices for foreign securities at mid-1955, United States portfolio investments abroad were somewhat higher than at year-end, despite a net capital return flow during the first two quarters. Debt retirements of Canadian issues held in the United States, amounting to about \$150 million, were an important factor in the capital return flow. This development was aided by the equalization of interest rates between Canada and the United States during 1955. The first 6 months also saw the repayment of bank loans of about \$65 million by western European countries.

About \$100 million was added to the market value of United States holdings of foreign dollar bonds in 1954 and 1955 as German issues were validated under the terms of the London agreements of 1953. In another noteworthy development, United States investors and financial institutions purchased, during 1954 and the first half of 1955, \$88 million of a new issue of the International Bank for Reconstruction and Development (q.v.). In addition, they participated in new loans and purchases of outstanding loans of the International Bank of \$57 million. As of June 30, 1955, there was a backlog of some \$34 million of such participations, which United States financial institutions had agreed to lend.

The large increase in short-term investments abroad during 1954 (\$750 million) had been caused mainly by a higher volume of short- and medium-term credits granted foreigners. During the first half of 1955, additional exports were financed by such lines of credit, but the pace of this investment of short-term funds was slowed

considerably, amounting to about \$210 million.

Government Investments.—During the first half of 1955, new government credits made available abroad exceeded only slightly the repayments on older loans. No great changes in this investment category were expected to take place during the remainder of the year. As in previous years, short-term government assets abroad consist largely of holdings of European and Far Eastern currencies, which represent mainly the United States portion of counterpart funds, and collections for agricultural exports from the United States.

Investment Income.—United States investments abroad earned about \$2.8 billion in 1954, including the undistributed portion of earnings of direct-investment companies. There has been little variation in this total since 1950 despite an increase of \$9.4 billion in the value of these investments in the 4-year period. Investment income for 1955 was estimated at about 10% above the 1954 totals, or about \$3.1 billion.

Direct-investment enterprises abroad continued to produce the greatest part of foreign earnings, amounting to about \$2.6 billion in 1955. Income from other types of investment remained fairly stable, accounting for about \$5 billion. About one half of the direct-investment earnings originated in the Western Hemisphere, while the remainder was split about evenly between Europe and its dependencies on the one hand, and the "other countries" area on the other hand. Petroleum remained the most important source of investment income, with about 40% of all earnings. Manufacturing was next in importance, accounting for about 30% of earnings. The remaining 30% was earned by all other industries combined, with mining and smelting being the most important source of earnings in the group.

Foreign Investments in the United States.—Foreign holdings in the United States grew by a record of over \$3 billion during 1954 to a total of \$26.8 billion. However, of the \$1.6 billion increase in the value of United States corporate stocks held by foreigners, only \$135 million represented net capital flows to the United States; the remainder reflected the rise in market prices of these securities during the year. The increase of \$1.3 billion of short-term assets in the United States reflects the net result of transactions between the United States and foreign countries and represents accumulations of dollar reserves in the United States.

Foreigners continued to purchase United States securities during the first half of 1955, and also made direct investments for a total of about \$500 million. In addition, the rate of increase of foreign dollar assets, while somewhat lower than in 1954, remained substantial. As market prices continued to rise, a sizable increase in foreign investments was expected for the year. At the end of 1954, the largest foreign owners of United States corporate stocks were Switzerland (\$1,353 million), the United Kingdom (\$1,153 million), Canada (\$910 million), and the Netherlands (\$491 million).

Direct investments in the United States grew during 1955 at an annual rate of \$300 million. As in past years, about half of this growth was from reinvested earnings, the other half from the investment of new foreign capital.

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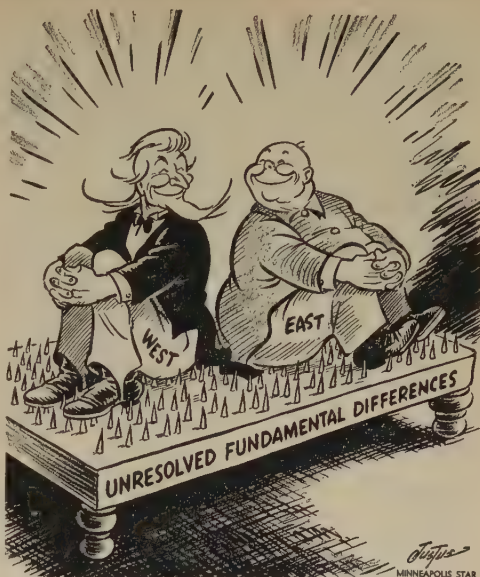
FOREIGN MINISTERS CONFERENCES. See Index entry.

FOREIGN MONEY VALUES. See EXCHANGE RATES.

FOREIGN OPERATIONS ADMINISTRATION. See FOREIGN AID PROGRAMS, U.S.

FOREIGN POLICY OF THE UNITED STATES. The major issue of foreign policy during the year 1955 concerned the relative importance of substantive problems and of the spirit in which their solution is sought. If international tensions develop because the prejudices of peoples and governments lead to distorted interpretations of the policies of other states, thus making it impossible to solve controversies, then a change in spirit might dispel these prejudices and distortions and rapidly relieve tensions. But, on the other hand, if tensions develop because of conflicts of tangible national interests, then a new spirit would have permanent effect only if it altered national interests.

The issue was reflected in the contrast of the optimistic conviction frequently expressed by President Dwight D. Eisenhower, that the new



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"ERA OF GOOD FEELING"

spirit—manifested particularly at the "Summit Conference" of the Big Four heads of government at Geneva in July (see GENEVA CONFERENCE)—could have important results, with the note of warning usually expressed by Secretary of State John Foster Dulles, to the effect that such hopes might be dashed and might result in a dangerous disillusionment of the public.

The "New Spirit."—On March 16, 1955, after the suicidal character of H-bomb warfare had become obvious, while the United States and the world were still disturbed over the threat of war in the controversy over Matsu, Quemoy, and other small islands off the China coast, and when the Bandung Conference of Asian and African states was in immediate prospect, 17 freshmen congressmen demanded a revitalized foreign policy which would put some political, social, economic and spiritual flesh on the bare bones of current United States military measures against communism. It was suggested that both political parties had attributed the world's ills too exclusively to Soviet aggressiveness, resulting in a negative policy of frustrating Soviet ambitions; and that the United States should give positive, vigorous support to policies aimed at peace, anti-colonialism, and economic development of backward areas.

President Eisenhower emphasized this "new spirit" in agreeing to meet the heads of the governments of Great Britain, France, and the Soviet Union in Geneva. In a message from his sickbed in Denver on October 26, to the Big Four foreign ministers meeting in Geneva, the president said that the Summit Conference of July "was designed to create a new spirit that will make possible future solutions of the problems which are within our responsibilities." At the same time, skeptics pointed out that "every substantive issue of the cold war remains as it was before Geneva." And indeed President Eisenhower recognized that "the acid test of the new spirit would come when the foreign ministers would, in accordance with our Geneva directives, tackle concretely those problems for which our nations have responsibility and which, if unresolved, create tension and danger."

Further evidence of the "new spirit" could be found in the more positive foreign policy leadership by President Eisenhower. With the eclipse of McCarthyism and the support of newly elected Democrats in Congress, the president was able to lead a majority of both parties in a bipartisan policy based on American principles. As he suggested in a news conference of Dec. 2, 1954, and repeated in his State of the Union message of Jan. 6, 1955, such a policy would emphasize conciliation without appeasement, and defense without provocation, and would be based on awareness of the close relationship of individual freedom, national independence, and international interdependence. In this spirit, the president, though he urged a congressional resolution in January 1955 for defense of Formosa and related islands, vetoed resort to hostilities when the Formosa Straits crisis became serious in April 1955, and suggested negotiation for a cease fire in that area.

Evidence of a new spirit in the Soviet Union was first observed in the moderation of language in speeches made by Prime Minister Georgi Malenkov after the death of Stalin in March 1953. A conciliatory tone also was exhibited by his successor, Nikolai Bulganin, in the winter of 1955; by the head of the Communist Party, Nikita Khrushchev; and by the foreign minister, Vyacheslav Molotov, as well as by such tangible acts as the restoration of the military base on the Porkkala Peninsula to Finland in September, the signature of a state treaty with Austria on May 15, the agreement of September 13 to exchange diplomatic officers with West Germany, the subsequent return of some prisoners of war to Germany, the opening of peace negotiations with Japan on June 1, and the modification of earlier stands on disarmament inspection, generating more hope of agreement in this field than at any time since 1947. Hope that this new spirit would continue was moderated after the failure of the Geneva foreign ministers meeting in November; the Soviet toleration of arms aid to Egypt by Czechoslovakia; anti-Western speeches by Soviet leaders visiting India, Burma, and Afghanistan; and the Soviet veto of Japan's admission to the United Nations.

Communist China also manifested some slight change in spirit, as seen in the more moderate speeches made by Premier Chou En-lai at the Asian-African Conference held at Bandung in April 1955; in its releasing some of the imprisoned American fliers following a visit to Peking in January by U.N. Secretary General Dag Hammarskjöld, as required by a resolution of the Ninth General Assembly in 1954; in its negotiating for the release of other imprisoned Americans with the United States (represented by Alexis Johnson) at Geneva in the fall of 1955; and in the relaxing of its belligerent threats concerning the Straits of Formosa.

A new spirit in the world was further emphasized in the speeches made in June 1955 at San Francisco celebrating the 10th anniversary of the founding of the United Nations, and in the declarations and discussions at the meeting of the Big Four in Geneva in July. This new spirit generated by statesmen was transmitted to peoples. Expectations of peace, perhaps buttressed by the general feeling that war with hydrogen bombs would be so obviously suicidal that no one would be willing to start it, transformed the "cold war" into at least a "cold peace." Whether coexistence in cold peace could, in time, develop a warmer atmosphere depended on progress in the solution

of many issues which required tangible settlement.

The Problem of Divided Countries.—Foremost among these issues was the reunification of four countries that remained divided. Korea, cut in two by the armistice line of 1953, remained disturbed, with reports of violations of the terms of the armistice from both sides, and occasional belligerent statements from the president of South Korea, Syngman Rhee.

Viet-Nam, divided between Communist Ho Chi Minh in the north and nationalist Ngo Dinh Diem in the south, was scheduled by an agreement of the Geneva Conference of 1954 (to which the United States had refused to subscribe) for unification by plebiscite in 1956. In October 1955, Diem, whose popularity appeared to have increased, declared his country a republic, thus eliminating Bao Dai, the chief of state who had long been resident in France. France and the United States acquiesced, and speculation continued as to whether the proposed plebiscite would be held, and if so, what would be its results.

China also remained divided. The mainland, with its population of nearly 600 million, continued under effective control of the Communist government of Mao Tse-tung in Peking, which was recognized by Great Britain, India, the Soviet Union, and 23 other states. The small offshore islands of Matsu and Quemoy, and the larger islands of Formosa and the Pescadores, with a population of some 9 million, continued under the control of Chiang Kai-shek, still recognized as the legal government of China by the United States and some 50 other states. In January 1955 President Eisenhower discussed the possibility of settling the problem of China by recognizing the existence of "two Chinas," but the United States, while negotiating informally with representatives of the Peking government for the return of imprisoned Americans, refused to recognize that government formally, and succeeded in preventing consideration by the Tenth U.N. General Assembly of its admittance as representative of China in the United Nations. The prospect of such admittance was advanced when the Nationalist government, representing China in the Security Council, vetoed the admission of Outer Mongolia, resulting in a Soviet veto of the admission of Japan.

Germany, too, remained divided. The Soviet Union, which had long recognized the Communist government of East Germany at Berlin, during the year recognized also the Adenauer government of West Germany. The United States and its North Atlantic Treaty Organization (NATO) allies recognized the Adenauer government of the German Federal Republic, insisted that it was the only government which could speak for Germany, and that reunion of the two halves could be brought about only by elections under fair conditions. This issue, combined with that of general security arrangements for Europe, was discussed at the Geneva Summit Conference in July 1955 and at the foreign ministers meeting at Geneva in October and November 1955. The United States and its allies insisted that German unification was a prerequisite to general European security arrangements, while the Soviet government insisted that the latter should come first, and that reunion was primarily a problem for the two German governments to settle between themselves. As a result, the conference adjourned without agreement on any of the three points on its agenda—European secu-

ity and German unification, disarmament, and development of contacts between East and West.

The Problem of Underdeveloped Areas.—Apart from the cold war issues manifested in the four divided countries, American policy was concerned with problems arising from the relations between the underdeveloped areas of Asia and Africa and the industrialized nations of the West. American policy continued to waver on the issues of national self-determination and colonialism. Desiring to placate its NATO allies, it voted in the Tenth U.N. General Assembly (September 1955) to keep the problems of Algeria and Cyprus off the agenda, though professing general sympathy for the anticolonial attitudes of the peoples of Asia and Africa. This issue was emphasized at the Asian-African Conference (q.v.) at Bandung in April 1955.

Other Areas of Tension.—Other areas of tension in the world manifested little progress toward settlement. The India-Pakistan controversy over Kashmir remained unchanged. The tension between Israel and its Arab neighbors was intensified because of a number of border incidents and the sale of arms to Egypt by Czechoslovakia in the autumn of 1955. Soviet and Egyptian opposition to the mutual defense alliance among Pakistan, Iran, Iraq, Turkey, and Great Britain, completed during the year with United States support (but not participation), may have contributed to this tension. The problem of the Saar, which it was hoped would be solved by the formula of Europeanization as agreed to by Germany and France at Paris on Oct. 23, 1954, again became an issue when the people of that area rejected this solution in a plebiscite on Oct. 23, 1955. In these matters, United States policy was that of preserving peace through negotiated settlements by the parties or through the mediation of the United Nations.

Disarmament and "Atoms for Peace."—It was hoped that the new spirit might facilitate progress on some of the more general topics of international interest. Disarmament negotiation continued in the United Nations and was stimulated by Soviet recognition that inspection in some form must accompany disarmament. American policy was indicated by President Eisenhower's suggestion at the Geneva Conference that the powers exchange armament blueprints and permit inspection from the air, with the prime object of assuring advance warning of mobilizations and thus preventing surprise attacks. Such inspection was asserted to have been proposed as a condition of eventual extensive armament limitation. The sequence of first limitation of use, then limitation of manufacture, and finally reduction of stockpiles, was suggested, especially with reference to atomic weapons, each stage being accompanied by appropriate and adequate international inspection. The Soviet Union emphasized withdrawal from advanced bases in foreign territory, and pointed to its own withdrawal from the base which it had occupied at nearby Porkkala, Finland. At the Geneva meeting of the Big Four foreign ministers in the autumn, Soviet Foreign Minister Molotov attacked the Eisenhower proposals (November 10) as inadequate, and said that the USSR would consider the inspection plan only as part of a more comprehensive plan for arms reduction and the prohibition of atomic weapons.

The most important item on the agenda of the Tenth U.N. General Assembly, which opened in New York on September 20, was the Atoms for Peace project initiated by President Eisen-



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Charles Bohlen, U.S. Ambassador to USSR, consults with Secretary of State Dulles (l.) and President Eisenhower (r.), July 18, 1955, during "Summit Conference" at Geneva.

hower in December 1953. The United States and other major producers of fissionable materials and the raw materials for their manufacture proposed an atomic energy agency dominated by themselves and loosely related to the United Nations as a specialized agency. The underdeveloped countries who hoped to benefit by the extensive use of this new source of energy, led by India, demanded more representation in the agency and a more integrated relationship with the United Nations. The United States modified its initial stand and agreed on Oct. 19, 1955, that a world conference should be called, to include 84 countries which are members either of the United Nations or one of its specialized agencies, to negotiate the statute for the atomic energy agency. (See also ATOMIC ENERGY.)

Foreign Economic Policy.—The liberal foreign economic policy, supported by the administration on the basis of the 1954 report of the Commission on Foreign Economic Policy, headed by Clarence Randall, was advanced when Congress passed a reciprocal trade bill on June 15, 1955 incorporating many features of this plan. The Reciprocal Trade Agreements Act was continued for three years, and authorization was given to reduce tariffs on different articles from 15 to 50 per cent during that period (see TARIFFS). Congress did not, however, endorse the Organization for Trade Cooperation (OTC) agreement signed by the government, but proposed to initiate hearings on this subject early in 1956.

The United States reduced its technical assistance program for the fiscal year 1956, and the Foreign Operations Administration was replaced by the International Cooperation Administration (see FOREIGN AID PROGRAMS, U.S.). American assistance tended to emphasize military rather than economic aid, although the United States continued to contribute to the U.N. Expanded Technical Assistance Program. The United States also sponsored an International Finance Corporation (q.v.) to assist in economic development.

Administrative Matters.—In the internal administration of foreign affairs an interesting departure was the appointment on March 19, 1955, of Harold Stassen as special assistant to the president on disarmament problems. The low morale of the Department of State appeared to improve

during the year—according to some because of the relaxation of congressional and other security investigations, and according to others because the department had been thoroughly purged by these investigations. The controversial Bricker amendment, to limit the treaty-making power of the president, was defeated in the Senate in 1954 but was reintroduced by Sen. John W. Bricker in 1955; new hearings were held, but no action was taken during the year.

(See also UNITED STATES—*The United States in 1955.*)

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FOREIGN TRADE. See INTERNATIONAL TRADE; the Index entries, *International Trade and Tariffs*; and articles on the individual countries.

FORESTRY. The 84th Congress enacted several laws pertaining to forests and forestry during its first session in 1955. One of the most important, Public Law 167, amended the mining laws pertaining to claims on national forests and other public lands. This law was intended to prevent widespread abuses in the filing of mining claims. Many persons had used the mining laws to obtain use of public land for purposes other than mining. President Eisenhower, when he approved the act, referred to it as "one of the most important conservation measures affecting public lands that has been enacted in many years."

Another enactment, Public Law 46, authorized the execution of agreements between agencies of the United States and other agencies for mutual aid in forest fire control. It will make possible, among other things, agreements between United States and Canadian forestry agencies for mutual aid in the protection of forests near the international border.

Forest Service Golden Anniversary.—The U.S. Forest Service in 1955 observed its 50th anniversary. The Forest Service came into being in 1905 through a merging of the forest reserves division of the General Land Office with the Bureau of Forestry of the Department of Agriculture. Management of forests for successive timber crops was an idea new to most Americans in 1905. In 1955, millions of acres, public and private, were being managed for a sustained yield of timber. The national forests in 1905 were largely undeveloped, remote, back-country areas;

in 50 years they have been developed into productive public properties which play an important part in the nation's economy. During the half-century, organized fire control was extended to most of the country's forest lands, millions of acres were reforested, and much important research in forestry was accomplished. The advances made in forestry were the result of efforts by many organizations and individuals, but the Forest Service could be credited with a leading part in the forestry progress recorded over the half-century.

National Forests.—Receipts from timber sales, grazing fees, and other uses of the national forests in the fiscal year 1955 amounted to \$81,137,294. This was an increase of more than \$12 million over 1954 receipts, reflecting mainly an increase in volume of timber sales. Timber harvested from the national forests totaled 6.3 billion board feet, a new record high and an increase of nearly 1 billion over 1954.

The net area of the national forests, as of June 30, 1954, was 181,057,569 acres, including 160,282,121 acres in the continental United States and 20,775,448 acres in Alaska and Puerto Rico.

Several forest fires raged out of control in national forests of California in the late summer of 1955. Thousands of men were mobilized to fight the flames. The fires killed timber and destroyed watershed vegetation on many thousands of acres. Up to July 31, 1955, the Forest Service fought 4,771 fires in national forests throughout the United States. The total area burned was 154,860 acres, compared with 87,239 acres in the same seven-month period of 1954.

Canada.—An economic survey covering 162 farms in the Province of Ontario showed that woodland averaged 30 per cent of the area of each farm. The average woodlot was valued at \$1,437, and average annual income derived from it was estimated at \$500.

The Division of Forest Biology of the Ontario Department of Agriculture reported results of a study which indicated that outbreaks of spruce budworm in spruce-fir stands are associated with the maturing of the balsam fir. Mature or flowering balsam fir provides conditions favorable to the insect. The current budworm epidemic was a recurrence of a similar outbreak about 85 years earlier, which virtually wiped out mature balsam fir in affected areas. Young seedlings which were not affected have now grown to maturity.

The Forest Club of the University of British Columbia published a comprehensive *Forestry Handbook*, containing information on forest inventory and survey methods, fire control, tree identification, basic silvicultural systems, statistics on forest industries, and other data useful to practicing foresters. The Plywood Manufacturers Association of British Columbia published a *Technical Handbook for Engineers and Architects* dealing with plywood design data. (See also CANADA.)

International Forestry Developments.—The European Forestry Commission, at its seventh session in Geneva in November 1954, concurred in the establishment of a Joint Committee with the United Nations Economic Commission for Europe to foster international collaboration in improving working techniques and training in logging and other forest operations. It also drafted outlines for an investigation into the status of farm woodlands and small forest properties, and into means of increasing their productivity.

A Latin American meeting on the pulp and

President Eisenhower signs congressional resolution on Jan. 29, 1955, regarding U.S. defense of Formosa. Standing (l. to r.) are: Senators George (Georgia), Bridges (New Hampshire); Secretary of State Dulles; Senators Knowland (California), and Wiley (Wisconsin).



WIDE WORLD

paper industry was held in Buenos Aires late in 1954. Nearly 200 experts from 14 Latin American and 10 other countries participated. The conference gave special attention to technical and economic aspects of manufacturing pulp and paper from tropical and subtropical woods.

The eighth session of the International Poplar Commission was held in Madrid, April 25-28, 1955. The third session of the International Chestnut Commission was held in Rome, September 19-25. A Joint Subcommission on Mediterranean Forestry Problems met in Athens, June 1-5. The third session of the Forestry Commission for Asia and the Pacific, under auspices of the U.N. Food and Agriculture Organization, was held in Tokyo, April 9-21. The Turkish government was host at Istanbul to a seminar on forest policy for Middle Eastern countries. The fifth session of the Latin American Forestry Commission of FAO was held in Caracas, Venezuela, October 4-15.

In Bolivia, a governmental Forest Service was created by law in 1954. It will be responsible for carrying out a national inventory of forests; creation of forest reserves; technical and economic control of forest extraction, afforestation, and reforestation; protection of wildlife; and control of hunting.

A law passed in Brazil provided certain tax exemptions to encourage the care of forests and afforestation of uncultivated land.

Amendments to the Forestry Code of Greece gave the minister of agriculture authority to require forest landowners having more than 8,000 hectares, or with annual output exceeding 4,000 cubic meters of industrial wood, to employ a trained forester.

In the Netherlands, a *Boschchap* (Forestry Board) was established by royal decree in 1954. The board has legal powers to enact decrees regulating forest enterprises. It also has control of the state forests.

Data from a national survey published in Finland showed the country's total forest area to be 21.8 million hectares, of which 17.3 million hectares were classified as productive.

The new building of the Forest Research and Experiment Institute, near Madrid, Spain, was dedicated by the chief of state, Generalissimo Franco, on Nov. 2, 1954. In Chile, the Llanacura Forest Research and Training Center was inaugurated on Feb. 11, 1955. (See also LUMBER; PUBLIC LANDS.)

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FORMOSA (TAIWAN). An island about 110 miles off China's southeast coast, forming (with adjacent islands) Taiwan Province of China, and constituting the present seat of the Republic of China (Nationalist). Area, 13,885 square miles (including the Pescadores); pop. (est. Dec. 31, 1954) 8,749,000, of whom nearly two million are recent refugees from mainland China. About 177,000 primitive aborigines inhabit the mountainous area. Chief cities and populations (January 1954): Taipei, the capital, 630,949; Kaohsiung, a major port, 318,659; Tainan, 253,343; and Taichung, 226,025.

The Pescadores (Penghu) archipelago comprises 64 islands (total area: 49 square miles; est. pop., 83,600) lying about 30 miles off the west coast of Formosa in the Formosa Strait. Chief industries are fishing, fish processing, and cultivation of sugar, corn, fruit, and peanuts.



UNITED PRESS

Nationalist Chinese evacuate Tachen Islands off Chinese coast in February 1955, ahead of Communist occupation.

Government.—The government of the Republic of China is based on the Chinese Constitution of 1947, under which the executive, legislative, judicial, control, and examination functions are each exercised by a Yuan, or council. Chiang Kai-shek was re-elected president of the republic by the National Assembly on March 22, 1954. O. K. Yui was named premier (president of the Executive Yuan) in May 1954. Although the Legislative Yuan meets twice yearly, effective power is concentrated in the executive. The Kuomintang exercises virtual one-party rule. The provincial government of Taiwan is headed by a governor (C. K. Yen, appointed May 1954), who is named by the central government's Executive Yuan. There is also a 21-member Provincial Council and a 55-member Provisional Provincial Assembly chosen by municipal and local councils.

The Chinese Nationalist armed forces are reported to total 600,000, equipped with the aid of the United States and trained under the supervision of the U.S. Military Assistance Advisory Group commanded (since July 1955) by Maj. Gen. George W. Smythe. The U.S. Seventh Fleet has patrolled the surrounding waters since 1950 to prevent Chinese Communist seizure of Formosa. Since the spring of 1955, Air Task Force 13, under the U.S. Pacific Command, has operated out of Formosan bases, with headquarters at Taipei.

Finance.—For the fiscal year 1954-55, the estimated budget totaled NT\$2,875 million. The basic official selling rate of the New Taiwan dollar is NT\$15.65 = U.S. \$1.00. In March 1955, regulations came into effect rendering the effective official dollar rate for most imports at NT\$24.78; and for exports, NT\$21.55. Between 1951 and mid-1955, the United States provided Nationalist China with over U.S.\$534 million in aid, not including arms and munitions.

Education.—Education is free and compulsory for children between the ages of six and 12. Primary schools in 1953 had 1,060,324 pupils; 133 secondary schools had 106,306; 81 vocational schools, 45,601; and National Taiwan University, 4,287. There are also schools for public administration, technology, and agriculture.

Production.—Since the adoption of the Four-Year Plan (1953-56), industrial production has risen considerably, with United States aid playing an important role. Spindles installed in the cotton textile industry numbered 181,844 in November 1954 (10,000 in 1945), and output of cotton yarn amounted to 125,880 bales in 1954 (107,464 in 1953). Electric power capacity aggregated 391,914 kw. at the end of 1954 (33,000 at the end of World War II), and production of electric power in 1954 totaled 1,805 million kw.-hr., a rise of 15.4% over 1953. Output of cement in 1954 totaled 536,416 metric tons (a rise of 3%); coal, 2,117,603 (a decline of 11.5%); and chemical fertilizers, 167,961 (a rise of 2.4%). Other important industries are foodstuffs, petroleum products, paper and pulp, chemicals, aluminum, copper, sulfur, and salt. Overall industrial output rose an estimated 6.4% in 1954.

Land reform measures completed in 1954 bestowed 242,000 hectares of farmland (27% of

total farm area) upon 383,000 former tenants (55% of total farm households), resulting in increased output and improved rural living conditions. Irrigation and increased supplies of chemical fertilizers have also contributed to rising output. Production of foodstuffs in 1954 slightly exceeded the yield of 1953. Output of rice totaled a record 1,696,452 metric tons in 1954; sweet potatoes, 2.32 million; and sugar (raw value, 1953-54), 722,084. Other important crops are groundnuts, soybeans, bananas, pineapples, citrus fruits, tea, jute, tobacco, sesame, vegetables, and wheat. Fisheries production in 1954 totaled 152,548 metric tons.

Foreign Trade.—Exports in 1954 totaled U.S. \$97.8 million (a decline of 24% from 1953); imports, U.S. \$110.2 million (excluding United States aid imports). The decline in exports was due to the surplus of rice in world markets and limitations on Formosan sugar exports imposed by the International Sugar Agreement. Sugar accounted for about 60% of the value of 1954 exports. Chemical fertilizers, ores, metals, and metal manufactures were the chief imports. Japan took 54% of Formosa's 1954 exports and provided 56% of purchased imports.

Transportation and Communications.—The two railroads under the Taiwan Railway Administration aggregated 590 miles in 1954; additional trackage is operated privately by the Taiwan Sugar Corporation. In mid-1954 there were 9,688 miles of provincial, county, and rural roads. Five airlines provide service between Taipei and other Far East centers. The merchant fleet totaled 354,000 registered tons in 1954; passenger cars numbered 3,277; trucks and buses, 6,750; and telephones, 38,188 (1955). Formosa had 19 daily newspapers in 1952, with a total circulation of 222,000.

M. J. G.

THE YEAR 1955 IN FORMOSA

The Chinese Nationalist government in Formosa was confronted with a grave situation at the beginning of 1955, when war clouds darkened over the Formosa Strait. The mutual defense treaty concluded between the United States and Nationalist China on Dec. 2, 1954, provided for common action against armed attack on Formosa, the Pescadores, and "other territories as may be determined by mutual agreement." Taking advantage of the uncertain attitude of the American government toward the offshore islands, the Chinese Communists on Jan. 18, 1955, captured Yikiang Island, a Nationalist outpost off the Chekiang coast. After that, the Tachen Islands, 7½ miles southeast of Yikiang, were exposed to attack. On February 7, on the advice of the United States government and with the assistance of the U.S. Seventh Fleet, the Nationalists evacuated the Tachens.

The next objectives of Communist invasion were believed to be Quemoy and Matsu, the two island groups off the Fukien coast. The United States government refused to commit itself to the defense of these islands, although it did not exclude joining battle if an attack on these islands appeared to be a preliminary to the invasion of Formosa.* The Nationalist government was disappointed, but resolutely declared in February and March that Quemoy and Matsu would be defended with or without American

aid. (See also FOREIGN POLICY OF THE U.S.; UNITED STATES—*The United States in 1955*.)

The Nationalist government was opposed to any discussion of a cease-fire with the Chinese Communists. When the U.N. Security Council on Jan. 31, 1955, invited Communist China to send a representative to participate in the discussion of a cease-fire proposal, President Chiang Kai-shek declared that a cease-fire arrangement with the Communists would be "tantamount to recognition of the *fait accompli* of the aggressors." He condemned the idea of "two Chinas," which had been circulating in the United States and other countries.

When U.S. Secretary of State John Foster Dulles declared on July 26 that the United States was willing to negotiate with Communist China for a cease-fire without Nationalist participation, the immediate public reaction in Formosa was one of anger and bitterness. Although the United States government assured Formosa that the talks between the American and Chinese Communist ambassadors at Geneva, beginning August 1, would not affect the interests of Nationalist China, the Nationalist government watched the talks with grave concern. The Nationalists were opposed to any investigation of Chinese students in America by a third power in order to ascertain whether they wished to return to mainland China. The Nationalists also voiced strong objection to the lifting of the trade embargo against Communist China.

The authorization of American aid to Nationalist China for the fiscal year 1956 amounted to \$102,000,000. Of this amount, 47% would be used for military purposes. This aid made possible the maintenance, expansion, and modernization of the Nationalist defense establishment. The problem of age, once the Nationalist army's weakness, was being overcome through the retirement of older soldiers and the recruitment of young men in Formosa.

The year 1955 saw progress in the economic field, especially the improvement of Formosa's productive capacity and the raising of the general standard of living. Electric power capacity had grown to 392,000 kw. early in 1955. Fertilizer plants were being built throughout the island in order to end Formosa's dependence on fertilizer imports. Nineteen of 31 major industries registered overfulfillment of production targets for the first half of 1955, and the year's industrial output index had reached 790 (1946=100).

The Joint Commission on Rural Reconstruction helped increase food production by effectively carrying out a program which aimed at higher crop yields, livestock improvement, and rural welfare promotion. The land reform program, under which landlords have been forced to sell their excess land to the government at a reasonable price (the land in turn being sold to the farmers), contributed greatly to the development of rural economy. According to a government report in September 1955, farmers' individual income had increased 75% over that of 1948. The annual production of rice in Formosa had increased from 894,000 metric tons in 1946 to an all-time high of 1,696,452 metric tons in 1954.

The construction of a great, multipurpose dam at Shihmen, about 30 miles southeast of Taipei, was started in July 1955. Financed with the aid of a United States loan, the project, costing about \$36,400,000, was to be completed within five years. The dam is expected to result in the irrigation of 136,500 acres, to provide a peak electric power capacity of 12,000 kw., and

* A congressional resolution passed Jan. 28, 1955, and signed by the president the following day, gave the president discretionary authority to employ United States forces to defend Formosa and the Pescadores.

to serve as a major flood-control measure in northern Formosa.

In spite of general economic progress, Formosa was not without its difficulties in 1955. The expansion of military establishments caused a serious drain on Formosa's resources. Dependence on United States aid and an increasing birth rate were also unfavorable economic factors. In an address in May 1955, Premier O. K. Yui recognized that "it will not be possible to achieve self-sufficiency in the near future."

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FOUNDATIONS AND TRUSTS. See names of organizations under SOCIETIES AND ORGANIZATIONS.

FRANCE. Metropolitan (continental) France has an area of 212,736 square miles, which includes various small coastal islands and the island of Corsica (3,367 square miles). The Saar (q.v.) remains linked economically to France. France is a member of the United Nations, the North Atlantic Treaty Organization (NATO), and various European organizations (see EUROPEAN ORGANIZATIONS).

The French Union.—France, through the French Union, which was established by the Constitution of the Fourth Republic (1946), controls the second largest colonial empire in the world. It has an aggregate area of 4,596,905 square miles and an estimated population of 84,854,000.

On Aug. 5, 1955, the French National Assembly approved an administrative decision whereby the Adélie Coast in Antarctica and the Crozet, Kerguelen, St. Paul, and Amsterdam islands in the southern Indian Ocean ceased to be dependencies of Madagascar and were given an autonomous status within the French Union. Henceforth these territories will be grouped under the Southern and Antarctic Lands Administration, which will have its own budget and be represented by a Consultative Council attached to the Ministry of Overseas Territories.

Outside of metropolitan France there are 4 departments (a new department of Bône was established in

1955) in Algeria and 4 overseas departments. On Sept. 25, 1955, Cambodia deleted from its constitution references to membership in the French Union, but its status, as well as that of the other states of Indochina, remains to be clarified. (For events in the various parts of the French Union see articles on the territories listed in the accompanying table.)

Population.—According to the census of May 10, 1954, metropolitan France had a population of 42,774,445, to which should be added 38,000 persons who were not at their legal residence at the time the census was taken, and 187,000 military and civil personnel residing temporarily outside the country. Included in the total, however, were 1,451,752 foreigners. There were 63 cities with a population of more than 50,000 and 24 with over 100,000. Paris, the capital, had a population of 2,850,189; Marseille, 661,492; Lyon, 471,270; Toulouse, 268,863; Bordeaux, 257,946; Nice, 244,360; Nantes, 222,790; and Strasbourg, 200,921.

Government.—The Constitution of 1946 provides for a president elected by Parliament for a 7-year term. On Jan. 16, 1954, René Coty, an Independent Republican, took office as the successor of Vincent Auriol, a Socialist.

Executive power actually rests in the premier and cabinet, who are responsible to the National Assembly. On Feb. 5, 1955, Premier Pierre Mendès-France resigned after failing to get a vote of confidence on his North African policy (see below, *Principal Events*, 1955). Premier Edgar Faure's right-wing government received parliamentary approval on February 23. Key men in the new cabinet were Antoine Pinay (foreign affairs), Robert Schuman (justice), Pierre Pfimlin (finance), and Gen. Pierre Koenig (defense).*

The Council of the Republic (upper chamber) is primarily a consultative body; it consists of 320 members elected indirectly by electoral colleges for 6-year terms in the departments of metropolitan France (249, including 3 representatives of French citizens abroad), Algeria (14), Martinique (2), Guadeloupe (2), Réunion (2), French Guiana (1), and other overseas territories (50). The last partial election took place on June 19, 1955, when election of half the membership produced no significant changes.

The National Assembly (lower chamber) is elected by universal secret suffrage, and under a law of May 23, 1951, consists of 544 deputies from metropolitan France, 30 from the departments of Algeria, 10 from the other overseas departments, and 43 from the overseas territories, making a total of 627. The deputies are elected for a term of 5 years. Regular elections were held on June 17, 1951, and new elections were held on Jan. 2, 1956 (see below, *Principal Events*, 1955).

There is also an advisory Economic Council of 169 members drawn from labor, agricultural, industrial, and commercial organizations.

Party allegiance is not hard and fast in Parliament, and similar groups do not always bear the same name in both chambers. Listings of party alignments are therefore likely to show some variation according to the method of grouping small parties and the shifting of allegiances from time to time. The composition of the assembly and the council in 1955 was as shown in the table at the top of page 276.

Metropolitan France is divided into 90 departments, 311 arrondissements, 3,031 cantons, and 38,000 communes. Each department is headed by a prefect, assisted by an elected departmental council. Council elections were held in 1,511 cantons on April 17 and 24, 1955,

* Since the Constitution of the Fourth Republic went into effect, France has had the following premiers (dates show National Assembly approval of the cabinet, not investiture of the premier): Paul Ramadier (Jan. 22, 1947—Nov. 19, 1947); Robert Schuman (Nov. 22, 1947—July 19, 1948); André Marie (July 24, 1948—Aug. 27, 1948); Robert Schuman (Aug. 31, 1948—Sept. 7, 1948); Henri Queuille (Sept. 10, 1948—Oct. 6, 1949); Georges Bidault (Oct. 28, 1949—June 24, 1950); René Pleven (July 13, 1950—Feb. 28, 1951); Henri Queuille (March 13, 1951—July 10, 1951); René Pleven (Aug. 11, 1951—Jan. 7, 1952); Edgar Faure (Jan. 22, 1952—Feb. 29, 1952); Antoine Pinay (March 11, 1952—Dec. 23, 1952); René Mayer (Jan. 8, 1953—May 21, 1953); Joseph Laniel (June 30, 1953—June 12, 1954); Pierre Mendès-France (June 24, 1954—Feb. 5, 1955); Edgar Faure (Feb. 23, 1955—Nov. 29, 1955).

THE FRENCH UNION

Division	Area (sq. mi.)	Population ¹
Metropolitan France.....	212,736	43,216,000
Government General of Algeria ² ...	846,124	9,530,000
Overseas departments (outside Algeria):		
Martinique.....	425	239,000
Guadeloupe.....	687	229,000
Réunion.....	970	274,000
French Guiana.....	35,100	28,000
Overseas territories:		
French West Africa.....	1,831,080	17,435,000
French Equatorial Africa.....	969,100	4,492,000
Madagascar (exclusive of dependencies).....	227,737	4,523,000
Comoro Islands.....	834	169,000
French Somaliland.....	8,500	63,000
New Caledonia and dependencies.....	9,401	63,000
French Oceania.....	1,544	63,000
St. Pierre and Miquelon.....	93	5,000
Territories under trusteeship:		
French Togoland.....	21,230	1,070,000
French Cameroons.....	166,800	3,121,000
Anglo-French condominium:		
New Hebrides.....	5,700	50,000
Associated territories and states:		
Tunisia (protectorate).....	48,332	3,700,000
Morocco (protectorate).....	150,888	8,340,000
Indochina ³ :		
Viet-Nam.....	127,260	26,000,000
Cambodia.....	53,670	4,100,000
Laos.....	91,430	1,360,000
Total.....	4,809,641	128,070,000

¹ Latest population estimates from Statistical Office of the United Nations, *Population and Vital Statistics Reports*, Statistical Papers Series A, vol. 7, no. 4 (October 1955).

² Comprises Alger, Constantine, Bône, Oran (overseas departments), and the Southern Territories. ³ Status of Indochina in the French Union, particularly that of North and South Viet-Nam and Cambodia, is uncertain.

PARTY ALIGNMENT IN PARLIAMENT, 1955

Party	National Assembly ¹	Council of the Republic ²
Communists.....	94	14
Progressive Republicans.....	4	...
Socialists.....	105	56
Overseas Independents (IOM).....	16	14
Democratic and Socialist Resistance Union (UDSR).....	24	74 ³
Radical Socialists.....	76	...
Popular Republicans (MRP).....	85	24
Independent Republicans.....	55	...
Independent Peasants.....	28	83 ⁴
Peasants.....	22	...
Republican and Social Action (ARS) ⁵	33	...
Social Republicans ⁶	72	44
Unaffiliated.....	12	10
Total.....	626 ⁶	319 ⁶

¹ As of Jan. 1, 1955. ² As of June 1955. ³ In the council the UDSR and the Radical Socialists are combined as the Gauche Démocratique et Rassemblement des Gauches Républicaines (RGR). ⁴ In the council the Independent Republicans, Independent Peasants, Peasants, and ARS are combined as the Modérés. ⁵ ARS and the Social Republicans formerly constituted the Rally of the French People (RPF), the Gaullists. In the council the Social Republicans include 8 Overseas Rally (ROM). ⁶ One seat held by former French territories in India is vacant in each chamber.

with the following results (gains or losses in comparison with the 1949 elections in parentheses): Communist, 44 (+7); Socialist, 287 (+11); left-wing parties, 87 (+19); Radicals, 896 (+10) Popular Republicans, 106 (+12); right-wing parties, 519 (+22); Social Republicans (Gaullists), 72 (-79).

Education.—Compulsory education exists for all children between the ages of 6 and 14. In 1952-53 there were 3,929 state and 210 private infant schools with a total enrollment of 590,621. State elementary schools numbered 70,214, and private elementary schools 10,823, with a total enrollment of 5,074,969.

Secondary schools consist of the *lycées* run by the state, the colleges run by the communes, and the free schools (*écoles libres*) run mostly by religious associations or by private individuals. The secondary schools with their 7-year course of study are not coeducational, and since 1934 the state institutions have been free. In 1952-53, 429,784 boys and 426,337 girls attended secondary schools.

France has 17 universities, which on June 30, 1953, had a combined enrollment of 147,844.

In May 1955, a committee appointed by the minister of education under the chairmanship of Jean Sarraillh, rector of the University of Paris, submitted a broad program for reorganizing French education, but the government has not taken any action. Support of 2-year continuation schools maintained in certain centers aroused much debate in Parliament during the year, since it involved the question of granting financial aid to private schools. Henceforth such classes maintained at private schools will obtain subsidies from the national treasury in proportion to the number of their pupils.

Religion.—France is predominantly Roman Catholic, and the French hierarchy numbers 17 archbishops, 68 bishops, and 51,000 clergy of various grades. Religious affiliation is not tabulated in the French census, but the number of Protestants is estimated at about 1 million. Protestants of the Augsburg Confession are governed by a General Consistory, while the Reformed Church is under a Council of Administration.

National Defense.—On Jan. 3, 1955, France proposed to other members of the future reorganized Western European Union (WEU) the formation of a European arms pool that would have a degree of supranationality. These proposals were considered at a conference held in Paris from January 17 to May 7. Although it refused to accept the French plan, the conference did establish a standing committee to be connected with NATO. This committee is to study the

standardization and production of arms within the WEU.

Plans for a complete reorganization of the French military establishment proved too costly, and Parliament compromised on a maintenance defense budget of 991 billion francs² for 1955 and 997 billion for 1956. This will permit placing some long-range industrial orders for heavy equipment.

The French expeditionary force in Indochina has been cut from a peak figure of 180,000 men in 1954 to 30,000 by November 1955. Divisions which had been part of NATO forces were shifted to North Africa in 1955 (French forces there were estimated at 150,000 in July). These were to some extent replaced by reservists recalled for duty. Resistance by some reservists against being sent to North Africa aroused attention in October. (See also NAVAL AFFAIRS.)

Finance.—On Jan. 31, 1955, Premier Mendès-France suffered a parliamentary defeat on a request for credit with regard to civil estimates, and budgetary considerations played a part in his overthrow on February 5. Popular protests against taxes—in which Pierre Poujade, the rural bookseller who had organized a nationwide anti-tax group, again played a part—plagued the government. In submitting his fiscal powers bill, Premier Faure agreed to abrogate the clauses of the law providing severe penalties for shopkeepers who interfered with the work of tax inspectors. Then, on March 30, Parliament gave the government special powers to enact by decree tax reforms and other economic and financial measures.

Wage increases were an issue in the National Assembly, and on April 4 the government enacted a decree raising the minimum hourly wage from 121.50 to 126 francs. This rate applied to the Paris region, and the reduction rate for other areas, which had ranged between 3.75 and 13.50%, was revised to between 3.33 and 12%. (See also COST OF LIVING.)

Cabinet agreement on the defense budget was reached at the end of June, and it was voted by the assembly on July 24 (see above, *National Defense*). On July 27, the final collective budget was adopted, which added 45 billion francs to the total. The 1955 regular budget (excluding such items as government advances to nationalized and private industries) provided for expenditures of 3,550 billion francs and an estimated revenue of 2,990 billion. United States aid was estimated at 90 billion francs, leaving a deficit of 470 billion. The same budget was voted for 1956, but expenditures already planned will necessitate increased appropriations. Pay increases to civil servants alone will amount to an increase of 81 billion francs. The assembly limited 1956 budgetary expenditures to 3,720 billion francs, with revenue estimated at 3,030 billion. Residual United States aid was estimated at 40 billion. It is hoped that increased industrial production will reduce materially the estimated deficit of 650 billion francs.

On July 20, the United States announced the conclusion of about \$42 million worth of new offshore procurement contracts with French firms. This brought the total of such contracts made since 1952 to nearly \$1.5 billion.

Agriculture.—After severe floods in January and a cold, wet spring, the weather improved in June and July, and the 1955 harvest turned out better than expected. Production of the chief cereals is shown in the accompanying table.

In 1954 an estimated 15,890,000 metric tons

² 349.95 francs = U.S.\$1.

CEREAL PRODUCTION IN FRANCE

Cereal	Cultivated area (in hectares ¹)	Average yield (in quintals ² per hectare)		Production (in thousands of quintals)	
		1955	1954 1955 ³	1954	1955 ³
Wheat.....	4,546,800	23.5	21.7	105,657.2	98,467.6
Oats.....	2,096,900	16.6	16.6	35,773.4	34,883.2
Barley.....	1,295,300	20.5	19.8	25,247.2	25,677.7
Rye.....	394,000	12.7	11.5	5,139.8	4,552.0
Maslin.....	24,000	14.1	13.6	363.4	326.7
Other.....	102,800	14.8	14.0	1,637.0	1,443.0
Total.....	8,459,800			173,818.0	165,350.2

¹ 1 hectare = 2.471 acres. ² 1 quintal = 220.46 pounds.

³ Estimate as of August 1.

of potatoes and 11,453,600 metric tons of sugar beets were produced. The 1955 output of wine was estimated at 58,573,500 hectoliters (1 hectoliter = 26.418 gallons), as compared with 60,858,100 hectoliters in 1954. So as to clear the cellars for the new harvest, the government bought 2.6 million gallons of wine in August 1955 for distillation into alcohol. It also decided to purchase 72 million gallons from the 1955 crop, although it already had about 430 million gallons of alcohol on hand. To cut future surpluses the government has inaugurated a policy of paying farmers to destroy vineyards producing inferior wines and transfer the land to other crops.

In 1955, France had 220,000 holdings of less than 1 hectare, 1,120,000 of 1 to 10 hectares, 540,000 of 10 to 20, 325,000 of 20 to 40, 55,000 of 40 to 50, 77,500 of 50 to 100, and 26,100 of over 100. These holdings are cultivated by 2,350,000 farmers, aided by 3,700,000 family members, and 1,200,000 hired employees. In 1941 a law was voted encouraging with governmental assistance the consolidation of scattered holdings. By Oct. 1, 1954, 2,267 consolidations involving 1,641,086 hectares had been completed, 989 consolidations involving 695,070 hectares were in process, and 1,654 applications involving 1,264,823 hectares were pending.

Industry.—The index of employment (including salaried employees) in manufacturing (1948 = 100) was 105 in 1954, as compared with 104 in 1953. The 1954 index of general industrial production (1948 = 100; 1953 figures in parentheses) was 139 (127); that of mining, 143 (137); manufacturing, 137 (126); gas and electricity, 147 (135); and construction, 114 (110). By June 1955 the index of general industrial production had risen to 159, the highest level ever reached. Production of major industrial products in 1953 and 1954 is shown in the accompanying table.

Commodity	1953	1954
	(Metric tons)	
Coal (exclusive of Saar).....	52,577,000	54,405,000
Lignite.....	1,949,000	1,910,000
Iron ore.....	42,443,000	43,824,000
Crude steel (exclusive of Saar).....	9,999,744	10,627,000
Pig iron (exclusive of Saar).....	8,666,232	8,833,000
Aluminum.....	136,224	150,300
Cement.....	9,100,000	9,553,000
Cotton yarn.....	270,228	295,300
Wool yarn.....	119,714	128,400
Rayon filament yarn.....	46,848	53,340

Production of electricity (1953 figures in parentheses) amounted to 45,600 (41,512) million kw.-hr. in 1954, of which 24,250 (21,091) million were produced by hydraulic stations. Petroleum production was raised from an average monthly total in metropolitan France of 42,300 metric tons in 1954 to 78,035 tons by July 1955. Production of natural gas reached a total of 268 million cubic meters in 1954, as compared with

249 million in 1953. In 1954 (figures for 1953 in parentheses), 437,098 (368,388) passenger cars and 162,295 (129,468) commercial vehicles were manufactured; 24% of this output was exported.

A three-year program for the development of atomic energy, involving an expenditure of 100 billion francs, was approved on April 29, 1955.

There were some strikes in 1955, notably in the shipyards of Nantes in August and on the railways in September. On the whole, however, French industry was not beset by labor difficulties during the year.

Foreign Trade.—French imports for 1954 (1953 figures in parentheses) totaled 1,477,207 million francs (1,379,625 million), and exports 1,466,124 million (1,323,824 million), leaving an unfavorable balance of 11,083 million, as against 55,801 million in 1953. The figures in millions of francs for the first six months of 1955, as compared with the same period of 1954, are as follows: imports, 822,884 (763,351); exports, 830,856 (718,320). There was therefore a favorable trade balance of 7,972 million francs, as against an unfavorable balance of 45,031 million in 1954.

In March 1955, France signed a trade agreement with East Germany. Of far greater importance was the agreement signed with West Germany on August 5. It is to extend from April 1, 1955, to Oct. 1, 1958, and involves an exchange of about \$1 billion a year.

In 1953 only 18% of French trade with members of the Organization for European Economic Cooperation (OEEC) was free of quota restrictions. Since then this trade has been progressively liberalized, to 52% on April 26, 1954, 57% on Sept. 30, 1954, 62.5% on Oct. 20, 1954, 65% on Nov. 8, 1954, 73% on Jan. 11, 1955, 75% on April 1, 1955, and 77.5% on Sept. 2, 1955. France regularly had a monthly surplus with the European Payments Union (EPU) from October 1954 to October 1955.

Transportation and Communications.—The French railways are run by an autonomous corporation, the Société Nationale des Chemins de Fer Français, in which the government holds 51% of the stock. There are 25,656 miles of track, of which 2,852 were electrified by Dec. 31, 1954; projects planned for 1955 were expected to increase this figure to 3,085 miles. Electrification of the Paris-Rome line was completed during 1955. On March 28, an engine pulled a three-car train at 200 miles per hour, and on the following day an engine pulled one at 207 miles an hour, breaking all records. France has joined with 13 other European countries to establish a European corporation (Aurofima) for financing the purchase of railway equipment.

France has 49,853 miles of national, 163,607 miles of departmental, and 213,252 miles of local and urban roads. Navigable waterways, including 3,056 miles of canals, total 5,105 miles.

As of January 1955, France had a merchant fleet of 728 ships with a total tonnage of 3,587,226, including 90 passenger vessels, 117 tankers, and 521 cargo ships. There were then being built in French yards 1 passenger liner, 23 tankers, and 37 cargo boats.

Air transportation continues to expand. The Paris airports (Orly and Le Bourget) showed a 13% increase in passenger traffic in 1954 over 1953, 11.2% in freight, and 17% in mail. Figures for the first six months of 1955 (with the same period of 1954 in parentheses) are: flights, 43,371 (42,078); passengers, 903,790 (769,303); freight, 16,645.9 tons (14,335.4); and mail, 4,866.7 tons (4,322.5).

Principal Events, 1955.—Unrest and armed uprisings in Morocco, Algeria, and Tunisia (qq.v.) overshadowed all other events during the year. These problems had marked repercussions on political developments.

The Political Scene.—Ratification by the National Assembly on Dec. 30, 1954, of the Paris agreements of October 1954 on the restoration of sovereignty to West Germany and the rearmament of that country seemed to usher in the new year on a positive note. The 1955 budget was also well on the road to enactment. Indications of political unrest, however, were not lacking.

On January 11, Pierre Schneider (MRP) defeated André Le Troquer (Socialist) for election as president of the assembly. The Socialists had steadily refused to share in cabinet responsibility but had often supported Premier Mendès-France, and Schneider's victory was considered a setback to the premier. On January 20, the premier revamped his cabinet for the fourth time. There were several shifts in cabinet posts, the most significant being the transfer of Edgar Faure from the Ministry of Finance to that of Foreign Affairs, where he took over from Mendès-France himself.

The new cabinet was hardly more united than the old, and difficulties in Parliament soon arose. On January 31 and February 1, the government suffered defeats on minor budgetary proposals. Debate on the cabinet's North African policy followed, Mendès-France stating that there were only two choices: (1) a policy of entente and reform or (2) repression of unrest with all its consequences. He had undertaken to follow the first alternative, and he asked for a vote of confidence. Party spokesmen made it clear that other than North African issues influenced their decision to vote against him. On February 5, a combination of Communists, MRP, Independent Republicans, 20 Radical Socialists, and 25 Social Republicans were able to engineer a vote of 319 to 273 (with 22 abstentions) against the government.

President Coty in turn asked Antoine Pinay (Independent Republican) and Pierre Pflimlin (MRP) to form a cabinet, but both were unsuccessful. On February 19, the assembly refused (312-268) to approve a left-wing cabinet led by Christian Pineau (Socialist). President Coty then called a meeting of all the party leaders, and Edgar Faure (Radical Socialist) undertook to form a broad coalition. His right-wing cabinet, composed of representatives of all parties except the Communists, Socialists, and Overseas Independents, was approved on February 23 by a vote of 369 to 210. In internal affairs, Faure pledged his cabinet to raise the index of industrial production (1938 = 100) from 153 to 180

by June 30, 1956, to raise the standard of living and agricultural income by at least 7%, to increase wages, and to introduce tax reforms. In foreign affairs, final ratification of the Paris agreements by the Council of the Republic was to be pushed, and a policy of close cooperation with NATO followed. With regard to North Africa, Faure promised to follow essentially the policies of his predecessor.

Negotiations with Tunisian nationalist groups proceeded rapidly, and a protocol was signed on April 22 embodying the main principles of a settlement. On May 29, agreements granting home rule to Tunisia were initiated at Paris, and the assembly ratified them on July 9 (538-44, with 29 abstentions). The council gave its approval on August 4 (254-25). This was a rather astonishing victory for the policy of conciliation and negotiation inaugurated by Mendès-France about a year earlier, and often sharply attacked in both chambers.

All Frenchmen were, however, glad to have achieved a settlement in Tunisia, for difficulties in Morocco and Algeria were increasing. Ever since the outbreak of rebellion in Algeria on Oct. 31, 1954, France had been sending more troops to this area. On June 29, 1955, a parliamentary committee presented to the assembly a critical report on French policy in Algeria. Algeria is considered an integral part of France, but actually it has never been integrated into France. To give equal rights, privileges, and representation to 8.5 million Algerians would radically change, if not disrupt completely, French economic, social, and political patterns. Whether France should move toward further integration or toward a policy of regional federation is a problem far more serious than the problems in Tunisia or Morocco. When the U.N. General Assembly on September 30 voted (28-27, with 5 abstentions) to place the question of Algeria on its agenda for debate, France withdrew its delegation from the assembly and several of the United Nations organs. The French maintained that the troubles in Algeria were an internal French problem and under the terms of the U.N. Charter could not be brought before the United Nations. The withdrawal was approved by the French Parliament. On October 24, French representatives resumed their places on the U.N. Trusteeship Council, but delayed a return to the assembly. There was a general desire to have France participate in the coming debates on disarmament and membership, and, thanks to extensive work behind the scenes by V. K. Krishna Menon of India, the assembly unanimously agreed on November 25 not to consider further the question of Algeria. With this item removed from the agenda, France resumed its seat in the assembly on November 29.

In dealing with Morocco, the French government, despite severe attacks by some parties at home and by French residents in Morocco, has steadily pursued a policy directed toward reaching an agreement with the nationalist groups through negotiation. Because of their opposition to his policy of conciliation in Morocco, Premier Faure on October 6 forced four Gaullist ministers to resign their cabinet posts, among them General Koenig, who was replaced as minister of defense by Maj. Gen. Pierre Billotte. The government pressed for the abdication of Sultan Sidi Mohammed ben Moulay Arafat (October 30) and agreed (November 5) to the return of Sultan Sidi Mohammed ben Youssef, who had been forced into exile by French authorities in 1953.

Meeting at Aix-les-Bains, France, Aug. 22, 1955, to discuss Moroccan problem are Moroccan Grand Vizier El-Mokri and Premier Faure (at right), with Foreign Minister Pinay and Minister of Justice Schuman (at left).



WIDE WORLD

Faure's policy involved the establishment of a responsible Moroccan Cabinet, which should direct the government of the protectorate. In implementing his North African policy, Faure was forced on October 9 and 18 to ask for votes of confidence, which he received.

On October 21, Premier Faure announced that he would ask Parliament to authorize new elections in December. A fresh popular mandate seemed necessary in order to give continuity to French policy on the many grave issues which faced France in the coming months. His proposal was not popular among the deputies, many holding that a new electoral law should be passed before the date for elections was set. Faure preferred to decide the question of elections first. If Parliament could not agree on a new electoral law, the 1951 law³ should be used. Various proposed changes in the electoral law were debated, but no agreement could be reached. On November 3, Faure staked the life of his cabinet on the question of early elections and won by a vote of 330 to 211, 88 Communists giving him their support. The assembly voted to end its mandate on Jan. 2, 1956.

Mendès-France who, at a party conference in May, had won the leadership of the Radical Socialists, opposed Premier Faure (also a Radical Socialist) on the question of early elections. The party favored a return to single-member districts, a policy which the premier could not support since the MRP and other parties of his coalition were unequivocally opposed. Another Radical Socialist Party conference, held on November 3-6, demanded that Faure enact a single-district electoral law. The question of electoral reform was brought up in the debate on new elections in the second chamber, and the council, in passing (227-60) the election bill on November 9, added a rider calling for the single-district system. Although Faure won (November 12) a vote of confidence from the assembly, which approved an electoral law calling for competition between party lists (but not allied lists) on the departmental level, he would have been defeated without the 94 votes of the Communists and their allies. The council again rejected (November 15) the assembly's plan and reapproved the single-district system. Opposition to early elections mounted, and on November 17 the assembly, after sending the council's bill to committee, gave the premier the almost impossible assignment of drawing up new election districts.

The premier's proposals for new electoral districts bogged down in the National Assembly Elections Committee, and, as a further delaying action, the assembly started to debate a motion indicting the government for its vacillating policy. Faure, determined to obtain early elections, cut short this debate by demanding a vote of confidence, which he lost on November 29 by a vote of 319 to 219. This was the second time within 18 months that a government had been defeated on a confidence vote by an absolute majority, and under Article 51 of the constitution the premier now had the power to dissolve the assembly. The cabinet decided on dissolution, the decree signed by President Coty becoming effective on December 2.

³ Under this law parties may form alliances on a departmental level. An allied list obtaining 50% of the vote receives all the assembly seats for the department.

⁴ These differences in the center enabled the extremists to gain. Of the 594 seats filled on Jan. 2, 1956 (30 Algerian and 3 overseas seats were still to be filled), Communists and their allies received 150 (98 in the old assembly), and followers of Pierre Poujade, 52.



French Premier Edgar Faure sits alone in the National Assembly, Oct. 6, 1955, after forcing the resignation of four ministers who disagreed with his Moroccan policy.

Thus the defeat of Faure made possible the early elections without electoral reform that had been his objective. New elections to be held in accordance with the 1951 electoral law were set for Jan. 2, 1956. The dissolution was bitterly opposed by Mendès-France, who controlled the machinery of the Radical Socialist Party. Faure and seven other prominent Radicals who supported him were purged from the party. They, with other Radicals, combined with certain small kindred groups in the Rally of the Republican Left (Rassemblement des Gauches Républicaines) and entered into electoral alliances with Popular Republicans, Independent Republicans, Peasants, and dissident Gaullists. The Mendès-France Radicals formed alliances with Socialists, some Gaullists, and minor left-wing parties.⁴

Foreign Affairs.—On Jan. 10-12, 1955, Mendès-France paid the first official visit by a French premier to Rome since World War II. Conversations dealt mostly with European armament problems. A conference with Chancellor Konrad Adenauer in Baden-Baden followed on January 15. Again the arms pool plan was discussed, and it was agreed to recommend to the members of the reorganized WEU that the Saar plebiscite be held under international supervision. The problem of the Saar was often raised in Parliament, notably by Gaullist deputies. On March 21, a Franco-Saar protocol was signed covering points to be taken up later in more detail. These were formulated in a Franco-Saar convention, signed on May 3, which reinforced the existing customs and currency union. The unfavorable result of

Foreign Minister Pinay leads French delegation from U.N. General Assembly, Sept. 30, 1955, following assembly's decision to discuss France's policy in Algeria.



the Saar plebiscite on October 23 was on the whole received quietly in Paris. On November 13, Adenauer and Foreign Minister Pinay decided to take no action until after elections had been held in the territory on December 18.

Ratification of the Paris agreements by the Council of the Republic on March 27 led the Soviet government, by a decree of the Presidium of the Supreme Soviet, to annul the 1944 Soviet-French alliance on May 7. On the same day, the first meeting of the Council of the WEU was held in Paris. A few days later, at the meeting of the North Atlantic Council (May 9-11), the foreign ministers of the three Western powers conferred, and then proceeded to Vienna, where, on May 15, they signed the Austrian State Treaty.

The three foreign ministers met in Paris again on July 15, and agreed on the policy to be followed at the forthcoming Geneva Conference (q.v.) of July 18-23. Premier Faure and Foreign Minister Pinay represented France at this meeting. The French delegation advanced a plan for reduction in armaments and allocation of the savings to an international fund for aid to underdeveloped countries.

At the unsuccessful foreign ministers conference held at Geneva from October 27 to November 16, Pinay again represented France. Here French policy remained closely aligned with that of Great Britain and the United States.

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FRENCH CAMEROONS. See CAMEROONS.

FRENCH EQUATORIAL AFRICA. A federation of four French overseas territories in central Africa. About 90% of the population consists of Pahouin-Fang, Bantu, Ubangi, Shari-Ouaddian, and Nilo-Chadian tribes, and the remainder chiefly of nomads of Hamitic and Semitic origin. Europeans numbered about 23,000 in 1954, mostly French. Brazzaville (85,500) is the capital.

Territory	Area (sq. mi.)	Population (est. 1954)	Territorial capital
Gabon.....	103,100	403,500	Libreville (19,650)
Middle Congo....	132,000	683,100	Poindiché (31,000)
Ubangi-Shari....	238,200	1,092,500	Bangui (67,100)
Chad.....	495,800	2,238,600	Fort-Lamy (20,700)
Total.....	969,100	4,417,700	

Government.—The French governor general, appointed in Paris, is aided by an appointive government council and an advisory grand council of 20 members elected by the territorial assemblies. Each of the territories has a governor and a territorial assembly elected on the basis of two colleges. The federation sends 7 deputies and 8 senators to the French Parliament at Paris, and 7 delegates to the Assembly of the French Union.

Education and Religion.—About 21% of the school-age population attended school in 1955. As of Jan. 1, 1955, there were 1,021 schools with a total of 141,145 African pupils. The 7 high schools, 5 normal schools, and 24 teacher-training centers had 1,942 pupils; the 136 technical schools, 3,892. Many of the schools are conducted by Christian (mainly Roman Catholic) missions. The Moslem minority is concentrated in the north. Animism prevails among many of the remote Negro tribes.

Finance.—The general budget for 1954 totaled 8,902.5 million francs CFA. The territorial budgets, which are separate, aggregated 5,700.3 million francs CFA. One franc CFA equals 2 metropolitan francs.

Production.—The federation is rich in resources as yet largely undeveloped. Agriculture is the principal occupation. Chief subsistence crops are millet, tapioca, bananas, and corn. Livestock is important in Chad. Cash crops, ani-

mal products, and forest products provide the bulk of exports. Output of principal minerals in 1954 was: diamonds, 152,529 carats; gold, 1,409 kilograms; and lead ore, 6,572 metric tons. Manufactures, mainly for local consumption, include oils (palm, sesame, and peanut) and other foodstuffs, textiles, sawmill products, soap, and leather products. African wage earners, including seasonal workers, numbered 152,397 in December 1953.

Foreign Trade.—Exports in 1954 totaled 12.795 million francs CFA; imports, 16,682 million. Chief exports were: cotton, 31,689 metric tons; timber (mainly *okoumé*), 511,374; coffee, 4,591; and diamonds, 150,676 carats. Imports were mainly cotton piece goods, foodstuffs, fuels and lubricants, motor vehicles, and other manufactures. France took 67% of 1954 exports and provided 59% of imports.

Transportation and Communications.—The federation's only railroad, the government-owned Congo-Ocean Railway, extends 320 miles from Brazzaville to Poindiché. The road network approximates 25,000 miles. The federation's chief airport is at Brazzaville. Motor vehicles in 1955 numbered 13,312, including 4,061 passenger cars; telephones, 4,470 (1955). Radio Brazzaville is the most powerful broadcasting station in Africa.

FRENCH GUIANA. An overseas department of France, situated on the northern coast of South America. Estimated area (including the Inini hinterland), 35,100; pop. (July 1, 1954), 27,863, chiefly of mixed Indian, European, and African descent. Cayenne (13,346) is the capital. The department is ruled by a prefect aided by an elected General Council of 15 members. In 1953-54, primary schools had 3,475 pupils; secondary, technical, and church schools, 1,902. Sugarcane, bananas, rice, coffee, and manioc are grown. Rum is an important manufacture. Gold mining yields a small fraction of pre-World War II output. Imports in 1954 totaled 3,550 million francs; exports, 175 million, of which rum provided 83 million. Trade is mostly with France. Coastal steamers are an important means of transport. Roads total about 162 miles. Planes of international airlines land at Cayenne. Motor vehicles numbered 1,077 in 1955; telephones, 370.

FRENCH GUINEA. See FRENCH WEST AFRICA.

FRENCH INDIA. Four former French enclaves on the Indian coast. Area, 193 square miles; pop. (est. 1952), 323,000. Pondichéry (largest of the four), Yanaon (Yanam), and Karikal are on the east coast; Mahé is on the west coast. (Chander-nagor, another former French enclave, was merged with India in 1950.) Under a Franco-Indian agreement concluded at New Delhi on Oct. 21, 1954, India assumed *de facto* control of the four territories on Nov. 1, 1954. Transfer of formal sovereignty awaits ratification by the French and Indian governments. (See also INDIA.)

FRENCH INDOCHINA. See INDOCHINA.

FRENCH LITERATURE. A very great loss was felt by French letters in 1955 when Paul Claudel (q.v.) died, at the age of 87, a few days after he had directed the last rehearsals of the new version of his famous play, *L'Annonce faite à Marie*. A well-known diplomat and a powerful poet, dramatist, and essayist, Claudel had attained a unique position among his countrymen. The last representative of a generation which

numbered, among other great writers, Paul Valéry, André Gide, and Colette, he was the most inspired Catholic poet of the 20th century, and, with Jean Giraudoux, the most talented and best-loved dramatist of the period between the two world wars.

Poetry.—Another poet, Jean Cocteau, was very much in the news in 1955. He published an important volume of verse, *Clair-Obscur*, in which one can see, much more than a swan song, a reaffirmation of his nostalgia for the impossible, for the magic of the *merveilleux*, and for the *angélisme*. Cocteau was also elected to the French Academy, after having been chosen by the Belgian Academy. Twenty years ago these elections would have seemed inconceivable. Cocteau was then considered much more as a "clown" than as an "angel." But today, the "angelism" of Cocteau has overcome the eccentricities of his youth. As the novelist of *Les Enfants Terribles*, the dramatist of *La Machine Infernale*, and the poet of *Plain-Chant*, he has almost achieved classic stature.

Journals and Personal Records.—In 1955, many important journals and personal records were published. There appeared the first two volumes of a new, almost integral version of Henri Frédéric Amiel's *Journal intime*. They confirm the already-great reputation of this French-Swiss poet and critic as one of the great observers, analysts, and describers of the human heart. Valéry Larbaud gave interesting material on his works in the two volumes of his *Journal*. The most discussed journals, however, were those of Paul Leautaud and Julien Green. Paul Leautaud's *Journal Littéraire* thus far covers the years 1894-1909. The writer is, in some ways, the Saint-Simon and the Goncourt of his time. Poor and timid, this secretary and drama critic of the *Mercure de France* devoted his entire life to literature, and in his journals noted with perfect frankness everything he learned about the writers of the day from his observation post on the *Mercure*.

The sixth volume of Julien Green's *Journal* is quite different. Whereas Leautaud writes unimaginatively about real people and events, Green is at his best when he tells of the "unseen." Whereas Leautaud is a disciple of the 18th century rationalists and libertines and is a great admirer of Stendhal, Green, who has been a convert to Catholicism since his 15th year, and who is a mystic, believes in God and in the supernatural, and finds Stendhal too cerebral. Green's book like its predecessors, is deeply spiritual and wonderfully written.

The Novel.—The Prix Goncourt was awarded, late in 1954, to Simone de Beauvoir for her enormous novel, *Les Mandarins*, a book much criticized by the right-wing critics for its alleged pro-Communist tendencies.*

There are, in fact, two novels contained in *Les Mandarins*. On one hand, it is a political novel, centered about characters inspired by Jean-Paul Sartre and his Existentialist group, which analyzes the reactions of the intellectual, socialist, anti-Nazi, and pro-Russian French idealistic writers immediately after World War II.

The content of this part of *Les Mandarins* is highly debatable. But the romantic story of Anne, the psychiatrist-wife of an aging Existentialist, is the most interesting and best part of *Les Mandarins*. Its drama of the conflict between intelli-

gence and emotion is brilliantly depicted, and the character of Anne is much more lively and strikingly delineated than that of any political character in the book.

Totally unlike *Les Mandarins* was the other passionately discussed novel of 1955, *Les Clefs de Saint-Pierre*, by Roger Peyrefitte. The author of *Les Amitiés Particulières* and *Les Ambassades* has given us, in his new book, a well-written, endlessly documented satire against what he considers the materialistic, worldly aspects of the church of Rome.

Other novels of 1955 worth mentioning are: Marc Chadourne's *Le Mal de Colleen*, a moving, philosophical tale about the "soul" and love of a dog; *La Femme Infidèle*, by Jules Roy (hailed more and more as the spiritual successor of Saint Exupéry), a noble tale of men who, seeking greatness in abnegation and sacrifice, are alien to the world of the flesh; Roger Vaillant's *Beau Masque*, Marxist, erotic, and well-written; and Françoise Mallet-Joris' *La Chambre Rouge*, a psychological novel (by a precocious writer) of destructive pride, in the tradition of Laclos' *Liaisons Dangereuses*. Another novel, *Les Compères de Miséricorde*, a study of poor people trying to save a person from suicide and attempting to communicate with him in spite of the barrier of language, was awarded the Prix Populiste. The ingenious and original *Le Voyeur*, by Alain Robbe-Grillet, which received the Prix des Critiques, is an "objective" novel aimed at establishing man's place in a mineral world. Goncourt-laureate Pierre Gascar published *Femmes*, a book of tales, the four parts of which are as tragic and Kafkaian as his prize-winning *Les Bêtes*.

The Theater.—The theatrical season of 1955 was not among the most successful of recent years. Among the best plays that were presented were many adaptations, such as *Les Sorcières de Salem*, by Marcel Aymé (a French version of the American play, *The Crucible*, by Arthur Miller), and *La Condition Humaine*, by Thierry Maulnier, cleverly adapted from the great novel of the 1930's by André Malraux.

The most-discussed play was Jean-Paul Sartre's *Nekrassov*, a satirical farce about anti-communism and the failings of the French press. French critics almost unanimously condemned the play, mostly for personal or political reasons. The play, however, was a great success. It makes good reading, and some of its scenes, if not taken too seriously, are hilariously funny.

Essays and Biography.—Numerous essays and biographies were published in 1955. Among those of major importance are André Siegfried's *Aspects du Vingtième Siècle*, which raises the question of whether man has become a slave of the machine; René Sédillot's *Survol de l'Histoire de France*; André Maurois' *Portraits* (of Robert and Elizabeth Browning, Emily Dickinson, Gogol, and others); and the excellent biography of *Van Gogh*, by Henri Perruchot.

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FRENCH MOROCCO. See MOROCCO.

FRENCH NORTH AFRICA. See ALGERIA; MOROCCO; TUNISIA.

FRENCH OCEANIA. A French overseas territory in the central Pacific, comprising some 125 islands in five main groups: (1) Society Islands (Windward and Leeward); (2) Tuamotu Archipelago; (3) Gambier Archipelago; (4) Marquesas Islands; and (5) Tubuai (Austral) Islands. Clip-

* The 1955 Prix Goncourt, announced in December, went to Roger Ikor for his novel, *Les Eaux Mées*.

perton Island, 2,800 miles northwest of Tahiti (in the Society group), is administered as part of French Oceania. Total area, 1,544 square miles; pop. (1951 census), 62,678, chiefly Polynesians, with French and Chinese minorities. Papeete, the capital (15,081), is on Tahiti, the main island (area, 402 square miles; pop., 30,500).

The French governor, appointed in Paris, is aided by a privy council. A Representative Assembly of 20 members is elected every 5 years. The 1954 budget totaled 376 million francs CFP (the Pacific franc equals 5.5 metropolitan francs). In 1954 there were 114 public and private primary schools (13,608 pupils), 5 secondary schools (608), and two technicals (75 pupils in 1952).

Chief crops are sugarcane, coconuts, tropical fruits, and vegetables. The few industries consist mainly of the preparation of copra, sugar, and rum. Exports in 1954 totaled 664 million francs CFP; imports, 709 million. Chief exports and quantities (in metric tons) were: copra, 21,570; phosphates (mined on Makatēa, in the Tuamotu group), 228,895; vanilla, 130; and mother of pearl, 872. Imports are mainly foodstuffs, petroleum products, wood and wood products, and other manufactures. France took 59% of 1954 exports and provided 33% of imports. Shipping services connect Papeete with New York, San Francisco, New Zealand, and Australia. A French airline services Papeete.

FRENCH SOMALILAND. A French overseas territory on the Gulf of Aden in northeastern Africa. Area, about 8,500 square miles; pop. (est. 1954), 63,000, including 2,170 nonindigenous persons (1951). The natives are chiefly Danakils and Issa Somalis. Djibouti (est. pop. 1953, 31,855) is the capital. The French-appointed governor is aided by a privy council and a representative council of 25 elected members. The 1954 budget totaled 1,221.6 million Djibouti francs. (The Djibouti franc equals 1.64 metropolitan francs.) In 1953 there were 14 primary schools (1,501 pupils), 4 secondary schools (88), and 5 technical schools (196).

The indigenous peoples are chiefly shepherds and hunters of jungle game. A few tribes cultivate dates, tobacco, cotton, and rubber, and gather wax and gum. Fishing exists along the coast. Salt mining is the only industry of any size; the territory's single mine employs about 450 workers, with output in 1954 amounting to 59,100 metric tons. Animal hides are also produced. Exports in 1954 totaled 2,653 million Djibouti francs; imports, 2,231 million. Foreign trade consists largely of naval supplies for vessels using the free port of Djibouti. Sixty-one miles of the Djibouti-Addis Ababa (Ethiopia) railway is in French Somaliland. The territory's road network approximates 1,115 miles, with about 500 miles passable in all seasons. Djibouti has a first-class airport. The 833 motor vehicles in 1955 included 624 passenger cars. Telephones numbered 592.

FRENCH SUDAN. See FRENCH WEST AFRICA.
FRENCH TOGOLAND. See TOGOLAND.

FRENCH WEST AFRICA. A federation of eight overseas territories in western Africa. The population, consisting mainly of Negro tribes, includes about 27 large ethnic groups; over 100 different languages are spoken. In the north there are about a million Berber and Arab nomads (Moors and Tuaregs) and some two million Islamized peoples of mixed stock (Fulah). The nonindige-

nous population numbered 62,236 in 1954, mainly French. Dakar, the capital and chief seaport, has a population of about 300,000 (including dependencies).

FRENCH WEST AFRICA

Territory	Area (sq. mi.)	Population (est. 1954)	Territorial capital
Senegal ¹	80,620	2,092,800	Saint-Louis (60,000)
Mauritania....	416,060	546,400	Saint-Louis
French Sudan..	460,540	3,444,900	Bamako (87,000)
French Guinea..	106,220	2,256,900	Conakry (38,000)
Ivory Coast....	123,280	2,169,600	Abidjan (86,000)
Upper Volta....	105,950	3,116,200	Ouagadougou (30,000)
Dahomey.....	43,780	1,570,000	Porto-Novo (30,000)
Niger.....	494,630	2,164,900	Niamey (9,000) ²
Total.....	1,831,080	17,361,700	

¹ Including Dakar and dependencies. ² 1951.

Government.—The French governor general, appointed in Paris, is aided by a government council of the chiefs of the civil and military services, and a deliberative grand council of 40 members elected by the territorial assemblies (5 from each territory). Each of the 8 territories is under a governor aided by a privy council and a territorial assembly of European and African members. The people elect 21 deputies and 20 senators to the French Parliament in Paris, and the territorial assemblies elect 27 councilors to the Assembly of the French Union.

Education and Religion.—About 8% of the school-age population attends school. Data for 1954 on public and private schools were: 1,562 elementary schools (239,847 pupils); 70 secondary schools (11,718); 98 technical schools (4,363); and 28 teacher-training schools (2,489). The Institute for Higher Studies at Dakar had 373 students. A relatively small part of the population has been converted to Christianity. Moslems number about 6 million. The remainder of the natives retain animistic beliefs.

Finance.—The general budget for 1954 included an ordinary budget of 26,349 million francs CFA, and an extraordinary budget of 10,295 million. The territories, which exercise financial and administrative autonomy, have separate territorial budgets. The franc CFA (*Colonies Françaises d'Afrique*) equals 2 metropolitan francs.

Production.—The economy is predominantly agricultural and pastoral. Chief subsistence crops are sorghum, millet, corn, manioc, sweet potatoes, yams, and rice. Cash crops, timber (mainly mahogany), oilseed and cake, and gums are produced for export. The large livestock herds yield milk and meat products, leather, hides, and skins. Considerable expansion has taken place recently in mineral production, particularly of bauxite and iron ore. Chief minerals and 1954 output were: diamonds, 217,600 carats; bauxite, 433,500 metric tons; iron ore, 592,000 metric tons; aluminum phosphate, 90,200 metric tons; and ilmenite, 12,500 metric tons. Manufacturing is on a small scale and largely for local consumption; chief products are peanut oil, palm oil, shea butter, sisal, soap, wood products, paper, textiles, bricks, cement, chocolate, canned fruits, canned fish, and beverages. Output of electric power (predominantly thermal) totaled 80.8 million kw.-hr. in 1954, a 45% rise over 1953.

Foreign Trade.—Exports in 1954 totaled 58,264 million francs CFA; imports, 66,445 million. Chief exports in 1954 are shown in the accompanying table.

Export	Quantity (in metric tons)	Value (in millions of francs CFA)
Coffee.....	94,909	17,730
Shelled groundnuts.....	237,000	9,938
Cacao.....	52,704	8,833
Groundnut oil.....	94,000	7,977
Palm nuts and kernels.....	81,257	2,064
Oilseed cake.....	131,035	1,910
French bananas.....	104,190	1,581
Unshelled groundnuts.....	38,093	1,259
Tropical woods.....	132,000	1,028

Imports are mainly textiles and clothing, foodstuffs, automobiles and vehicles, petroleum prod-

ucts, metals and metal products, and machinery and equipment. France took 67% of French West Africa's 1954 exports and provided 68% of imports. The United States led non-French Union countries, taking 7.8% of exports and providing 3.5% of imports.

Transportation and Communications.—The federation's 4 railroad systems and route mileages in 1954 were: Dakar-Niger, 1,041; Conakry-Niger, 411; Abidjan-Niger, 673; and Benin-Niger, 359. The road network approximates 49,600 miles, including about 10,540 miles of all-weather roads. The federation is serviced by 12 international airlines; Dakar has the chief airport. Motor vehicles in 1955 included 18,109 passenger cars and 27,313 trucks. Telephones numbered 19,380 in 1955. There were 10 daily newspapers in 1952, with a total circulation of 28,000.

FRENCH WEST INDIES. See GUADELOUPE; MARTINIQUE.

FRIENDS, Religious Society of. Friends, commonly called Quakers, began their society in England about 1650. In 1955 there were fewer than 200,000 Friends in the world, and well over half of them were in the United States. Their form of organization is called the "yearly meeting." Most of the 53 yearly meetings in the world keep in close touch through an unofficial World Committee and personal intervisitation, but there is no overall organization.

The traditional personal individualism of Friends has extended to their yearly meetings; and during its history, the society has suffered a number of separations. One of the most lasting of these took place in 1828 when some meetings split into "Hicksite" (after Elias Hicks of New York) and "Orthodox" groups. Another split occurred during the 1840's, when conservative and evangelical Friends separated.

A decade ago the conservative and evangelical yearly meetings of New England combined into one yearly meeting. In March 1955 the Hicksite and Orthodox yearly meetings of Philadelphia united. This union climaxed 20 years of increasing cooperation between them. Their century-old journals, *Friends Intelligencer* and *The Friend*, were merged to make the new *Friends Journal*. A few months later the Hicksite and Orthodox yearly meetings of New York also united, as did the three yearly meetings in Canada. The 128-year-old Hicksite separation thus came to an end.

Six American Friends paid what they called a "simple and informal visit of goodwill" to the Soviet Union in June 1955. Besides ordinary sightseeing and visiting, one of the group presented to Andrei Gromyko, acting foreign secretary, a plan for international disarmament inspection that would utilize the International Labor Office inspection system.

In June the Fund for the Republic, a non-profit organization established by the Ford Foundation for the protection of civil liberties, granted a \$5,000 award to Plymouth Friends Meeting, Plymouth Meeting, Pa., in recognition of the meeting's refusal to discharge its librarian, who was under attack in the community for refusing to sign the state loyalty oath.

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FROZEN FOODS. United States production of some of the principal frozen foods in 1953 and 1954 is shown in the accompanying table.

U.S. PRODUCTION OF FROZEN FRUITS, VEGETABLES, AND FISHERY PRODUCTS

Product	1953	1954
(In million pounds)		
VEGETABLE PACK:		
Asparagus.....	32.9	25.8
Beans, green and wax.....	114.8	123.3
Beans, lima.....	138.6	129.7
Broccoli.....	89.0	62.0
Brussels sprouts.....	40.8	33.4
Carrots.....	29.3	27.5
Cauliflower.....	35.7	17.1
Corn, cut.....	104.8	78.2
Corn-on-cob.....	17.2	16.8
Mixed vegetables.....	30.9	23.8
Peas.....	222.7	206.9
Peas and carrots.....	19.6	14.6
Pumpkin and squash.....	9.5	13.0
Rhubarb.....	8.3	6.8
Spinach.....	87.9	66.9
Succotash.....	14.2	9.4
Potato products.....	70.7	85.3
Miscellaneous.....	32.3	34.0
Total vegetables.....	1,099.2	1,093.8
FRUIT PACK:		
Apples and applesauce.....	42.3	60.1
Apricots.....	4.0	5.4
Cherries, red tart.....	115.2	86.7
Cherries, sweet.....	1.7	3.6
Grapes and pulp.....	10.1	9.4
Peaches.....	32.2	36.4
Prunes.....	8.4	4.5
BERRY PACK:		
Blackberries.....	18.0	14.2
Blueberries.....	14.0	21.0
Boysenberries.....	9.7	12.7
Currants.....	3.8	2.3
Gooseberries.....	.1	.2
Loganberries.....	2.3	2.6
Raspberries, black.....	9.0	8.3
Raspberries, red.....	24.9	23.5
Strawberries.....	226.0	221.4
Miscellaneous fruits and berries.....	20.3	10.7
Total Fruits and Berries.....	542.0	523.0
(In million gallons) ¹		
CONCENTRATED JUICE:		
Orange.....	51.3	67.0
Grapefruit.....	1.2	1.7
Orange-Grapefruit blend.....	.5	1.0
Lemonade base.....	8.6	9.8
Lemon.....	.6	1.3
Tangerine.....	.6	.4
SINGLE-STRENGTH JUICE:		
Orange.....	.2	.2
Lemon.....	1.1	1.0
(In million pounds)		
FROZEN FISHERY PRODUCTS.....	223.6	246.0

¹ For years beginning November 1. ² 39,000 gallons. Note—Figures on fruits and vegetables published by the National Association of Food Packers; those on fruit juice are from the Florida Cannery Association and a survey by the U.S. Department of Agriculture.

(See also FOOD RESEARCH and the Index entry, *Frozen Foods*.)

WAYNE DEXTER,
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FRUITS. A record tonnage of citrus fruit and increased production of noncitrus fruit marked the 1955 season in the United States. Although severe cold in the spring virtually wiped out the peach crop and damaged other fruits in Southern states, and poor weather curtailed production of prunes, figs, and olives in California, total production of noncitrus fruits in 1955 was 4% above 1954, although 2.6% below average. The crops of sour and sweet cherries, cranberries, apricots, and dates were unusually large. Good crops of grapes and plums also were harvested. The apple and pear crops were slightly below average, while output of peaches, prunes, figs, and olives declined. Citrus fruit production is continuing to expand, largely as the result of increased orange production. Total citrus tonnage is now almost as large as that of noncitrus fruits.

The bearing acreage for the four citrus fruits

FRUITS

in 1955 totaled 833,900 acres in 1955. It has fluctuated around this level during most of the postwar period. The bearing acreage of eight major deciduous fruits—commercial apples, peaches, plums, pears, grapes, cherries, prunes, and apricots—continued to decline. The total of 1,982,000 acres was nearly 800,000 less than in 1940. Acreage in the six minor fruits—figs, olives, avocados, dates, persimmons, and pomegranates—was 85,000, the highest in more than 15 years.

Consumption per person of all fresh and processed fruits has declined moderately since the end of World War II, although total consumption has not changed greatly because of the increase in population. Consumption of all fruits dropped from 225 pounds (fresh equivalent basis) in 1946 to 193 pounds in 1954. The 1954 total was made up as follows: fresh, 53%; canned, 24%; frozen, 16%; and dried, 7%. During the decade, consumption of frozen fruits and fruit juices and canned fruits increased, while that of fresh fruit, canned fruit juices, and dried fruits declined. (See also CANNING INDUSTRY; FROZEN FOODS.)

COMMERCIAL APPLE PRODUCTION, BY LEADING STATES*

(1,000 bushels)

	Average 1944-53	1954	1955
Washington.....	28,367	23,160	28,600
New York.....	14,046	16,900	17,100
California.....	8,174	9,542	9,180
Michigan.....	6,929	6,000	6,400
Pennsylvania.....	6,008	6,020	5,700
Virginia.....	9,025	12,900	5,500
West Virginia.....	3,642	5,600	3,700
Massachusetts.....	2,436	2,180	3,300
Ohio.....	3,114	3,000	3,112
Oregon.....	2,734	2,710	2,900

* Estimates of the commercial crop refer to the total production of apples in the commercial apple areas of each state. (Source: Agricultural Marketing Service, U.S. Department of Agriculture.)

Apples.—A commercial crop of 105,293,000 bushels was produced in the United States in 1955, 4% less than in 1954 and 1% less than the 1944-53 average. About 2½ million bushels were left unharvested, most of them in New England and New York where production was considerably above average. The Eastern states produced a total of 46,637,000 bushels, 3% more than average, although the crop in the Appalachian area was severely damaged by freezing weather in the spring. The Central states had a total of 15,019,000 bushels, 20% less than average; but the crop of 44,637,000 in the Western states was the largest since 1950.

The total apple crop for selected countries in the Northern Hemisphere dropped almost one fourth from 1954 to a total of 356,351,000 bushels in 1955. Much of the decrease was in the northern European (including the Scandinavian) countries.

Peaches.—Spring freezes caused a near failure of crops in the Southern states in 1955, and the total United States crop of 51,291,000 bushels was 16% less than in 1954 and a fourth less than average. However, output of California clingstones, which are used primarily for canning, totaled 22,585,000 bushels, 17% above 1954 and 5% above average.

Pears.—Production in 1955 was 30,511,000 bushels, a little larger than the 1954 crop but a little below average. Bartlett production on the Pacific coast, at 20,751,000 bushels, was slightly larger than in 1954 and 9% above average.

PEAR PRODUCTION, BY LEADING STATES (1,000 bushels)

	Average 1944-53	1954	1955
California, all.....	13,622	16,751	14,376
Bartletts.....	11,918	14,918	12,751
Other.....	1,704	1,833	1,625
Washington, all.....	6,853	5,620	7,210
Bartletts.....	5,039	4,120	5,400
Other.....	1,814	1,500	1,810
Oregon, all.....	5,480	4,065	6,050
Bartletts.....	2,147	1,500	2,600
Other.....	3,332	2,565	3,450
Michigan.....	781	820	950
New York.....	548	285	510

(Source: Agricultural Marketing Service, U.S. Department of Agriculture.)

Grapes.—A large crop was produced in 1955. The 3,173,700-ton total was 24% above 1954 and 9% above average. It included 607,000 tons of wine varieties, 650,000 tons of table varieties, and 1,690,000 tons of raisin varieties. Production of raisins in California was estimated at 220,000 tons (dried basis), a third above 1954 but a tenth below average. California produced nearly 3 million tons of grapes of all varieties.

Plums and Prunes.—California's plum crop of 88,000 tons was 22% above 1954. About 2,000 tons were culled under a marketing agreement. Michigan's plum crop of 4,400 tons was down one third from 1954. Production of dried prunes in California in 1955 was 135,000 tons (dry basis), 25% below the large 1954 crop. Production of prunes for all purposes in Idaho, Washington, and Oregon totaled 96,800 tons (fresh basis), up 43% from 1954 but 9% below average.

Cherries.—A large United States crop of 150,-350 tons of sour cherries was produced in 1955. This was 40% larger than in 1954 and 28% above average. The sweet cherry crop, at 117,280 tons, also was large—20% above 1954 and 25% above average.

Cranberries.—The crop of 1,035,400 barrels in 1955 was slightly more than in 1954 and a fourth above average. Massachusetts produced about half the total.

Apricots.—The 267,000 tons produced in 1955 was 72% above 1954 and 14% above average. California produced 242,000 tons, the state's largest crop since 1946.

Avocados.—The rapid expansion in production of this crop was interrupted in 1955-56 because of a sharp drop in output in California. Output in Florida continued to climb. The total for the two states was 34,000 tons, 39% less than in 1954-55.

Figs and Dates.—Date production in California in 1955 was 16,500 tons, 7% below 1954 but 15% above average. Production of dried figs in California was estimated at 23,300 tons (dry weight), 9% below 1954 and 24% below average. Output of figs for other uses (fresh weight) was 12,000 tons, 9% above 1954 but 12% below average.

Olives.—California's 1955 crop was 39,000 tons, down 22% from 1954 and 12% from average.

Pineapples.—Florida produced 8,000 crates in 1955, far less than the 25,000 crates in 1954.

Strawberries.—The 1955 crop in the United States amounted to 12,821,000 crates, as compared with 11,692,000 in 1954 and the 1949-53 average of 11,064,000. The 1955 total included 5,385,000 crates for fresh market sale and 7,436,000 for processing.

Citrus Fruit.—Orange production in the United

U.S. PRODUCTION OF CITRUS FRUIT

(1,000 boxes)

	Average 1944-53	1954	1955*
Oranges:			
California.....	44,479	39,140	38,000
Florida.....	63,090	88,400	91,000
Texas.....	2,946	1,500	1,800
Arizona.....	1,024	1,130	1,000
Louisiana.....	257	175	215
Total.....	111,796	130,345	132,015
Tangerines:			
Florida.....	4,550	5,100	4,600
Grapefruit:			
Florida.....	31,440	34,800	38,000
Texas.....	11,980	2,500	2,200
Arizona.....	3,119	2,470	2,400
California.....	2,723	2,400	2,600
Total.....	49,262	42,170	45,200
Lemons:			
California.....	13,001	14,000	13,200
Limes:			
Florida.....	248	380	360

* Based on reported prospects Dec. 1, 1955. Season begins with the bloom of the year shown and ends with completion of harvest the following year. (Source: Agricultural Marketing Service, U.S. Department of Agriculture.)

States continued to gain in 1955-56, according to preliminary estimates of the Agricultural Marketing Service. The crop was estimated at 132,015,000 boxes, 2% more than in 1954-55 and 12% above the 1944-53 average. The 1955-56 crop included 66,965,000 boxes of early and midseason oranges, and 65,050,000 boxes of valencias. Grapefruit production also increased with the 1955-56 crop of 45,200,000 boxes—3,030,000 above 1954, but still below the average of 49,262,000. The crops of tangerines, lemons and limes were down from 1954-55.

An increasing proportion of the expanding citrus production is being processed for consumption rather than used fresh. In the 1954-55 season, for example, 51% of the citrus crop was processed, as compared with only 37% 10 years earlier. The rapid growth in production of frozen orange concentrated juice is mainly responsible for this trend; 67 million gallons of this product were made in 1954-55.

WORLD PRODUCTION OF CITRUS FRUITS

(1,000 boxes)

	Average 1947-49	1953	1954*
Oranges, including tangerines.....	266,235	354,071	354,450
Grapefruit.....	57,131	54,111	48,181
Lemons.....	26,166	33,341	29,750
Limes.....	3,380	4,100	4,600

* Preliminary. Production estimates relate to the crop from bloom of year shown. Harvesting in Northern Hemisphere countries begins about November, and in Southern Hemisphere countries about February of the following year. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

The upward trend in world production of oranges was halted in the 1954-55 season. Output in the Mediterranean area dropped 11%, with most of the decrease in Spain where trees were severely damaged by frost in 1954. Production in North America continued to increase. New plantings are being made in most areas of the world, and it is likely that the upward trend in production will be resumed in the next several years.

Reduced production in the United States dropped the 1954-55 world grapefruit crop 11% below a year earlier. The United States produces about 90% of the world crop. World lemon pro-

duction also was down, with most major producing areas showing declines. Lime production, however, is continuing upward. Mexico, the United States, and Egypt produce most of the world's limes. (See also AGRICULTURE.)

WAYNE DEXTER,
Agricultural Marketing Service, U.S. Department of Agriculture.

FUEL BRIQUETTES. See MINERAL PRODUCTION. **FUELS.** See Index entry.

FUR INDUSTRY. The forward movement in the fur industry which began in 1954 continued in 1955 with ever-increasing momentum. Fur consciousness on the part of the consuming public, triggered by the public relations campaign inaugurated in 1954 by the manufacturing branch of the industry, in turn stimulated the efforts of the industry to satisfy consumer demand for small pieces and a high color note.

In addition to the stoles and capelets of 1954, the Industry in 1955 produced a complete line of small lightweight fur pieces, including stoles with sleeves, jackets, capes, and tunics.

The same was true of colors. Where 1954 brought pastel pinks and blues, 1955 brought such new shades as flamingo red, capri blue, caramel, honey, burgandy, and bottle green. Beaver alone was available in a dozen colors. There were ten new shades in Persian lamb, and nutria acquired new glamour in iridescent oyster. The charcoal browns and grays of the men's wear field found their way into women's apparel and appeared in river otter, sheared raccoon, and even mouton processed lamb.

In the field of style, "tube-slim" and the "A" line keynoted the fashion trend, along with ensembles consisting of tapered short coats and matching wool suits or dresses. A 1955 innovation was the functional short, soft fur coat for sportswomen and suburbanites, with slits and pleats to provide free action and sleeves and cuffs that are pared down to eliminate driving hazards at the wheel.

Management and labor relations in the industry took a notable stride forward in 1955. The collective labor agreement under which the fur manufacturing industry functions, expired in February 1955. Negotiations between the Associated Fur Manufacturers, Inc., which is the outstanding manufacturers' organization in the industry, and the Furriers Joint Council, with which all the production workers' unions are affiliated, resulted in a new agreement embodying radical innovations and new ventures in cooperative undertakings between employers and employees, and this result was achieved without interruption of factory production.

Contributing to this result in no small measure, was the fact that the Furriers Joint Council unseated its leaders and turned to the American Federation of Labor (AFL). After a probationary period, they were accepted by this body and became an affiliate of the Amalgamated Meat Cutters and Butcher Workmen of North America, AFL.

J. GEORGE GREENBERG,
Executive Manager, Associated Fur Manufacturers, Inc.

FURNITURE INDUSTRY. Production.—In 1954 over 3,000 household furniture factories in the United States shipped \$1,130 million in products. Shipments were down over 7% from the 1953 production peak. Wood household furniture made up 50% of the total; upholstered furniture, 32%;

and metal furniture, 18%. The industry employed 244,000 production workers, whose weekly wages were \$60.25 and whose hourly earnings averaged \$1.51.

Prices.—Wholesale prices averaged 113.3% of the 1947-49 level, as compared with 114.5% for all prices other than farm products and foods.

Furniture Store Sales.—Retail furniture stores in 1954 sold \$3,960 million in merchandise, or 3% under the 1953 volume. Much furniture was sold through other outlets. Eighty-five per cent of this furniture was sold on credit. Stores made about 2% profit on sales. For the first 9 months of 1955, sales ran 18% over those of the previous year. Sales were sustained in 1955 by high national income, record home construction, full employment, and a high number of marriages.

Materials.—Mahogany is still the king of furniture woods, accounting for 30% of all wood used in dining room and bedroom suites. Oak and walnut are next in importance. Maple, birch, and cherry are also used extensively. Brass, the long-dominant furniture metal, is meeting more and more competition from wrought iron, chrome, and aluminum. Metals are often finished in color. Latex foam, now available to the industry in all sizes, shapes, colors, and degrees of softness, is being widely accepted because of its comfort, beauty, and durability in both the high-priced and medium-priced lines. Fabrics are showing a different appearance from those of a few years ago. The trend is to sleek, streamlined weaves in contrast to the nobby weaves of a few years back. Small-figured patterns outnumber large-figured ones by three to one. More and more stain and cigarette-proof fabrics are in evidence, and nylon is growing steadily in popularity because of its twin virtues of easy cleaning and durability.

Color.—Never before has there been the use of so much color as there is today in home decoration and furniture design. There is a trend toward pastel shades with a high preference being

shown toward light, soft tones. Stain-resistant fabrics have aided this trend because they permit hard, daily usage. Shades ranking high in popularity range from such tones as soft green, blue, mauve, lavender, charcoal, muted tans, gray, pink, turquoise, beige, brown, caramel, honey, and butternut to fire engine red.

Styling.—Seldom in the history of furniture manufacturing has there been so much attention given to styling as there is today. Modern styles are in the lead, accounting for 60% of all pieces being presented at the furniture shows. Early American, 18th century and other traditional styles, Provincial, and unstyled lines follow in popularity. Modern styles are moving away from the extreme, the harsh lines, the machinelike contours, and the monotonous designs which were dominant a few years ago. Lines are getting softer and contours rounder. Modern styles are moving toward the traditional to a considerable extent, while traditional is taking on certain features of the modern.

Traditional styles, which reached their peak about 1940, have declined in recent years, but still have many devoted followers, especially among the older and wealthier segments of the population. Furniture is being designed more and more for casual living, but much attention is being given to design which indicates quality and elegance. The weighty, overstuffed look so characteristic of furniture a few years ago is rapidly dying out. Today's furniture is light and easy to move about. Kitchen furniture continues to follow the chrome leg and plastic top pattern established so firmly a few years back. (See also INTERIOR DECORATION.)

GEORGE L. LEFFLER,
Assistant Director, Bureau of Business Research,
The Pennsylvania State University.

FURS. See FUR INDUSTRY.



GALAPAGOS ISLANDS. A group of 13 large and many small islands in the Pacific Ocean about 650 miles off the coast of Ecuador. Area, 3,123 square miles; pop. (1952), 1,406. The islands are administered by the Ecuadorean Ministry of National Defense. Chief island of the group is San Cristóbal Island, which contains the administrative center of Puerto Baquerizo. Sugar-cane, coffee, and yucca are grown. There is also some fishing and cattle raising.

GAMBIA. See BRITISH WEST AFRICA.

GAMBLING. See Index entry.

GAMES. See SPORTS, GAMES, AND SHOWS.

GAMMA GLOBULIN. See Index entry.

GARDENING. See Index entry *Horticulture*.

GAS, Natural and Manufactured.—The output of gas, both natural and manufactured, is reported by only a few of the leading producing countries. Accordingly world production figures cannot be compiled. The output of the major producers, shown in the accompanying table, has

been recorded in the *Monthly Bulletin of Statistics* of the United Nations.

MAJOR PRODUCERS OF NATURAL GAS¹
(In billions of cubic feet)

Country	1951	1952	1953	1954
United States ²	4,377.2	4,753.5	5,129.8	5,568.0
Venezuela.....	50.9	61.9	76.7	82.6
Canada.....	79.7	88.6	100.9	120.8
Mexico.....	86.0	93.7	93.2	94.1
Italy.....	34.1	50.6	80.5	105.3
Colombia.....	17.4	7.2	17.0	19.5
Brunei.....	36.7	38.6	41.4	38.8
Trinidad.....	16.6	16.9	17.7	18.2
France.....	10.0	9.4	8.6	9.2

¹ Excluding gas used for repressuring, as well as gas flared, vented, or otherwise wasted. ² Gas sold by public utilities, representing 52% to 59% of total production.

United States.—According to figures compiled by the Bureau of Mines, the marketed production (gross production minus quantities consumed in repressuring, venting, or wasting) of natural gas in the United States was 8,742,546 million cubic feet in 1954, a gain of 4% as compared with

MAJOR PRODUCERS OF MANUFACTURED GAS

(In millions of cubic feet)

Country	1951	1952	1953	1954
Australia.....	37,885	40,386	41,276	42,250
Austria.....	10,764	10,510	10,298	11,654
Belgium.....	61,023	62,718	62,295	68,651
Canada.....	28,139	26,316	25,893	25,893
Denmark.....	13,646	13,688	13,434	13,730
France.....	86,026	87,721	87,721	91,535
Saar.....	53,395	54,667	51,277	53,395
Germany, Western.....	567,856	633,541	651,763	636,931
Italy.....	66,109	71,618	70,346	72,889
Japan.....	49,158	57,209	67,380	75,008
Netherlands.....	59,328	61,871	61,871	66,532
Spain.....	9,747	10,594	11,230	11,357
United Kingdom.....	563,195	569,975	504,466	586,926
United States.....	525,903	488,611	446,233	449,624

8,396,916 million in 1953. In the first half of 1955 marketed production reached 4,702,500 million cubic feet, compared with 4,344,100 million during the same period of 1954. Of the natural gas marketed in 1954, 22% was consumed in residential use, and 47%, in industrial requirements.

The American Gas Association now reports manufactured gas in therms rather than in cubic feet. (A therm equals 100,000 British thermal units.) Production in 1954 was 1148.1 million therms, compared with 1,315.4 million in 1953. Production in the first 6 months of 1955 reached 272 million therms, compared with 328 million during the same period of 1954. A large part of the manufactured gas is derived as a byproduct from coke ovens. (See also MINING; PETROLEUM; PUBLIC UTILITIES.)

OLIVER BOWLES, *Former Chief, Nonmetals Division, U.S. Bureau of Mines*; and
BERENICE B. MITCHELL, *Foreign Minerals Staff, U.S. Bureau of Mines*.

GASOLINE. See Index entry.

GEM STONES. Precious stones (diamond, emerald, ruby, and sapphire) are not produced in the United States, but there is a domestic output of a variety of semiprecious and ornamental stones, the value of which in crude form totaled between \$600,000 and \$700,000 in 1954. The principal semiprecious stones produced in 1954 were, in order of importance, agate, kunzite, jade, and turquoise.

Imports of gem stones into the United States, valued at \$130,194,343 in 1953 and \$143,593,877 in 1954, consisted chiefly of diamonds. The 1954 imports included 887,275 carats of rough or uncut diamonds valued at \$59,428,768, and 594,772 carats of cut (but unset) diamonds, valued at \$62,758,349. These figures do not include industrial diamonds (see ABRASIVES).

The diamond is the world's foremost gem stone, although select specimens of emerald or ruby may have a higher value per carat. World output of diamonds in 1954 was 20,440,000 carats, but only about 3,700,000 carats were of gem quality. (See MINERAL PRODUCTION for output of major countries.)

The sales organization of the diamond industry reported total sales value of \$176,000,000 (gem, \$129,600,000; industrial, \$46,400,000) in 1954, compared with a total of \$171,000,000 in 1953.

GENERAL ASSEMBLY (U.N.). See UNITED NATIONS.

GENERAL SERVICES ADMINISTRATION. This agency, created in 1949, is charged with bringing efficiency and economy to the major housekeeping tasks of the federal government. Its principal

duties are concerned with the provision of office and general-purpose working space for federal agencies, procurement of their common-use supplies, and control and preservation of federal records. GSA also buys strategic and critical materials for the national stockpile—of which it is custodian—and manages the National Industrial Reserve, a pool of surplus war plants and machine tools held for use in an emergency.

Public Buildings Service.—This service manages, operates, and maintains 110 million square feet of government-owned and -leased space. Its other duties include construction of new buildings and responsibility for the disposal of excess and surplus real property.

Federal Supply Service.—This agency is responsible for: (1) procuring supplies of equipment of desirable quality, at the lowest possible price, for the various government agencies; (2) obtaining the best use of such supplies and equipment; and (3) securing the most advantageous sales price for property no longer of use to the government. GSA buys \$450 million worth of supplies a year through: (1) federal scheduled contracts; (2) stores depots; and (3) its open-market and consolidated purchase programs for direct delivery to federal agencies.

National Archives and Records Service.—The National Archives and Records Service (q.v.) is responsible for federal records, and has 4.2 million cubic feet of records in its possession in the National Archives and 11 records centers.

Emergency Procurement Service.—This agency carries out the highly specialized job of buying for and safeguarding the national stockpile. In all, 76 items classified as strategic and critical are stockpiled. The stockpile is valued at \$4.7 billion; the estimated goal is \$6.8 billion.

Transportation and Public Utilities Service.—This service is GSA's traffic manager. It negotiates rates for public utilities services, and also assists other executive agencies in improving their transportation practices.

EDMUND F. MANSURE,
Administrator of General Services.

GENETICS. A pair of pseudoalleles in *Drosophila melanogaster*, which have been demonstrated to be physiologically different, have each been shown to be physiologically indistinguishable from one of two nonallelic genes in *Drosophila virilis*. This is further evidence that pseudoalleles may be initial steps in the evolution of genes.

Much progress has been made in the analysis of the chemical and physical nature of nucleic acids. This is of extraordinary importance, because genetic material (the genes) appears to be composed of nucleic acids. As the result of chemical and physical analyses, English workers have proposed a structure for deoxyribonucleic acids (DNA) which may be described as follows: DNA is composed of two helical phosphate sugar chains winding around the same axis, the chains running in opposite directions. The chains are linked together by hydrogen bonds between their bases, a base from one chain being paired off with the opposite base in the other chain. It is postulated that specific pairing occurs, and that the only pairs that will normally fit into the structure are adenine with thymine and guanine with cytosine (or its derivatives). This ingenious model provides for chromosomal (gene) reduplication and gene action. A method of reduplication has been proposed by an American investigator which can be extended to define minimum units of re-

combination, that is, the minimum size of the physical gene.

Investigations on a bacteriophage have led to an estimate that the unit of recombination is not larger than the order of 12 nucleotide pairs, and that mutations may involve various lengths of chromosome which may extend over hundreds of nucleotide pairs. Hence, the physiological gene is estimated to be much larger than the physical gene. This is in accord with hypotheses advanced, on other grounds, over 20 years ago by Serebrovsky and Dubinin in Russia and Goldschmidt in the United States.

Some of the smaller components (ribosides) of ribonucleic acid (RNA) have been synthesized. We may confidently expect that both DNA and RNA will be synthesized in time.

It has been found that, in the cell, protein synthesis is greatest in the microsomes and mitochondria. Neither of these structures contains DNA, but both contain RNA. This has led to the suggestion that the DNA of the nucleus (chromosomes, genes) controls the production of RNA, which in turn controls the production of proteins.

Chemical studies of chromosomes have led to the supposition that the chromosome is composed of units linked in linear fashion through the chelation of calcium by terminal phosphate groups in DNA molecules. In light of this, it is most intriguing that the addition of excess calcium to the food medium reduces crossing over in *Drosophila melanogaster*, while the addition of a chelating agent increases crossing over.

The introduction of nuclear weapons has spurred investigations of the relative effectiveness of various types of radiation (X-ray, neutrons, gamma rays) on genetic material. Two broad types of effects may be distinguished: those involving breakage and rearrangement of chromosomes (chromosomal mutations), and those not involving detectable chromosomal breakage (gene changes or point mutations). The ionizing radiations from nuclear detonations which are of most concern for living organisms are gamma rays and fast neutrons. The major difference between radiations from a detonation and from cyclotrons or other laboratory sources of neutrons and gamma rays is the intensity with which the radiation is delivered. The total dose of radiation is delivered almost instantaneously by a detonation, whereas it may be spread over a considerable period of time when delivered by laboratory sources. Thus far, no differences have been found between the effects or effectiveness of neutrons or gamma rays from detonations and those from other sources on either type of mutation.

All experiments agree that fast neutrons are more effective than X-rays or gamma rays in inducing chromosomal changes. The greater effectiveness of neutrons over X-rays is a function of the total amount of energy received; at low dosages, neutrons appear to be at least eight times as effective as X-rays; at higher dosages, the effectiveness of X-rays approaches that of neutrons. This may mean only that at higher dosages the maximum ability of the cell to respond is approached. It is a sobering thought that protection against neutrons is more difficult than against any other type of radiation.

Additional evidence of position effect among the genes determining the Rh antigens has appeared. The antigenicity of the Rh antigen D (Rh₀) is reduced, in some cases at least, when the opposite chromosome has antigens Cde (Rh'). It now seems certain that position effects occur

in man as they do in other animals and plants.

ARTHUR G. STEINBERG,

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GENEVA CONFERENCE (BIG FOUR, 1955). In a long-delayed response to Sir Winston Churchill's urgent appeal for a meeting of the major powers "at the summit," the heads of government of the Big Four powers (President Dwight D. Eisenhower, United States; Premier Nikolai A. Bulganin, Soviet Union;* Prime Minister Anthony Eden, United Kingdom; and Premier Edgar Faure, France) met July 18-23, 1955, at the Palace of Nations in Geneva, Switzerland, to "exchange views" on the problems threatening world peace. The conference, called for by the Western powers on May 10, 1955, and agreed to by the Soviet Union on May 26, was designed to be carried out in two phases. The heads of government were to formulate the major issues to be discussed and the methods to be employed by the foreign ministers, who would meet for the second-phase discussions in October 1955.

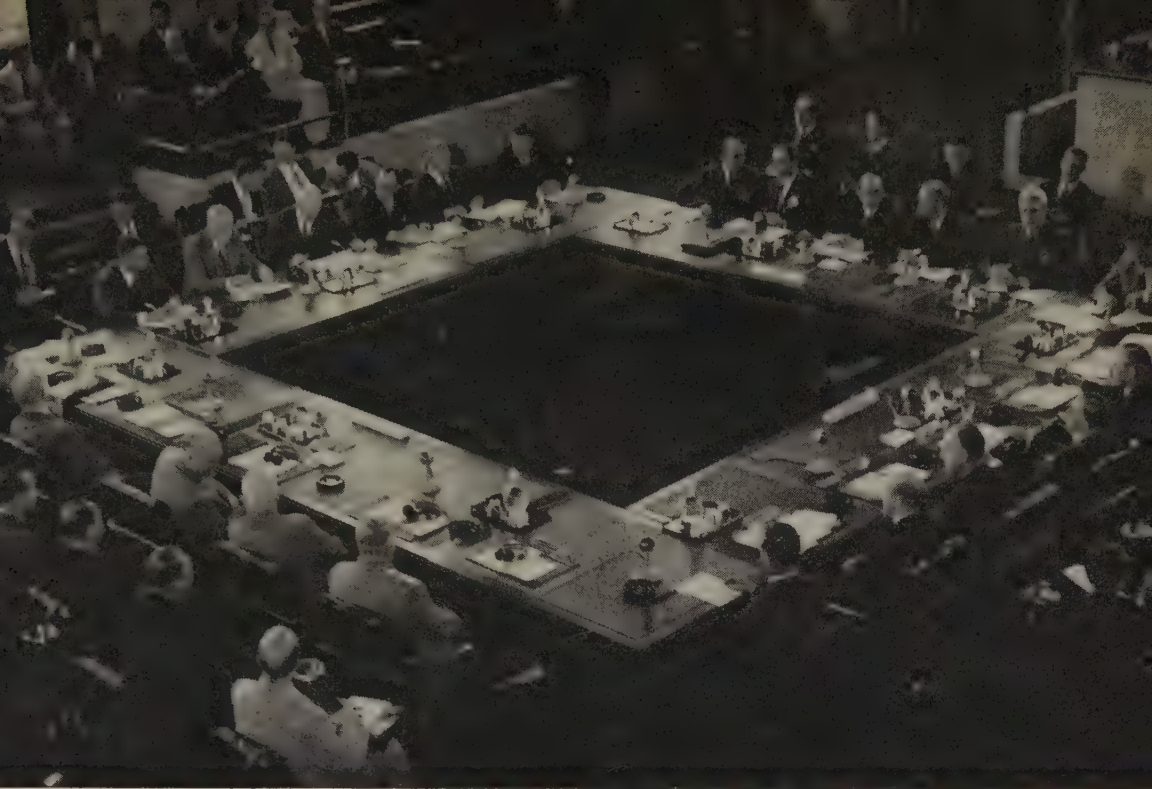
MEETING AT THE SUMMIT

Initial Statements.—In the opening addresses of the conference (July 18), the Big Four were united in their appeal for the creation of a sincere and cooperative spirit in East-West diplomacy, thus setting the tone of the ensuing discussions. Enumerating the issues he believed to be the most vital, President Eisenhower, the first speaker, gave priority to reunification of Germany, followed by questions of European security, communication and human contacts among the peoples of the East and West, international communism, and disarmament. He insisted on a united Germany's right to join military alliances for purposes of defense, and by the same token acknowledged the necessity of taking into account the security interests of the Soviet Union in a discussion of German reunification.

In accord with President Eisenhower, both French Premier Faure and British Prime Minister Eden were of the opinion that the reunification of Germany and its integration into the Western European Union and the North Atlantic Treaty Organization (in accordance with the Paris agreements of Oct. 23, 1954) were essential to the harmonization of East-West relations. Declaring that a reunified Germany should not be neutralized, Faure maintained that Soviet security could be insured by: (1) limiting the forces of a united Germany to the number provided by the Western European Union to West Germany; (2) framing and abiding by a mutual security pact between the Western powers and the Soviet Union similar to the Paris agreements; and (3) establishing an all-European security organization, including a united Germany, "to superimpose new defensive commitments on those that already exist." He hoped that eventually the two security systems and the East European bloc might be fused into one. On the question of disarmament, he proposed a plan calling for budgetary control of armaments whereby the resulting savings from present armament costs would be given over to an international organization for use in underdeveloped countries.

Prime Minister Eden's aims were less broad in scope than those of his Western colleagues. He offered three suggestions designed to provide the

* The USSR was also represented by Nikita S. Khrushchev, first secretary of the Central Committee of the Communist Party of the USSR, who was generally thought to be the real head of the Soviet government.



GENEVA CONFERENCE

(Top) Delegations at the opening session are (clockwise, beginning at upper left): U.S., French, British, Soviet. (Above) Chief Soviet delegates Molotov, Bulganin, Khrushchev. (Right) President Eisenhower and Secretary of State Dulles. (Below) The Big Four: Bulganin (USSR), Eisenhower (U.S.), Faure (France), Eden (Britain).

(TOP AND RIGHT) WIDE WORLD; (OTHERS) UNITED PRESS



Soviet Union with real security against a unified and rearmed Germany. These were: (1) establishment of a mutual security pact comprising the Big Four and a unified Germany; (2) limitation of the total forces on each side in Germany and neighboring countries, and the establishment of a system of reciprocal supervision and control of armaments in that area; and (3) examination of the possibility of a demilitarized area between the East and West.

Discarding the customary Soviet language of



POINIER IN THE DETROIT NEWS

"A VERY DEAD PIGEON"

recrimination, Premier Bulganin, the last speaker of the day, set forth the Soviet Union's views of the problems confronting the East and West in an unusual spirit of friendliness and candor. In opposition to the stand taken by the Western delegates, he maintained that European security should precede German reunification, since the remilitarization of West Germany and its integration into Western military groupings was the primary obstacle to reunification. Thus he proposed a new version of the Soviet security plan introduced in 1954 at the Berlin Conference, providing for the replacement of existing military alignments by an all-European system, including participation by the United States, to be carried out in two stages. During the first stage the Eastern and Western blocs would bind themselves against the use of armed force and would refrain from increasing their military strength in foreign territory. In the second stage the North Atlantic Treaty, the Paris agreements, and the Warsaw mutual defense treaty (signed by the USSR and seven Soviet satellite countries at Warsaw on May 14, 1955) would be abolished in favor of an all-European security system, the eventual aim of which would be the withdrawal of all foreign troops from European soil.

Premier Bulganin also announced the Soviet Union's decision to contribute fissionable material to an atomic pool as soon as an international atomic energy agency had been established. He called for the limitation of armed forces levels

and the prohibition of atomic weapons, and agreed with the other conferees that there should be a removal of trade, cultural, and scientific barriers among the Big Four powers.

Agenda.—On the second day of the conference (July 19), the foreign ministers agreed on a four-point agenda for the ensuing "summit" discussions: (1) German reunification; (2) European security; (3) disarmament; and (4) improvement of East-West relations.

German Reunification and European Security.—To allay Soviet fears of a rearmed Germany, Eden, on July 19, revised his 5-power security plan to include other European nations. Although no direct reply was forthcoming from Bulganin, the latter repeated his proposal for an all-European security system and rejected the West's bid for an immediate settlement of the German question, maintaining that reunification was impossible so long as West Germany was committed to NATO. In a personal appeal to Marshal Georgi Zhukov, Eisenhower tried to convince the Soviet delegation that Germany must not be permitted to "become again a military vacuum . . . again a fertile ground for the propagation of a Hitler"; that NATO was a purely defensive alignment; and that the United States would never be a party to an aggressive war.

The split between East and West was crystallized on the third day (July 20), when Bulganin republished in draft-treaty form his two-phased plan for European security which envisaged an indefinitely divided Germany. To save the conference from a deadlock, the heads of government agreed to request their foreign ministers to draw up a directive calling for a future conference at which the questions of German reunification and European security would be discussed. Eden expanded the request to include the consideration of limitation and inspection of forces in Germany and neighboring countries, and a demilitarized area in central Europe.

Disarmament.—On July 21 the subject of disarmament was taken up, and again agreement could not be reached. Premier Faure returned to his original plan for disarmament by budgetary control. Eden again proposed the establishment of a supervised security zone in central Europe pending the demilitarization of an area on both sides of the Iron Curtain. Bulganin proposed a temporary nonaggression pact between Eastern and Western military blocs and a plan identical to that presented by the Soviet Union on May 10, 1955, before the U.N. Disarmament Subcommittee in London, which called for the abandonment of the use of nuclear weapons. These were dramatically overshadowed by President Eisenhower's direct proposal to Bulganin calling for an immediate system of inspection and disarmament whereby East and West would give each other complete blueprints of their military establishments and provide within their countries facilities for unlimited aerial inspection.

East-West Relations.—On the fifth day (July 22) the heads of government took up the question of East-West relations. The Western leaders were united in their appeal to the Soviet Union to remove the economic and cultural barriers in the way of international understanding. On the following day Bulganin echoed Western sentiment when he declared that the Soviet Union was "ready by all means to facilitate" development and strengthening of East-West economic and cultural relations.

The Directive.—In the meantime the Big Four foreign ministers, meeting to arrange an agenda

for the October phase of the conference, came to a deadlock in the drafting of their directive. These differences over procedural questions were compromised in the directive issued by the heads of government on July 23, the last day of the conference. The foreign ministers were instructed by implication to discuss the reunification of Germany and European security simultaneously. On the question of European security, the ministers were instructed to consider: (1) a security pact for Europe or for part of Europe; (2) limitation, control, and inspection of armed forces and armaments; and (3) establishment between East and West of a zone in which disposition of armed forces would be subject to mutual agreement. It was agreed that the Big Four cooperate to develop a system of disarmament through the U.N. Disarmament Commission, and the foreign ministers were asked to study measures to bring about the eventual elimination of trade and cultural barriers between the peoples of both sides.

MEETING OF THE FOREIGN MINISTERS

On October 27 the foreign ministers of the Big Four powers—John Foster Dulles (United States), Vyacheslav Molotov (USSR), Harold Macmillan (United Kingdom), and Antoine Pinay (France)—met at the Palace of Nations in Geneva to implement the 3-point directive—European security and reunification of Germany, disarmament, and economic and cultural contacts—evolved by the heads of government in July. The discussions of the following 21 days, characterized by an increasingly adamant divergence of interests, proved to be largely fruitless. By the end of the conference, negotiation had degenerated to propaganda, and the “spirit of cooperation and mutual trust” engendered during the Summit Conference had suffered a serious reversal.

European Security and German Reunification.—In accordance with their belief that the problems of German reunification and European security are inseparable, the Western powers repropounded the Eden plan for unification of East and West Germany on the basis of free elections. To weaken the Soviet Union's demand that European security take precedence over German reunification, the West added a 9-point “treaty of assurance” (contingent on a united Germany's decision to join the North Atlantic Treaty Organization) providing security guarantees for the Soviet Union, including provisions for a mutually inspected zone of limited forces and armaments on both sides of the frontier dividing a united Germany and the eastern European countries. As was anticipated by the West, the Soviet Union answered that it would not submit to the resurrection of German militarism. Instead, Foreign Minister Molotov repropounded the draft of a 50-year all-European security treaty introduced at the Berlin Conference in 1954 and reiterated by Premier Bulganin in the Summit Conference, which envisaged the eventual dissolution of NATO and made only a vague reference to the reunification of Germany. Each side invoked the ambiguous wording of the directive to justify its respective position, and charged the other with a breach of faith in carrying out the instructions of the heads of government.

To avoid a propaganda loss, and to break down Western resistance to a discussion of security first, the Soviet Union presented a revised security pact which incorporated a suggestion made by Anthony Eden at the Summit Confer-

ence (but since written out of the West's position) calling for a demilitarized zone on both sides of the frontier between East and West Germany. This too was rejected by the West on the grounds that it was predicated on an indefinitely divided Germany. Pressed closely by the West for a clarification of its stand on reunification, the Soviet Union presented its version of an East German proposal calling for postponement of reunification until an all-German Council, composed of the representatives of the parliaments of East and West Germany, had established economic and cultural ties and military defense plans and had considered questions pertaining to unification. The plan was termed “totally unacceptable” by the West on the particular grounds that such a council would be unrepresentative of the German people and on the general grounds that the plan's purpose was the eventual communization of Germany.

To force the Soviet Union's hand, the West abruptly proposed that free elections to reunite Germany be held in September 1956. The anticipated Soviet rejection, which emphasized the necessity of “full cognizance of the fact that there exist on the territory of Germany two different states and that reunification of Germany cannot be brought about other than by mutual agreement of these states,” made it clear to the West that the principal objective of Soviet foreign policy was not the realization of security against a remilitarized Germany, but rather the perpetuation of division as second best to the communization of both areas. The discussion on the first item on the agenda was then suspended on the insistence of the West.

Disarmament.—Proceeding to the second item, the conferees again failed to arrive at common ground. Insisting on the necessity of a limited agreement which could provide a realistic basis for future negotiations on general disarmament, the Western powers proposed a plan, the purpose of which was the prevention of surprise attack, and the principal tenet of which was President Eisenhower's proposal of a system of mutual aerial inspection and exchange of military blueprints between the United States and the Soviet Union. Maintaining that the Western plan, in and by itself, failed to guarantee any practical step for the reduction of armaments, and that, on the contrary, it was an attempt to “legalize” the use of atomic weapons, the Soviet Union counterproposed a comprehensive plan, which, although not excluding consideration of inspection and control, emphasized reduction of armed forces and conventional arms and the prohibition of nuclear weapons. The West refused to accept the plan, declaring that moral pledges had little value where distrust was prevalent.

To minimize the Soviet Union's criticism of the Western point of view—and at the same time to place the onus of failure to arrive at an agreement on that power—the United States offered to extend the Eisenhower plan to all its overseas bases. With the Soviet rejection of this concession, the impossibility of further negotiation became apparent, and the question of disarmament was shelved by the conference.

East-West Contacts.—Little more was achieved by the foreign ministers in their discussions of economic and cultural contacts, despite the apparently sympathetic attitude toward such contacts manifested by the Soviet Union in the Summit Conference. Following Secretary of State Dulles' announcement to the conference that the United States had lifted restrictions on travel by



PHOTO BY WILLIAM SIRI

Mt. Makalu, 27,790-foot Himalayan peak in Nepal, first climbed by French party led by Jean Franco in May 1955.

United States citizens to the Soviet Union and those satellite countries with which the United States maintained diplomatic relations (Poland, Czechoslovakia, Hungary, and Rumania), the West proposed, in effect, that the Communist Party of the Soviet Union relinquish its monopoly on communications in that country. The memorandum presented by the West called for the eventual elimination of Soviet censorship and radio-jamming, opening of information centers in the Soviet Union, exchanges and open sale of books, periodicals, and newspapers, monthly uncensored broadcasts on world developments, increase of private tourism by abolition of the artificial Soviet rate of exchange, and reduction of trade barriers.

The Soviet Union's memorandum, on the other hand, was limited to cultural exchanges on the official level alone, and elimination of Western restrictions in the trade of strategic materials with Communist countries. After Molotov charged that the Western plan was an attempt to interfere in the internal affairs of the Soviet Union, the effort to reach agreement on the third item on the agenda broke down. On November 16 the conference came to an unsuccessful close.

Communiqué and Statements.—Reflecting the barren results of the conference, the short communiqué issued by the foreign ministers on the final day noted that they "had a frank and comprehensive discussion" of the three items in the directive and agreed to report the results to their respective heads of government. No date was set for another conference.

Despite the Soviet Union's refusal to accept it, a draft statement on disarmament was issued by the Western powers, in which the second item on the agenda was turned over to the subcommittee of the U.N. Disarmament Commission. The Western powers also issued a declaration on Germany, in which it was stated that the failure of the conference to further the possibility of German unification was the result of the Soviet

Union's desire to maintain "the continued division of Germany" as well as to bring about "the eventual dissolution of the Western security system."

W. V. S.

GEODETIC SURVEY. See COAST AND GEODETIC SURVEY.

GEOGRAPHY AND EXPLORATION. Many new achievements in the field of geography and exploration were recorded in 1955. Among the highlights were the conquest of Kanchenjunga, the world's highest unclimbed peak; significant contributions to our knowledge of early man; further developments in the polar regions; and the blueprinting of extensive plans for the forthcoming International Geophysical Year, 1957-58. Some of the current expeditions, notably Operation Deepfreeze, were laying groundwork for further investigations to be carried out on an international scale in Antarctica during the next three years.

Early Man.—Major discoveries which have shed substantial light on migration and settlement patterns of early man were made during 1955. Theories of the Asiatic origin of Alaskan and Canadian Eskimos were considerably strengthened when, on the banks of the Firth River, east of Alaska, traces of nine civilizations, four heretofore unknown on this continent, were found in permafrost by a National Museum of Canada group. The relics were similar to cultures of Eastern Siberia of 3,000 to 5,000 years ago.

In Nevada, bones tested by radiocarbon methods indicate man's presence in that area 23,000 years ago, predating previously known cultures by 13,000 years.

In the Middle East, Robert Braidwood, of the Oriental Institute of the University of Chicago, completed further excavations at Jarmo (4,700 B.C.) and M'Leffat (founded before 5,000 B.C.) which reveal them to be the oldest known villages with permanent agriculture and domesticated livestock.

Findings in caves at Makapan in the South African veldt by the Wenner-Gren Foundation proved the Australopithecines to be early stone-age humans who used tools and fire. This oldest and most primitive stone culture known in South Africa is about 150,000 years old.

United States.—In the State of Washington, substantial glacier advances over a large area were reported for the first time since observations were begun. Richard Hubley, leader of a group working in the Olympics and the Cascades, claims that ground studies of the Blue Glacier and aerial surveys of 48 other glaciers reveal advances at an annual rate of 10 to 350 feet. Cooler, wetter weather in the last decade is believed to be the cause. During the year the existence of a glacier on Wheeler Peak in eastern Nevada was reported by Weldon Heald.

Mexico and the Caribbean Area.—In Mexico a new volcano may be in the making. A newly opened fissure south of Mexicali was reported emitting gases and debris. Sharat K. Roy is conducting a survey of Central American volcanoes, which will be the most detailed to date. Off Haiti an old anchor believed to be from the *Santa Maria* was found by Edward Link and was examined by the Smithsonian Institution.

South America.—An Academy of Natural Sciences of Philadelphia expedition to the Amazon left in September 1955 to observe aquatic life in the Iquitos and Tingo Maria areas of Peru. The

party, led by Dr. Ruth Patrick, will attempt to establish whether tropical or temperate rivers have the greater diversity, and also to analyze the effects of pollution. The New York Botanical Garden Plant Exploration Program had four teams in the field during the year. One group, led by Steyermark and Murdoch, explored the "Lost World" area of Venezuela, studied Indian life, collected 1,500 rare plants, and found uncharted falls on the Caroní River. Victor Von Hagen completed his two-year survey of the Incan Highway system, which proved to be an excellent network of stone roads some 5,000 miles in extent.

In the Andes of Argentina, Ojo del Salado (22,566 feet) was climbed by an Argentine party under Prof. Orlando Reney. A University of Colorado expedition to the Cordillera Blanca of Peru climbed four peaks, three of them first ascents, including the North Peak of Nevado Pucahirca (about 20,000 feet).

Europe.—The major work done in Europe during 1955 was in the field of archaeology. In Italy, Grecian ruins of Elea, a magnificent city dating from the 5th century B.C., were excavated. In Crete, the Minoan culture was found to have cultural links with the Nile Valley. An interesting combination of detective work and microgeography by Sir Gavin de Beer of the London Museum of Natural History indicated the probable route followed by Hannibal across the Alps.

Under the aegis of Arthur W. Baker, the Italian Navy has recovered over 2,000 objects from the Sicilian harbor of Syracuse, where it is believed Athenian warships were sunk between 415 and 413 B.C.

Asia.—Dr. Seton Lloyd of the British Institute of Archaeology continued working in the Arzawa ruins of Anatolia; the most important discovery, however, a 3,000-year-old centrally heated and beautifully decorated palace, was found to pre-date the Arzawa culture and is still anonymous. Traces of the Hittite civilization unearthed in the Anti-Taurus area by an American-German party prove the survival of that culture, at least until the time of Christ. The Negev Archeological Survey, under the guidance of Dr. Nelson Glueck, conducted its fourth season of work on Nabatean culture. Sites of 300 ancient villages dating back 4,000 years were discovered.

In addition to the important archaeological discoveries in the Middle East, and various developments in Siberia and China, world attention was focused on mountaineering news from the Himalayas. For the third successive year the highest unclimbed peak was scaled—in 1953, Mt. Everest; in 1954, Mt. Godwin Austen (K^2); and in 1955, Kanchenjunga. A British expedition led by Dr. Charles Evans stopped just short of the summit of the latter (28,146 feet) on May 25 to avoid offending the Sikkimese, who believe their gods dwell there. Another of the 8,000-meter peaks, Mt. Makalu (27,790 feet), was climbed in May by a French group under Jean Franco. Kong Guru (23,000 feet) was assaulted successfully by the Bauer Mountaineering School group led by Heinz Steinmetz. The second highest summit ever reached by Americans, Mt. Istoró Nal (24,242 feet) in the Hindu Kush, was scaled on June 8 by Thomas A. Mutch and Joseph E. Murphy, Jr., of the Princeton Mountaineering Club. New Zealanders climbed Pethangtse (22,080 feet) and Baruntse (23,570 feet).

Other expeditions in the Himalayan area made extensive geographic investigations in addition to mountaineering efforts. The Harvard



U.S. NAVY

U.S.S. Atka, which accompanied U.S. Navy's 1954-55 Antarctic expedition, moves through ice-filled polar waters.

Mountaineering Club Karakoram Expedition, led by Henry Francis, visited the Hushe Valley of northeastern Pakistan, studying zoology, plant taxonomy, geology, glaciology, and physical effects of high altitudes. An Austrian-Swiss effort in the Lhotse area undertook studies of local culture and further research on the Yeti ("abominable snowman").

On May 31, 1955, the Royal Geographical Society and the Alpine Club announced establishment of the Mount Everest Foundation, which will promote and give financial support to the further exploration of mountain areas. Initial funds were secured from royalties of Sir John Hunt's book, *Conquest of Everest* (1954), and proceeds from motion pictures and lectures on the Everest expedition.

In Central Asia, Stalin Peak (24,500 feet) in the Tadzhik SSR was again climbed, and the Georgian Alpine Club scaled Molotov Peak (22,477 feet). A 62-man Chinese expedition claimed to have located the source of the Yellow River in the Yalolodoz Mountains of the Bayan Kara Mountains in Chinghai after a four-month search.

Arctic.—There has been much interest centered in the Arctic regions by both governmental and private agencies. During the summer, 19 teams sponsored by the Arctic Institute of North America and the Office of Naval Research investigated various phases of Arctic geography. Specific efforts included seven projects of the Arctic Research Laboratory at Point Barrow, as well as studies of flora, fauna, radio waves, and geology. The highest unclimbed mountain in North America, University Peak (15,030 feet), near the Alaska-Yukon border, was scaled on June 19 by the John McCall Memorial Expedition.

A U.S. Navy polar expedition on an eight-year study of cosmic rays and weather phenomena near the North Magnetic Pole launched numerous balloons and rockets for collecting upper-air data. The U.S. Army announced that troops were installing 50 radar stations from Alaska to Greenland as part of an air raid warning system. The distant early warning (DEW) line project is one of the largest operations ever undertaken in the Arctic, with some 117 ships involved in transporting equipment and personnel. Several hundred tons were also carried in a remarkable overland winter trek of over 400 miles each way from Fairbanks, Alaska, northward to the Arctic coast by trailer trucks and a new type of vehicle called a Sno-Freighter.

The Soviet Union has revealed extensive plans for both Arctic and Antarctic exploration. In 1955 an expedition led by N. A. Volkov set up a new station on pack ice in the Arctic Ocean. North Pole 5, as it is called, will be the collection center for oceanographical, magnetic, and mete-

orological observations. Another floating station near Franz Josef Land was also established. (See also ARCTIC EXPLORATION.)

Antarctica.—Plans of tremendous scope are materializing for the forthcoming International Geophysical Year, 1957–58. At least 45 stations are projected by some 12 nations in various sectors of Antarctica within the next three years. Groundwork for the United States effort was started by the navy icebreaker *Atka*, which visited various parts of the coast of western Antarctica during 1954–55. The second phase of the work (Operation Deepfreeze) got under way in October 1955, and involves the transporting of equipment and the establishing of five scientific and two logistical bases for the International Geophysical Year program.

The most intensive land operations of 1955 were carried out by the Australian National Antarctic Research Expedition at Mac-Robertson Coast. From its base at Mawson Station it made forays along the coast, on Magnetic Island, Kemp Coast, King Edward VIII Gulf, and the Vestfold Hills. Across the continent in Vahsel Bay, Argentina established the only other station currently in operation on the main part of the continent of Antarctica. (See also ANTARCTICA.)

Oceanography.—Deep-sea studies of five nations were in the news during 1955. The Lamont Geological Observatory reported the finding of a submarine mountain peak (the Toro Seamount) in the Atlantic, which reaches to within 5,800 feet of the surface. The National Geographic Society (q.v.) and a French group led by Jacques Yves-Cousteau, conducted undersea explorations in the Mediterranean, Red Sea, and Indian Ocean. The British Gravity Expedition is obtaining ocean-floor gravity measurements in a large-scale operation from England to Ceylon via the Cape of Good Hope; another group will trace undersea currents with newly-devised special equipment. A Russian group carrying out studies in the Aleutian area reported the discovery of submarine mountain ranges believed to be continuous with those off Hawaii. They have also observed salmon distribution and have analyzed the formation of the Aleutian, Japanese, Kuril, and Kamchatka depressions.

(See also ANTHROPOLOGY; ARCHAEOLOGY; OCEANOGRAPHY; and the Index entry, *Geography and Exploration*.)

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GEOLOGICAL SURVEY. The U.S. Geological Survey continues to be the focal point of government activity in the discovery, evaluation, and conservation of mineral raw materials and water resources. Its major responsibilities are centered around compiling the *National Topographic Atlas*; gathering basic data concerning the nation's mineral, mineral fuel, and water resources; continued geologic mapping; and classifying and administering public lands in accordance with existing mineral leasing laws.

Geologic Investigations.—Emphasis was continued in 1955 on the development of new and improved methods of exploration for mineral resources, and on acceleration of geologic mapping—both supported by a program of basic research. Among advances in mapping during the year were the printing of the new geologic maps of Montana, New Hampshire, Oklahoma, and Wyoming, prepared in cooperation with those states;

completion in manuscript of the Jurassic paleotectonic map; and continued refinement of photo-geologic techniques as an aid to more rapid and economic mapping of some types of geologic terranes.

Field work on 84 projects in 23 states continued to produce basic data on the geologic setting, distribution, and factors causing localization of ore bodies. Extension of the limits of a major zinc deposit in Tennessee by a Defense Minerals Exploration Administration drilling program was based in part on Geological Survey mapping and geologic interpretation. Definition of what appears to be a favorable zone of metalization in the Globe-Miami, Ariz., area has stimulated prospecting in the area. New uranium deposits were disclosed and the reserves of previously known deposits were extended on the Colorado Plateau through work done on behalf of the U.S. Atomic Energy Commission.

Laboratory work in support of the search for deposits of mineral resources resulted in the adaptation of gamma-ray logging to the search for potash deposits, and construction of three devices to aid in bore-hole exploration for radioactive materials: (1) a jeep-mounted scintillation well logger; (2) a hand-portable scintillation well logger; and (3) a liquid-scintillator core scanner. About 90,000 rock and mineral samples were studied in the analytical laboratories.

Fundamental research and development of methods pertaining to geochemical exploration for ores were continued. Neutron bombardment was used as a research tool on zircons to study their change with age, on samples of natural copper to measure their isotopic ratios, and on coal to study the process of coal formation.

Investigation of areas that are actual or potential producers of mineral fuels was carried on in 22 states. Publications related to oil and gas investigations included one chart, 4 professional papers, 7 bulletins, 9 circulars, and 37 papers on fundamental paleontologic and stratigraphic studies. Publications related to coal investigations included 15 coal maps, 2 professional papers, 5 bulletins, and 2 circulars.

Geologic investigations designed to provide basic data for use in civil engineering works and other land-use programs were carried on through 25 field projects in 11 states. Detailed studies of urban areas and of landslide problems involving reservoirs were continued. Smaller-scale geologic mapping was continued, and 13 geologic quadrangle maps with accompanying reports were published.

About 70,000 traverse miles of airborne radiometric and magnetic surveys were flown; regional geophysical studies in the Mojave Desert, in Salt Lake and Utah valleys, on the Colorado Plateau, and in the Lake Superior region were under way; detailed gravity surveys were begun in Cuba; and studies of radiowave frequency propagation, induced polarization, and electromagnetic methods were undertaken.

Topographic Surveys.—One of the Geological Survey's primary objectives is to complete an atlas of large-scale topographic maps of the United States and its possessions, and to maintain the usefulness of these maps by periodic revision. Since 1879 the survey has published 17,000 topographic maps covering about 73% of continental United States. Many of these are now in need of revision or resurvey, so that about 37% of the country is covered by maps of good quality. During the past year a total of 2,266 maps were sent to the printer, including new maps

covering 4% of the country. Twenty-seven more chapters of the *Topographic Manual* were completed and 47 are in preparation, making the project about 75% complete. (See also ARCTIC EXPLORATION.)

Especially significant is the completion of the 5-year cooperative mapping project in Kentucky. It represents the largest concentration of topographic mapping operations, with the greatest overall accomplishment in the shortest period of time, ever achieved by the Geological Survey. Over 40,000 square miles of uniform mapping at 1:24,000 scale (2,000 feet to the inch) covering the state, was performed at a total cost of about \$7 million.

Water Resources.—In 1955, records of surface-water supplies were obtained at more than 6,800 sites throughout the United States and in Alaska, Hawaii, and Guam. The work of compiling all stream flow records in the United States, for the period 1888–1950, started in 1952, is now 57% complete. During the year, completed compilation volumes were published for the New England basins and the Colorado River basin.

Ground-water investigations during the year included more than 500 projects and embraced the following principal types of activity: (1) describing the occurrence, quantity, and quality of ground-water resources, including delineation of ground-water reservoirs and opportunities for their recharge; (2) studying in detail the hydrology of mining and oilfield areas, as an aid to both location and economical development of these resources; (3) determining the loss of water through consumption by water-loving nonbeneficial vegetation, as a preliminary to salvaging a part of the water; and (4) describing the nature and extent of salt-water encroachment in coastal areas, as a guide to combating its effects.

During the year the chemical quality of about 64,000 samples of water from streams, lakes, springs, and wells was determined. The program included chemical-quality studies of the streams in the Colorado River, Pecos River, and Columbia River basins, in the New York–New England states, and in Alaska. Also a network of sampling stations was maintained on western streams to determine trends in mineral content and thus help to insure successful continued operation of irrigation projects.

The investigation of sediment in streams and rivers was continued during 1955, including sampling at 158 sediment stations. Comprehensive sediment programs were continued in the Missouri, Rio Grande, and Colorado River basins.

During 1955 notable progress was made on the inventory of the occurrence and quality of saline water resources of the United States. A nationwide reconnaissance study was completed, a more extensive study of saline waters in Texas was completed, and a study of saline waters of North Dakota neared completion.

Conservation.—The Geological Survey classified federal land as to mineral and water power resources, and supervises development and producing operations for oil, gas, and minerals under leases, permits, and licenses on federal, Indian, outer continental shelf, and naval petroleum reserve lands. In 1955, 24,137 cases involving mineral classification of federal lands were handled. Water and power investigations on public lands involved mapping 242 miles of stream channels and 13 dam sites; 59,810 acres were removed from power site reserves, reducing the outstanding reserves to a net total of 7,103,000 acres. The supervisory function involved all phases of ex-

ploration, development, and production. The minerals produced in 1955 were valued at more than \$530 million, with royalties amounting to about \$55 million.

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GEOLOGY. One of the most newsworthy geologic events of 1954–55 was the discovery of a fragmentary human skeleton near Midland, Texas, in a sandy stratum of Pleistocene, or glacial, age. S. N. Davis also described camp sites of Pleistocene man in Platte County, Missouri. W. F. Libby found that camp sites near Las Vegas, Nev., were occupied at least 23,800 years ago and therefore are almost 4,000 years older than those of Sandia Man in New Mexico.

Non-Human Fossils.—In the past, paleontologists have been content with the two traditional kingdoms of plants and animals, but R. C. Moore advocates a third, the protists, for classifying bacteria and other organisms which seem to be neither animals nor plants.

Most fossils described during 1954–55 belong to familiar groups. M. N. Bramlette and W. R. Riedel, however, discussed the problematic dicoasters, planktonic organisms that apparently were plants related to coccoliths.

D. F. Toomey assembled a bibliography of the fusulinids, a group of protists or protozoans much used in correlation of strata. Z. M. Arnold outlined simple methods for growing living foraminifers in order to investigate their variation, evolution, and ecology. W. R. Evitt described a Devonian foraminifer whose fossil shell behaves like a single calcite crystal, and E. L. White and J. S. Brown decided that “fingers” in the Bonnetterre formation of southern Missouri are algal deposits of the type called *Collenia*. *Micropaleontology*, a new journal published by the American Museum of Natural History, made its appearance in January 1955. W. L. Stokes described tracks of a Jurassic pterosaur from the Carrizo Mountains of Arizona; it walked on all four feet, hundreds of miles from the nearest sea.

Ancient Geography.—The geography of ancient ages is largely determined from their sedimentary deposits. J. D. Edwards found that conglomerates near Guanajuato, Mexico, record a highland northeast of that city during late Eocene to early Oligocene times. W. A. Oliver, Jr., reported that Onondaga deposits of New York reflect a variety of conditions in a sea that advanced across the central and western parts of the state, but merely deepened in the eastern portion. W. C. Ball traced ancient deposits of volcanic ash (bentonite) which indicate widespread vulcanism in the Mississippi Valley during middle Ordovician times.

J. C. Crowell described current marks and other structures which indicate that the Flysch (Paleocene) deposits of Switzerland contain sediments from a vanished island or larger land mass to the northwest. W. B. R. King found that the English Channel is the result of many depressions during the past 200 million years, although nearby areas of more ancient rock have been relatively stable. W. P. Woodring traced changes in the Caribbean Sea, which began as a depression in what now is Central America and spread eastward. During the Cretaceous period, great thicknesses of volcanic material settled in the Caribbean Basin, forming lands that are now submerged.

Submarine Geology.—R. L. Fisher and others reported that the Scripps Institution's transpacific

expedition of 1953 had found a ridge 600 miles long in the northern Pacific, capped by flat-topped, terraced mountains called guyots. The Ramapo Deep, in the southern Japanese Trench, was found to have depths much less than the 34,800 feet often given for it.

B. C. Heezen, Maurice Ewing, and D. B. Ericson found evidence that abyssal plains are almost level because sediment has filled their one-time valleys, allowing only isolated hills and seamounts to project. C. B. Officer and Professor Ewing found that the "crystalline basement" of metamorphic and granitic rocks thins under the margins of continents, and that sediments as much as 20,000 feet thick accumulate on gentle inclines at the bottom of continental slopes. A. J. Carsola reported that mud covers much of the continental shelf of North America, under the Arctic Ocean. Since most of the organic material in the sea water is oxidized before it can settle to the bottom, these muds contain very little carbon.

Mineralogy and Petrography.—H. W. Fairburn described a superior method of concentrating heavy minerals from crushed samples of rock. Clifford Frondell and L. H. Bauer restored kutnahorite to its position as a distinct mineral related to dolomite but containing manganese. G. W. Brindley and F. H. Gillery showed that a variety of chlorite minerals can be identified by X-rays, and R. J. Arnett used X-rays to determine the size of mineral particles in clays. The method is specially valuable in measuring montmorillonite and illite, two important clay minerals that have not been measured successfully by means of the electron microscope. A. F. Frederickson described tiny rods which lie side by side, forming sheets in natural quartz crystals.

S. R. Nockolds determined the average chemical composition of the common plutonic rocks, which hardened deep underground, and their volcanic equivalents. J. E. Armstrong and J. A. Roddick found that plutonic rocks of the Coast Ranges, in British Columbia, form five intergrading types which cannot be grouped according to conventional classifications. J. M. Carr reported that crystals which accumulated at the bottom of molten masses of gabbro in Scotland slumped and slid over older layers. J. Hospers found that igneous rocks become magnetized as they harden, and remain so for ages. They show that if polar wandering has taken place at all, it had not exceeded 5 to 10 degrees since the Eocene epoch, some 40 million years ago.

Other Fields.—As always, extensive work has been done in such fields as petroleum geology, glacial geology, sedimentation, and geochronology. The first of these is treated most extensively in the *Bulletin* of the American Association of Petroleum Geologists, which for some years has been the world's largest geologic society. In geochronology, W. R. Eckelman and J. L. Kulp announced seven new dates secured by the uranium-lead method, ranging from 50 or 60 to 1,670 million years. Wallace Broecker and Professor Kulp, at the Lamont Geological Observatory, Columbia University, extended the utility of the carbon-14 method of determining age to 45,000 years. They also found that the Mississippi Delta has been rising about 12 inches per century, that ice last melted from the region of James Bay about 3,000 years ago, and that a supposedly Norse ship from Follins Pond, Massachusetts, really is a colonial vessel.

(See also COAST AND GEODETIC SURVEY; GEOGRAPHY AND EXPLORATION; GEOLOGICAL

SURVEY; MINERALOGY; OCEANOGRAPHY.)

CARROLL LANE FENTON,
Author and Geologist; Associate Editor,
"American Midland Naturalist."

GEORGE, Walter Franklin, United States senator; b. near Preston, Ga., Jan. 29, 1878. A Democratic Party conservative and states' rights advocate, he is dean of the U. S. Senate, having served continuously since his first election to that body (from Georgia) on Nov. 7, 1922. From 1941 to 1947, and again from 1949 to 1952, he served as chairman of the important Senate Finance Committee, becoming the upper house's acknowledged authority on taxation. After the Democratic Party recaptured Congress in the elections of 1954, he became president pro tempore of the Senate and chairman of the Senate Foreign Relations Committee, of which he had been a member (chairman in 1940-41) since 1928.

A strong advocate of bipartisanship on foreign policy matters and a trusted adviser of Secretary of State John Foster Dulles, Senator George has become an influential spokesman on international affairs. On Jan. 24, 1955, at the time of the crisis over Formosa, he introduced the resolution which gave President Eisenhower the unlimited authority he had asked from Congress to use United States armed forces for meeting Communist China's threatened invasion of that island and the Pescadores.

His proposal on a television program on March 20, calling for a meeting of the heads of the Big Four powers, was widely commented on and was credited with having helped to bring about the Geneva Conference (q.v.) of July. In talks on April 23 and July 24 he urged that discussions be held between high-ranking American and Communist Chinese diplomats to seek a solution of Far Eastern problems. On December 20, Senator George announced that he would in 1956 be a candidate, for the seventh time, for the Democratic nomination for senator.

GEORGIA. South Atlantic state, United States; one of the original 13 states. The "Cracker State" ranks 20th in area and 14th in population (1955) among the 48 states.

Area and Population.—Area: 58,876 square miles (land, 58,483; inland water, 393), divided into 159 counties. Population: (1950) 3,444,578; (est., July 1, 1955) 3,539,000. Urban places with 1950 populations above 10,000 are as follows:

Albany.....	31,155	Gainesville.....	11,936
Americus.....	11,389	Griffin.....	13,982
Athens.....	28,180	La Grange.....	25,025
Atlanta (capital).....	331,314	Macon.....	70,252
Augusta.....	71,508	Marietta.....	20,687
Brunswick.....	17,954	Midway-Hardwick.....	14,774
College Park.....	14,535	Moultrie.....	11,639
Columbus.....	79,611	Rome.....	29,615
Dalton.....	15,968	Savannah.....	119,638
Decatur.....	21,635	Thomasville.....	14,424
Dublin.....	10,232	Valdosta.....	20,046
East Point.....	21,080	Waycross.....	18,899

Executive.—Chief state officers in 1955:

Governor: Marvin Griffin (Democrat)
Lieutenant Governor: S. Ernest Vandiver
Secretary of State: Ben W. Fortson, Jr.
Treasurer: George B. Hamilton
Attorney General: Eugene M. Cook
Supt. of Public Instruction: M. D. Collins

Constitution and Judiciary.—The present constitution went into effect in 1945. The Supreme Court comprises seven justices; chief justice in 1955, W. H. Duckworth.

Legislature.—The General Assembly (Senate, 54 members; House of Representatives, 205) convenes annually commencing the second Monday in January.

In its 1955 regular session the General Assembly passed more than 100 bills of statewide application. The more important of these created a Rural Roads Authority empowered to pave or hard-surface up to \$100 million worth of farm-to-market roads; dissolved the Georgia Turnpike Authority; increased workmen's compensation benefits by approximately 20%; authorized the sale

of automobile tags at county court-houses, allowing counties to collect a 25-cent fee; created a committee to study state finances; tightened school segregation laws by making it a felony to spend tax money on mixed or nonsegregated schools; and provided for a \$2.25 hunting license and a \$1.25 fishing license, or a combination license for \$3.25.

In a special session called in June to provide additional revenue, the assembly increased taxes on gasoline to 6½ cents a gallon, on cigarettes to 4 cents a pack, on beer to 4 cents a can, and on wine made from products grown outside Georgia, to \$1 per gallon. Rates were increased 100% on auto tags and 10% on truck tags, and one fourth of 1% on insurance premiums. New levies included those on small-loan charges and an annual \$1 fee for driver's licenses.

These and a few other minor tax measures were expected to yield an additional \$30 million toward a grand total revenue of \$265 million in the 1955-56 fiscal year, derived percentage-wise from the following tax sources: general sales, 40%; motor fuels, 26%; income, 13%; alcoholic beverages, 7%; cigars and cigarettes, 5%; auto tags, 4%; and miscellaneous, 5%. Anticipated spending was to be distributed as follows: schools, 51%; roads, 24%; public welfare, 12%; public health, 5%; and other, 8%.

Finances.—State treasury receipts (1954-55 fiscal year), \$243,899,802.25; expenditures, \$250,809,164.16; treasury balance, \$52,149,693.87. The state has no long-term indebtedness.

Taxation.—State tax revenue (1954-55 fiscal year): \$230,186,329.30, including \$191,412,638.47 from a 3% general sales tax and selective sales taxes; \$7,928,336.16 from licensing; \$15,247,096.79 from individual income taxes; and \$12,495,737.34 from corporate income taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 51 national banks had \$1,288,134,000 in assets, \$993,567,000 in demand deposits, and \$187,088,000 in time deposits; the state's 301 other banks and 17 branches had \$1,064,342,920.96 in assets, \$548,667,092.55 in demand deposits, and \$245,580,626.90 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Estimated operating expenditures for public elementary and secondary education in the 1954-55 fiscal year totaled \$120,000,000 (\$160 per pupil). Teachers' salaries averaged \$2,875.

In the 1954-55 school year there were 19,348 public elementary school teachers and 663,800 elementary school pupils; 9,036 public secondary school teachers and 221,200 secondary school pupils; 5 public junior colleges with 88 teachers and 1,876 students; one state teachers college with 40 teachers and 583 students; and 10 public colleges and universities with 1,885 teachers and 24,834 students.

School segregation remained an active issue in Georgia throughout 1955. Supporting the governor's pledge on January 11 to maintain segregation, the legislature banned the use of tax money for the support of non-segregated schools. By late 1955, no public elementary or secondary schools in the state were known to have been desegregated.

The governor's move to prohibit Georgia Tech from playing in the Sugar Bowl game at New Orleans on Jan. 2, 1956, against a University of Pittsburgh team with a Negro player, attracted nationwide attention late in the year. Georgia Tech students stormed the state capital in protest against the governor on December 2-3. Over the governor's objections, the state Board of Regents on December 5 approved Georgia Tech's participation in the game, but issued a directive barring any state college from staging home games against racially mixed teams, and requiring that in games outside the state, such institutions must "respect the laws, customs and traditions of the host state."

Social Welfare.—Public welfare expenditures in the 1954-55 fiscal year from state and federal funds totaled \$62,247,685.98, including \$43,860,294.98 for old-age assistance, \$12,562,369 for dependent children, \$1,694,545 for the needy blind, and \$4,130,477 for the disabled. Monthly welfare assistance averaged \$35.15 per person.

State institutions included a hospital for the mentally deficient and epileptic, with 13,887 patients; a hospital for the mentally ill, 10,970 (Nov. 11, 1955); a sanatorium for the tubercular, 1,780 (Nov. 11, 1955); and a home for the widows of Confederate veterans.

Labor Force.—Nonagricultural employees in July 1955 numbered 923,000, and for the 12 months ending June 1955 averaged 905,700. There were 16,500 insured unemployed workers on Aug. 31, 1955, and \$20,394,904 was paid in unemployment compensation benefits during the year ending June 30, 1955.

Manufacturing.—Establishments numbering 7,100 had 312,000 employees who received \$848,075,000 in salaries and wages in 1954. Value added by manufacture in 1953 totaled \$1,545,467,000, and the overall value of production was \$4,019,000,000; investment in new plant and equipment amounted to \$143,866,000. Earnings of production workers in manufacturing averaged \$49.66 for an average work week of 39.1 hours in 1954 and \$52.93 for 40.1 hours in the first six months of 1955.

MAJOR GEORGIA MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
<i>All manufactures</i>	312,000	\$1,090	\$3,737
Textiles.....	106,000	301	1,106
Food products.....	35,000	139	851
Transportation equipment.....	24,000	156	373
Apparel.....	40,000	78	263
Lumber.....	37,000	80	255
Paper and pulp.....	13,000	81	239
Chemicals.....	10,000	55	172
Printing.....	7,000	34	74
Stone-clay-glass products.....	8,000	34	72
Machinery.....	8,000	36	69
Furniture.....	7,000	23	67
Primary metals.....	4,000	23	56

(Source: *The Blue Book of Southern Progress*, 1955.)

Mining.—In 1953, Georgia was second among the states in production of mica, and third in its output of bauxite and clay. It stood 32d among the states in value of mineral output, with 0.36% of the United States total.

GEORGIA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	2,651,153	\$23,455,315
Coal.....	14,100	70,500
Iron ore (long tons).....	259,964	1,100,725
Lime.....	9,345	95,484
Sand and gravel.....	2,051,058	1,900,987
Stone*.....	7,112,024	17,756,302
Talc.....	57,891	202,619
Other minerals.....	...	6,812,898
Total.....	...	51,394,830

*Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$196,914,000, and for the full year 1954 comprised \$279,399,000 from livestock and livestock products, \$315,726,000 from crops, and \$6,640,000 from government payments. Receipts from principal crops and livestock in 1954 included: cotton lint, \$113,957,000; broilers, \$101,951,000; hogs, \$68,835,000; tobacco, \$58,769,000; and dairy products, \$44,157,000.

The state's 165,524 farms (24,022,973 acres; harvested cropland, 6,118,583) in 1954 had an average of 145.1 acres and \$7,926 in value of land and buildings per farm. There were 152,361 farms with electricity and 36,501 with telephones. Livestock on farms (Jan. 1, 1955) included 1,439,000 cattle, 1,661,000 hogs, and 8,558,000 chickens (not including commercial broilers). During the week of October 24-30, 1954, 265,036 family and hired workers were engaged in farming.

GEORGIA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Corn (1,000 bu.)	46,217	33,876	62,888
Cotton lint (1,000 bales)	695	612	705
Cottonseed (1,000 tons)	281	255	291
Hay (1,000 tons)	676	474	597
Oats (1,000 bu.)	14,416	21,235	16,744
Peanuts (1,000 lb.)	657,004	276,750	546,000
Pecans (1,000 lb.)	36,981	20,000	4,000
Soybeans (1,000 bu.)	206	203	684
Sugarcane sirup (1,000 gal.)	2,773	600	760
Sweet potatoes (1,000 bu.)	4,080	966	1,672
Tobacco (1,000 lb.)	114,536	124,220	149,375
Wheat (1,000 bu.)	2,216	2,072	1,520

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$65,755,641, and in 1954, newly completed construction and reconstruction aggregated 2,721 miles.

Highways and roads on July 1, 1955, totaled 87,455 miles (18,772 surfaced). Registered *motor vehicles* numbered 1,267,814 on Oct. 20, 1955, including 939,692 passenger cars. There were 37 *railroads* operating 655 line miles and in 1954, 5 regularly scheduled *airlines* and 123 *airports and airfields* (98 commercial and municipal, 10 military, and 15 private).

Communications media (1954) included 95 AM and 11 FM *radio stations* and 16 operating *television outlets* (13 VHF and 3 UHF); 30 daily *newspapers* (circulation, 823,417) and 199 other newspapers (circulation, 290,613); and (Jan. 1, 1955) 235,216 business and 531,815 residential *telephones*.

Principal Events, 1955.—The opening of the Georgia 4-H Club Center at Rock Eagle on May 31 was an achievement climaxing 50 years of 4-H growth in the state. The \$2,500,000 center, the largest of its kind in the United States, has a 110-acre lake surrounded by 1,452 acres of land. It includes 54 cottages, an air-conditioned auditorium, chapel, dining hall, demonstration buildings, assembly building, and other auxiliary buildings.

On March 27 a devastating freeze occurred throughout the state. The peach crop, which grossed \$10 million in 1954, was a complete loss, the apple crop was a 90% loss, and the major portion of the pecan crop was destroyed. Small grain yields were drastically cut, and ornamental shrubs suffered heavy damage. Total damage to agriculture ran into many millions of dollars. However, in 1955 Georgia had high yields of cotton, corn, tobacco, and peanuts.

The Atlanta Division of The University of Georgia was made an independent college in 1955, under the name of The Georgia State College of Business Administration. There are now 16 independent institutions of higher learning receiving state support which are under the control of The Board of Regents of The University System of Georgia. These institutions include 11 senior colleges.

Almost every major segment of the state's economy showed a substantial improvement in 1955 over that for 1954. In some instances, advances were as high as 20%. Notable gains were recorded in deposits in Federal Reserve banks, wholesale and retail trade, the number of new businesses incorporated, the number of non-agricultural workers employed, the number of construction permits, transportation activities on both railroads and airlines, electric energy output, and foreign commerce.

(See also DAMS; HIGHWAYS.)

Legislature and Principal Events by:

J. C. MEADOWS,

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GERMAN LITERATURE. The postwar reconstruction in German literature continued to progress slowly in 1955. The creation of a new literature is the task which has fallen to a generation of Germans who were sent to the wars when they were very young. They returned to an enigmatic and uncertain world, in which no one showed them the way, gave them new ideas, or established new values for them. Man was circling around the "zero point" (Ernst Jünger); West German literature is slowly moving beyond the "zero point." The search for a new reality is discernible. "Man struggling with the reality of life as it is today" is the dominating figure in all significant contemporary works. The crisis in modern German literature is thoughtfully discussed in Hanns W. Eppelsheimer's "Der Schild des Aeneas," in *Die neue Rundschau* (1955, pp. 339-368).

Drama.—The sesquicentennial of Friedrich Schiller's death (May 9, 1805) was observed at Weimar and Jena from May 9 to 15, 1955. One of the speakers was Thomas Mann (q.v.), who died three months later on August 12, and who published *Versuch über Schiller* in 1955.

The 1955-56 repertoires of over 150 West German theaters revealed their cosmopolitan character. There were productions of the works of the German classic and prewar dramatists, as well as of contemporary German playwrights, most of whom are literary descendants of Ibsen and Hauptmann. Foreign authors were abundantly represented. John Patrick's *The Tea House of the August Moon* (*Das kleine Teehaus*) had been performed over 1,000 times in West Germany by the end of October 1955. Carl Zuckmayer's *The Cold Light*, inspired by the Fuchs atom treason case, was presented on over 30 stages in both East and West Germany.

In the Soviet sector of Berlin, the Volksbühne am Luxemburgplatz (formerly the Volksbühne am Bülowplatz) was rebuilt and reopened on April 21, 1954, with an "adapted" performance of Schiller's *Wilhelm Tell*. East and West German critics regretted the choice and the violence done to Schiller. Theater attendance in East Germany was falling off in 1955. New plays by the Austrians, Richard Flatter, Richard Billinger, and Josef Mühlberger, and by the Swiss, Arnold Schwengeler, Herbert Meier, and Eckart Peterich were performed.

Poetry.—The Nestor of nature lyricism, Wilhelm Lehmann, published *Überlebender Tag* (poems, 1951-54) and a critical essay on poetry. His contemporaries, Georg Britting and Georg von der Vring, also issued collections. Ina Seidel published selections from her poems (1905-55) on her 70th birthday (Sept. 15, 1955). Of Hans Egon Holthusen's generation, Karl Krolow, Karl Schwedhelm, and Rudolf Hagelstange wrote volumes of poetry. Hagelstange received an award of 5,000 marks from the Deutsche Friedrich-Schiller-Stiftung at the Schiller sesquicentennial. Austria was represented in German-language poetry by Wilhelm Szabo, Maria Zittrauer, and Gerhard Fritsch; and Switzerland, by Walter Hauser.

Novels.—Frank Thiess completed Gerhart Hauptmann's novel, *Winckelmann*, which was the "book of the month" in January 1955. Kasimir Edschmid wrote *Der Marschall und die Gnade* on Simón Bolívar, a South American odyssey; Albrecht Goes, *Das Brandopfer*; and Ina Seidel published a new edition of *Das unverwesliche Erbe*.

The flood of fiction and reportorial literature

reflecting postwar trends continued in 1955. Over 500,000 copies were sold of Hans Hellmut Kirst's three-volume *Null-acht Fünfzehn*, which has been translated into 17 languages.

It is highly significant that half of what the West German public reads consists of translations from the literatures of all lands, particularly Great Britain, the United States, and France. Many young German authors consider Proust, James Joyce, Virginia Woolf, Graham Greene, and, above all, Hemingway, as their models. Translations of American works were not, however, being restricted to fiction, dramas, and best-sellers. First novels, such as Foster Fitz-Simons' *Bright Leaf* and Max Steele's *Debbie*, were included. Reviews were largely favorable, and German readers continued to learn with astonishment of the diversity of the American scene.

Miscellany.—Reinhold Schneider wrote *Verhüllter Tag*, an autobiography. Gerhard Ritter's *Carl Goerdeler und die deutsche Widerstandsbewegung* bespeaks a revolt of conscience in Hitler's Germany against the triumph of power and evil. Theodor Plievier, author of *Stalingrad, Moscow, Berlin*, and other works, died at Avenigo, Switzerland, on March 12, 1955.

Hermann Hesse received the peace prize of the German Book Trade at the Frankfurt Book Fair in October 1955. Bert Brecht received the Stalin Peace Prize in Moscow.

In the first half of 1954, West German book production was second only to that of England. In 1953, 15,738 titles had appeared in West Germany, 13% more than in 1952. Belles-lettres took first place, accounting for 17.7% of the total.

F. E. COENEN,

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GERMANY. After Germany's unconditional surrender on May 7, 1945, the United States, Great Britain, France, and the Soviet Union established on June 5, 1945, an Allied Control Council in Berlin to assume the functions of a German government. The authority of the council never extended, however, to all of Germany as it had existed in 1937 before Hitler began his conquests, for the Russians annexed the north-eastern part of East Prussia and turned over all of the German lands east of the Oder and Neisse rivers to Polish administration (total area of both territories: 44,700 square miles).

The failure of the Allies of World War II to develop a common policy in Germany resulted in the emergence of two separate states from the military occupation zones of the Western powers and the Soviet Union: the German Federal Republic in the west (Sept. 21, 1949) and the German Democratic Republic in the east (Oct. 11, 1949). The city of Berlin, established in 1945 as an inter-Allied zone and the seat of the Allied Control Council, is, at least in its western sectors, not an integral part of either state.

The reunification of Germany has remained not only the wish of the East and West German populations, but also the actively pursued aim of the Bonn (capital of the Federal Republic) and Pankow (suburb of East Berlin and capital of the Democratic Republic) governments. The Western insistence on free elections in East and West Germany as the only method for the creation of a single German government was rejected by the USSR, which demanded the withdrawal



U.S. EMBASSY, BERLIN

Dr. Hajo Holborn (at left), the author, meets Dr. Otto Suhr, elected lord mayor of West Berlin, Jan. 11, 1955.

of the North Atlantic Treaty Organization (NATO) forces from Germany and the neutralization of the country. The "Summit Conference" of the Big Four heads of government at Geneva (July 18-23, 1955) recognized that the problem of German unity, together with that of European security, constituted one of the chief issues to be resolved in the interest of general peace; but the later efforts at Geneva of the Big Four foreign ministers (October 27 to November 16) resulted in a deadlock on all major issues. (See GENEVA CONFERENCE.)

Area and Population.—That part of Germany occupied by the Big Four powers in 1945, excluding the Saar (see below, *Foreign Affairs*), has a total area of 136,692 square miles, as compared with a pre-World War II Germany (1937) of 181,392 square miles. Owing to the influx of 12 million Germans from eastern European countries and from the German provinces east of the Oder-Neisse line, the present area has a larger population than that of prewar Germany. According to an official West German estimate published on Jan. 4, 1955, the population of Germany is 70,621,600, with 49,652,000 in the Federal Republic (94,719 square miles), 17,600,000 in the Democratic Republic (41,631 square miles), 2,194,600 in West Berlin (186 square miles), and 1,175,000 in East Berlin (156 square miles). Official figures from West German sources indicate that in August 1955 the population of the Federal Republic exceeded 50 million. The population of East Germany, however, has shown little or no growth since the official census of Aug. 31, 1950, because of the large exodus of people from the eastern to the western zones.

According to the population estimate of Dec. 31, 1953, eight West German cities had more than half a million inhabitants: Hamburg (1,722,819), Munich (906,497), Cologne (670,291), Essen (660,934), Frankfurt (601,747), Düsseldorf (594,481), Dortmund (580,892), and Stuttgart (566,009). The largest cities in the Democratic Republic (census of Oct. 29, 1946) are Leipzig (607,655) and Dresden (510,068).

Religion.—The census of Sept. 13, 1950, showed that in the Federal Republic 51.1% of the population was Protestant; 45.2%, Roman Catholic; and 3.7%, unaffiliated. No religious statistics have been published by the Democratic Republic since 1946, but it may be assumed that little change has taken place in religious affiliations. At that time more than 80% of the population was Protestant; 12%, Roman Catholic; and 6% unaffiliated. As a result of the large immigration of East Germans, the relative number of

Protestants in the Federal Republic must have been slightly higher in 1955 than in 1950.

GERMAN FEDERAL REPUBLIC (WEST GERMANY)

Government.—The German Federal Republic is a federal state composed of nine *länder* (states): Baden-Württemberg, Bavaria, Bremen, Hamburg, Hesse, Lower Saxony, North Rhineland-Westphalia, Rhineland-Palatinate, and Schleswig-Holstein. The constitution of May 23, 1949, divided governmental functions between the federal and *land* (state) authorities. Most of the public administration rests in the hands of the state governments, while legislative power is divided between federal and state governments.

The Federal Republic is headed by a president (Dr. Theodor Heuss, elected in 1949, re-elected in 1954) elected for five years by the federal parliament and representatives of the state parliaments. The chief organ of popular representation is the Bundestag, or Federal Diet, of 487 members elected by all West German citizens above the age of 21. The Bundesrat, or Federal Council, of 38 members serves as the consultative body of the nine states represented by members of their governments, which have, according to their populations, 3 to 5 votes each.

The federal government has been led since Sept. 15, 1949, by Dr. Konrad Adenauer (q.v.), the leader of the Christian Democratic Party (CDU). After his first four years in office, Chancellor Adenauer gained an overwhelming popular endorsement of his policies in the federal elections of Sept. 6, 1953, with the CDU winning 50.1% of the vote. His cabinet, which includes members from the smaller parties of the right, commanded until 1955 a two-thirds majority in the Bundestag and Bundesrat.

The Bundestag, as elected in 1953, has 244 members of the CDU, 48 Free Democrats, 15 members of the German Party, 27 of the Refugee Party (All-German Bloc), 2 of the Center Party, and, in the opposition, 151 Social Democrats (SPD). Among the members of the cabinet, Dr. Fritz Schäfer, minister of finance, and Dr. Ludwig Erhard, minister of economic affairs, have proved particularly influential. The chancellor gave up the portfolio of the foreign ministry after West Germany gained full sovereignty, and on June 6, 1955, Dr. Heinrich von Brentano was appointed foreign minister. Simultaneously, Theodor Blank became minister of defense.

Foreign Affairs. Role in Western European Security.—After the defeat (Aug. 30, 1954) by the French parliament of the Paris treaties of May 27, 1952, which had envisaged the creation of a European Defense Community (EDC), Great Britain, France, Italy, the Benelux countries, and West Germany concluded, with the assent of the United States, a new group of agreements in Paris on Oct. 23, 1954. West Germany was to become a member of the Western European Union (WEU), formed by Great Britain, France, and the Benelux countries in 1947 for their common defense. The WEU, which was made responsible for supervising the rearmament of West Germany, serves as the agency through which the military forces of the seven countries are to be integrated. In addition, West Germany was to become a member of NATO. For her own part, the Federal Republic had to authorize the Western powers to continue to station troops in West Germany. The French government of Pierre Mendès-France made its approval of the general treaties dependent on a Franco-German accord on the Europeanization of the Saar.

The West German debate over the treaties began in an atmosphere of great excitement. The Social Democratic opposition contended that West German acceptance of the treaties would establish the permanent division of West and East Germany. In its opinion, another attempt at negotiation with the Soviet Union should have been undertaken before rearmament was launched. The Social Democrats also took exception to the Saar agreement, and in this regard

they found allies among the chancellor's coalition partners, particularly the Free Democrats, but on Feb. 27, 1955, the Bundestag passed all the treaties and agreements over the dissenting votes of the Social Democrats. Only in the case of the Saar agreement did 53 members of the government coalition join the opposing minority. Bundesrat ratification took place on March 18, and on March 24 the president completed the West German ratification procedure. On April 28, 1955, the last signatory nation, the Netherlands, ratified the treaties; and on May 5, Great Britain and France presented their instruments of ratification in Bonn, whereby the Federal Republic became a sovereign state. On that day the Allied High Commission was dissolved, and on May 9, West Germany became the 15th member of NATO.

The impending Big Four "Summit Conference" in Geneva, the new Russian policy in respect to Austria, and finally the USSR's direct invitation to Dr. Adenauer to visit Moscow gave the parliamentary opposition fresh grounds upon which to argue against the implementation of Germany's pledge to arm. With great determination, Chancellor Adenauer tried to rush through parliament blanket powers for the start of West German rearmament before the Geneva Conference. Never before did the Bundestag and the Bundesrat assert their independence of Dr. Adenauer so strongly as in the case of this first piece of domestic legislation in military affairs. On July 22, however, after extended debate, the coalition parties passed their own two compromise bills. (See below, *Armed Forces*.)

The government's policy of close ties with the West and its rejection of direct negotiations with the USSR on reunification was approved by the Bundestag on December 2, following a two-day debate on foreign policy.

Relations with the Soviet Union.—On June 7, 1955, the Soviet government issued an invitation to the West German chancellor to visit Moscow in order to discuss the establishment of "diplomatic, trade, and cultural relations" between the two countries. After consultations with the Western powers, for which the chancellor went to the United States (June 13-18) and Great Britain (June 19), the Soviet invitation was accepted in principle, and agenda proposals, preparatory to negotiations, were made.

At the conference, held from September 9 to 13, the problems of German reunification and the return of war prisoners still held by the Soviet Union were discussed. The only major agreement reached, however, concerned the establishment of diplomatic relations between Bonn and Moscow. Dr. Adenauer also received a personal promise from Soviet Premier Bulganin that 9,626 prisoners would be returned to Germany.^{*} Before leaving Moscow, the West German chancellor stated in a letter to Premier Bulganin that acceptance of the agreement on the establishment of diplomatic relations did not imply the surrender of the Bonn government's claim to speak for all the German people, nor the recognition of the present frontiers of Germany. Three days later the Soviet government issued an official statement asserting that it considered the German frontiers to have been fixed by the Potsdam Conference of 1945, and that the East German government was legitimate. Although the Mos-

^{*} The return of prisoners began on September 9. On September 28 the Presidium of the Supreme Soviet announced that it was releasing all of the 9,626 German prisoners held in the Soviet Union.

cow agreement was received with disappointment in Germany, it was accorded the unanimous approval of the Bundestag on September 23.

Saar.—The Saar (q.v.), with an area of 991 square miles and a population of 959,649 (Jan. 4, 1955, est.) was separated from Germany after World War II and economically united with France under a semi-independent political regime. The coal-rich Saar depends for its food and for iron ore for its major industry, steelmaking, on neighboring French Lorraine. France, for her own part, would like to see the Saar's coal and steel capacity added to her own in order to counterbalance the great coal and steel potential of Germany. The people of the Saar are, however, German; and, though they have not shown any strong dissatisfaction with the post-World War II regime, they do wish to maintain their ties with Germany. French Premier Mendès-France hoped for a solution of the Saar problem by a Europeanization of the Saar—a proposal to which Chancellor Adenauer reluctantly agreed on the condition that the new regime be limited to the period prior to a final German peace treaty and that it be approved by the Saar population.

The Saar statute, signed by West Germany and France on Oct. 23, 1954, envisaged the creation of a Saar district as a semiautonomous European territory under the WEU. The area was to be attached to the French customs and monetary zones, but given liberal economic intercourse with Germany. In addition, the approval of the Saar people was to be secured by a referendum held under the supervision of a neutral commission selected by the WEU.

Three months prior to the balloting, parties which favored the outright return of the Saar to West Germany and which had been banned until then by the premier of the Saar, Johannes Hoffmann, were to be admitted. Late in July pro-German Social Democratic and Christian Democratic parties, as well as a Democratic Party, appeared in the ring. The shrill nationalistic tone of their agitation, in which neutral observers heard unfortunate echoes of the Hitler period, was largely set by the leader of the Democratic Party, Heinrich Schneider, a former Nazi, who depicted the statute as a clever device for the complete separation of the Saar from Germany. As a result, the majority of the Saar electorate believed that their vote was one for or against Germany.

After some early riots, the referendum campaign was conducted in an orderly fashion, and the vote was taken on October 23 with 96.5% of the eligible voters participating. Of 640,742 valid ballots cast, 67.7% were counted against and 32.3% were counted for the proposed statute. The vote not only killed the plans for a "Europeanized" Saar, but also brought about the resignation on October 24 of Premier Johannes Hoffmann, who was succeeded by Heinrich Welsch. It was announced on November 14 that any further discussions of the status of the Saar would await the elections of a new Saar parliament, which took place on December 18. The three pro-German parties polled 63.9% of the vote, but fell short of the 75% majority by which alone they could erase constitutional restrictions on union with Germany.

Armed Forces.—With the passage of the rearmament law on July 23, 1955, the West German government was authorized to recruit 6,000 volunteers (3,000 officers, 1,500 noncommissioned officers, and 1,500 enlisted men) to begin



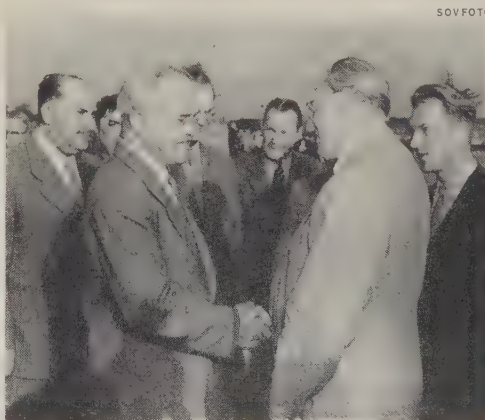
West German Chancellor Adenauer (right) shakes hands with Soviet Premier Bulganin, Sept. 13, 1955, following signing of agreement to establish diplomatic relations.

preparations for the organization of an army of 12 divisions, a tactical air force, and light naval forces. The initial induction of 101 members into the armed forces, which are to reach full strength of 500,000 by Jan. 1, 1960, was held on Nov. 12, 1955.

The rearmament law provided for a committee of 38 members, selected by the government and approved by the parliament, to pass on all officers' commissions of the rank of colonel and above. On July 26, Lieut. Gen. Hans Speidel, Field Marshal Rommel's chief of staff in World War II, was appointed West German representative to Supreme Headquarters, Allied Powers, Europe (SHAPE) in Paris; and Lieut. Gen. Adolf Heusinger, wartime chief of operations in the German High Command, became head of the planning division of the Ministry of Defense. On October 6 the Civilian Defense Council, chosen from the cabinet and headed by Chancellor Adenauer, was established to supervise the rearmament program.

Political Developments.—There has been a recent trend toward the growth of the two major parties, the CDU and the SPD, at the expense of smaller parties. Both the Communist and extreme rightist parties have lost a large proportion of their following. State elections were held in Lower Saxony on April 24, 1955, in Rhineland-Palatinate on May 15, and in Bremen on October

East German Premier Grotewohl (r.), here greeting Soviet Foreign Minister Molotov, arrives in Moscow, Sept. 16, 1955, for talks establishing East German sovereignty.



9. In the first two, the SPD lost slightly as compared with previous elections in 1951 and 1953, whereas the CDU strengthened its vote. In the Bremen elections both the CDU and the SPD gained considerably, the latter gain being due largely to the popularity of the SPD's moderate local leader, Mayor Wilhelm Kaisen.

The Free Democrats, among the parties to the right of the CDU, have shown declining strength in elections, and the continued existence of the Refugee Party has been threatened. The latter party was founded to represent the claims and interests of the 12 million German refugees in the Federal Republic, but it never succeeded in attracting all or even the majority of them. In addition, it has been torn in its policies by the conflict between the aims of nationalism and social improvement. The latter aim has made participation in CDU governments desirable, and the Refugee Party is represented both in federal and state coalitions. The integration of the refugees into the normal economic and social life of the country has weakened the party and brought about a conflict in its policies. On July 11, 1955, the majority of the party refused to support the legislation aimed at the early beginning of German rearmament, and two Refugee Party cabinet members tendered their resignations. A party convention in October proclaimed the official withdrawal of the party from the CDU coalition in Bonn, and about 19 of the 27 Refugee members of the Bundestag have terminated their cooperation with the government, thereby, presumably, depriving Dr. Adenauer of his two-thirds Bundestag majority.

On December 12, Dr. Otto John, former head of the state security office, who had deserted to East Germany in 1954, returned and put himself in the hands of the security branch of the criminal police.

Education.—The West German educational system is based in all states on the *Volksschule* (public school) of 8 grades. After passing through the first four grades, about 20% of the children change either to "middle" schools, which prepare in a six-year course for practical occupations, or the "higher" schools, which in a nine-year course prepare for study at higher academic institutions. In the school year 1953-54, 5,240,567 children attended 29,990 public schools and were taught by 131,780 teachers (Hamburg and Bremen excluded). There were 731 "middle" schools with a school population of 290,267 pupils and 9,346 teachers, and 1,541 "higher" schools with 728,098 pupils and 32,706 teachers. In Hamburg and Bremen, following the American model, the various schools are more closely integrated (479 schools, 9,387 teachers, and 299,153 pupils). West Germany has 8,329 vocational schools with 31,045 instructors and 1,284,613 students, and 80 teacher-training colleges with 770 professors and 11,837 students. There are also 15 universities, 7 institutes of technology, 25 specialized academic institutions (church, commercial, agricultural, veterinary, mining, and labor academies), and 17 academies of fine arts and music with 119,470 students.

Finance.—The West German currency (1 Deutsche mark = U.S.\$0.2381) shows great stability. On July 1, 1955, the reserves of the German Central Bank amounted to DM11.44 billion, an 86% coverage of the active circulation of notes. The federal budget for fiscal year 1955-56 provided for expenditures totaling DM30.6 billion, including DM9 billion for defense. Of these, DM3.8 billion are to go to the Western Allies as

"stationing cost" for their forces in West Germany, and the remainder is to be used for rearmament. The budget for fiscal year 1956-57 lists expenditures of DM32.6 billion, with defense costs remaining DM9 billion. No stationing cost, however, will be paid.

Economic Developments.—The expansion of the West German economy after the currency reform of 1948 went through two periods. The first, ending in 1951, was characterized by the progressive utilization of the existing industrial capacity, while the second saw industrial capacity expanded beyond prewar levels. The year 1955 may have been the last in which a numerical increase of the labor force was possible and, in which the rate of expansion was further accelerated. In 1954 the increase in the gross national product, estimated at \$34,524,500,000, was 8%. Another 8% increase was expected for 1955, but the increase for 1956 is expected to drop to 7%. The index of industrial production (1948 = 100) was 180 in 1950, 216 in 1951, 231 in 1952, 251 in 1953, 282 in 1954, and 315 in July 1955. The monthly average for the first half of 1955 showed that industrial production has almost doubled over that of 1936.

Employment.—Employment rose from 14,608,000 in 1951 to 16,286,000 in 1954. Unemployment fell from 1,432,000 to 1,221,000 in the same period. In September 1955 there were 17.8 million employed, whereas the number of unemployed sank to 494,994. Scarcity of labor is particularly pronounced in the western and southwestern parts of the Federal Republic and in certain branches, such as the construction, iron and steel, and coal mining industries. Labor shortages will grow once German rearmament fully begins.

Cost of Living, and Income.—The cost of living index (1948 = 100) was 108 in 1953 and 1954. By August 1955 it had risen to 110. The estimated national income was DM103.7 billion in 1953 and DM112.3 billion in 1954. New investments rose from DM29.9 billion to DM32.4 for the same period. Private consumption increased from DM77.7 billion in 1953 to DM84 billion in 1954, and public spending rose from DM18.8 billion to DM20.2 billion. The wage index has risen (1938 = 100) from 177.4 in 1951 to 191 in 1952, 201.3 in 1953, and 210 in 1954. Since spring 1955 a further increase became noticeable (223.9 in July), which has raised some apprehension that a large improvement of wage levels could start an inflationary wage-price spiral. Average weekly working hours for male workers rose to 50.1 hours in May 1955 and declined for female workers to 46.1; average weekly pay was DM96.97 and DM56.13, respectively.

Agriculture.—The total arable land in West Germany is 19,995,737 acres. The bread grain crop for 1954-55 was (in 1,000 metric tons): rye, 4,098; wheat and spelt, 2,892; and mixed winter grain, 178. The feed and industrial grain crop for the same period was: barley, 1,919; oats, 2,473; and mixed summer grain, 1,010. In 1953 the potato harvest equaled 24,535,000 metric tons and the sugar beet harvest, 8,422,000 metric tons. Agricultural production has been raised by 21% above the average production for the years 1935 to 1938, and 100% above 1948 production. Grain production in 1955 was estimated to be 3% higher than in 1954.

Industrial Production.—Among West German industries in the first half of 1955, the food and stimulants industries, with a turnover of DM11.4 million, took first place, followed by the machine

construction industries (DM6.9 million) and the chemical industries (DM6.7 million). Coal mining constitutes somewhat of a bottleneck for German industrial production. The increase in coal production (1950, 111,137 million metric tons; 1951, 119,925; 1952, 124,802; 1953, 124,472; 1954, 128,035; and 1955 est., 131) falls behind the demands of West Germany and the European Coal and Steel Community. Coal and coke exports amounted in 1954 to 28 million metric tons. In spite of the additional production of lignite (87,811,000 metric tons in 1954; 43,560,000 in the first half of 1955), the need for coal imports is great. In 1954 they rose to 9,285,000 metric tons and are estimated at 13,000,000 for 1955, of which at least 4,000,000 will come from the United States. Crude steel production in 1954 reached 17,434,000 metric tons, and pig iron output was 12,512,000 metric tons. In the first half of 1955 production was 10,280,000 and 7,930,000 tons, respectively. Oil production in 1954 amounted to 2,666,000 tons and is estimated to rise to 3,000,000 tons in 1955, covering about 30% of the rather low West German oil consumption.

An unusual expansion was shown by the automobile and shipping industries. In 1954, 510,000 motor cars and 115,000 trucks were produced, of which 43% were exported. In the first half of 1955 production was 20% higher, and West Germany became the world's third largest producer of motor vehicles. The index of production of the shipping industry was 121.7 in 1954 as compared with 100 in 1936, with 256 sea-going vessels (893,536 gross registered tons) and 123 inland transport vessels (81,789) built. Almost 45% of production was exported, which made West Germany the world's largest exporter of ships.

Foreign Trade.—West German imports and exports in 1954 totaled DM19,337 and DM22,035 billion, leaving an export balance of DM2,698 billion. Of the imports, 37% were foodstuffs and 63% industrial commodities (28.5% raw materials and 18% half-finished goods); of the exports, 2.3% were agricultural products and 97.7% industrial products (7.7% raw materials and 13.1% half-finished goods). Of all imports, 11.5% came from the United States; 7.9%, from the Netherlands; 5%, from France; 4.7%, from Sweden; 4.5%, from Belgium-Luxembourg; and 4.4% each, from Great Britain and Italy. Of West German exports, 9.3% went to the Netherlands; 7.2%, to Belgium-Luxembourg; 6.7%, to Sweden; 6%, to Italy; 5.7%, to Switzerland; 5.6%, to the United States; and 5.4%, to France. In 1955, exports and imports grew considerably, but owing to the servicing of foreign debts, greater coal imports, and generally higher demands, imports rose more strongly. In the first eight months of 1955 the export surplus was only one third of that of the same period in 1954 (DM692 million and DM2,092 million, respectively).

Transportation and Communications.—On Jan. 1, 1955, registered motor vehicles of all types in West Germany numbered 4,449,971, of which 571,282 were trucks, 1,512,029 were cars and ambulances, 2,341,795 were motorcycles and scooters, and 24,865 were buses. In March 1945 the Federal Republic had 79,622 miles of roads, of which 1,377 were superhighways (Autobahnen) and 15,000 were federal highways. The total railway mileage as of July 1, 1954, was 18,966; and the total length of navigable rivers and canals was 2,654 miles. (See also CANALS.)

The Deutsche Lufthansa resumed national flights on April 1, 1955; European flights, May 15; and transatlantic flights, June 6. On Jan. 1, 1954, West Germany had 3,255,971 telephones, and on August 1 there were 12,522,520 radios and 40,980 television sets.

WEST BERLIN

Political Developments, 1955.—The control of the three Western Allies over West Berlin and its 2.2 million citizens continues to be based on the four-power agreement of 1945. West Berlin, although sending 22 non-voting representatives to the Bundestag and Bundesrat, is not a state of the Federal Republic, nor did it gain sovereignty along with the Federal Republic on May 5, 1955. On that day, however, the occupation regime of West Berlin was further liberalized by a proclamation of the three Allied military commanders. Legislation can now be passed without prior approval of the occupation authorities, although they continue to reserve the right of veto in all matters affecting the maintenance of the Four Power Statute.

The temporary detention on November 27 of two United States congressmen in East Berlin under an East German law was explained by the Soviet commandant two days later on the ground that the Soviet occupation of East Berlin had ended. Since this endangered the four-power agreement and West Berlin's connections with West Germany, the three Western powers sent a protest to the USSR on December 1. The Soviet position was reaffirmed in notes sent to the Western powers on December 14 by Georgi M. Pushkin, Soviet ambassador to East Germany.

City elections of Dec. 5, 1954, gave the Social Democrats 64 out of 127 seats in the West Berlin parliament. They formed a government, together with the Christian Democrats, under the leadership of the Social Democrat, Dr. Otto Suhr, who was elected lord mayor on Jan. 11, 1955.

Economic Affairs.—West Berlin's recovery is greatly handicapped by its isolation within the Soviet zone. A restoration of its economic life has been possible only with substantial assistance from the United States (DM2.4 billion in the years 1949-55) and the German Federal Republic. On March 30, 1955, the East German government raised the toll fees more than 11 times on the Autobahn which connects Berlin with West Germany. In long negotiations between the four powers only small concessions were achieved on July 4 and 10.

In spite of these new difficulties, progress was made in the development of West Berlin's economic life. The production index (1936 = 100) reached 64 in 1953, 76 in 1954, and 110 in September 1955. Only 1% of West Berlin's industrial production goes to the Soviet zone, whereas 59% goes to the Federal Republic, 10% is exported, and 30% is used in West Berlin. Exports amounted to DM214.9 million in the first half of 1954, DM246.8 in the second half, and DM216.42 in the first half of 1955. The Netherlands took DM20.62 million, Sweden, DM18.01, Switzerland, DM13.48, and the U.S., DM12.41 in 1954. In production and exports, the electrical equipment, machine, and chemical industries are by far the most important, followed by the precision instruments and optical industries. By September 1955 the number of unemployed had fallen to 115,861 from 312,000 in February 1950.

GERMAN DEMOCRATIC REPUBLIC
(EAST GERMANY)

Government and Political Events, 1955.—In 1955 the German Democratic Republic received from the Soviet leaders further promises of continued political support. It is the present line of the Soviet government that two legitimate governments exist in Germany and that German unification will have to be worked out chiefly by the cooperation of the Bonn and Pankow governments. Meanwhile the government of Premier Otto Grotewohl and Deputy Premier Walter Ulbricht poses as the true government of all the German people.

The Democratic Republic follows in its constitution the general pattern of a people's democracy. The Communist political organization, the Socialist Unity Party (SED), is by far the most powerful party. Four bourgeois parties—the Liberal Democratic Party (LDPD), the Christian Democratic Union (CDU), the National Democratic Party (DNPD), and the Democratic Peasants Party (DBD)—are officially tolerated, but must adhere to the government line.

The Democratic Republic has in the Volkskammer (People's Chamber) a rubber-stamp parliament, which passes all legislation unanimously. For elections, a "unity list" (National Front) of candidates is drawn up, with the majority taken from the SED. This system precludes any possibility of a democratic election taking place. In the elections of Oct. 17, 1954, 11,892,849 votes were cast. Of these, 11,828,877 were for the National Front candidates and 63,972 were declared invalid. The president of the Democratic Republic is Wilhelm Pieck, elected on Oct. 11, 1949, and re-elected on Oct. 7, 1953.

Immediately following Chancellor Adenauer's visit to Moscow, Grotewohl, Ulbricht, Foreign Minister Lothar Bolz, and other East Germans were received in the Russian capital on Sept. 16, 1955. On September 20 a treaty was signed by Soviet Premier Bulganin and Grotewohl, recognizing the full sovereignty of the German Democratic Republic in domestic matters and in foreign affairs, including relations with the Federal Republic. The East German government gave its approval to the continued stationing of Soviet troops in East German territory. Both governments agreed to develop further their "economic and scientific-technical cooperation" and to make the reunification of Germany their major common aim.

On September 26 the Volkskammer ratified the Soviet-East German treaty and proceeded with an amendment of the constitution providing for armed forces. Since armed forces are already in existence, the resolution was chiefly a political gesture and a preparatory step to the introduction of universal conscription. For five years or more, military cadres have been built in the form of police "alert units" (*Bereitschaften*). They number over 100,000 men, with 90,000 to 100,000 in the army, 10,000 in the navy, which operates mine sweepers and torpedo boats, and from 7,000 to 10,000 in the air force, which has begun flying Russian MIG-15's.

The withdrawal of Soviet forces from the frontier with West Germany and their replacement by East German border police began in September. The process was completed on December 1.

Economic Affairs.—In 1950 a five-year plan was launched, designed to double the output of the East German economy. The plan was revised in 1953 in order to bring the building of heavy industries in line with actual capacity and to improve the living standard of the population. Only 80% of the goals were achieved, however, and the revised plan proved unattainable in its two-fold objectives.

The disproportion between the development

of industrial and power production was not overcome in 1954. Steel production totaled 2,255,000 metric tons; brown coal production (175 million metric tons in 1953) was hardly increased; and the small output of coal (3.2 million metric tons in 1951) fell off slightly. Instead of a planned 740,000-kilowatt increase, only 441,000 additional kilowatts of electric power were added. Consequently the existing industrial capacity could not be fully used. No improvement in the production of consumption goods was achieved in 1954, nor was rationing abolished as promised. Owing to the agrarian policy (which aims not only at the collectivization of the farms, but also at a shift in emphasis from grain production, to cattle raising) the grain harvest sank from 4.7 million tons in 1953 to 4.5 million tons in 1954 (6.7 million tons in 1936). East Germany required grain imports of 1.4 million tons, of which the USSR could deliver only 74%.

The German Democratic Republic was also struggling with great financial difficulties in 1955. It gained nothing from the ending of reparations to the Soviet Union on Jan. 1, 1954, since the latter country continued to take much heavy industrial production. Although these goods were to be delivered within the terms of the Soviet-East German trade treaty, price and exchange dictate limited profits. In addition, new payments were required for settling former Russian credits or for covering new obligations, such as the 50% participation in the uranium mines of East Germany, which was "magnanimously" offered by the Soviet Union. As a result, the investment plans of the East German government could only partly be fulfilled.

The foreign trade of East Germany increased from the equivalent of \$1,715 million in 1953 to \$2,580 million in 1954. Within the Eastern bloc, East German trade was exceeded only by that of the Soviet Union (\$6,250 million). Over 70% of the exchange of goods in 1954 was with the Eastern bloc, and over 40% alone was with the Soviet Union.

The economic plan for 1955, the supreme law of the Democratic Republic, which was passed by its parliament in May, provides for an increase in production of 5.1%. It is questionable whether this goal will be reached in the spring of 1956, when a second five-year plan will begin. Soviet advisers have demanded a target of a 75% increase in production for this plan, but the East Germans consider an increase of 35% as the maximum.

As a result of the international developments, which apparently have dashed hopes for reunification, the stream of refugees from East to West Germany increased after the summer of 1955. In August, 25,690 people crossed the frontier; in September, 28,183, and in October, 32,874, a two-year high mark. The Bonn government announced on Aug. 28, 1955, that 2,300,000 refugees had fled East Germany since 1949.

(For further references, see the Index entry, *Germany*.)

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GERONTOLOGY. See Index entry.

GIBRALTAR. Commanding the western entrance to the Mediterranean, this famous British outpost and crown colony had a civilian population of 24,921 in 1954. It occupies an area of 2½ square miles at the end of a low isthmus connecting it with Spain, the fortress rising to 1,400 feet above sea level, with an Admiralty

harbor occupying 440 acres at the base. A large-scale public works program to improve the port facilities and increase trade is under consideration.

On Jan. 1, 1955, Gibraltar was officially established as a subcommand of the North Atlantic Treaty Organization (NATO). The strategic position of Gibraltar as a naval and air base, covered by the guns of the fortress, gives "the Rock" a vital role in both the Mediterranean and eastern Atlantic defenses of NATO.

A governor (Lieut. Gen. Sir Harold Redman, appointed May 20, 1955) is assisted by a 7-member Executive Council and a 10-member Legislative Council (5 elected). Revenue in 1954 totaled £1,058,216; expenditure, £1,046,709. A government lottery brings in approximately £100,000 in revenue each year. In 1954, £65,287 was expended in the maintenance of 16 kindergarten and primary schools (2,375 pupils), and 6 secondary schools (1,188 pupils).

Industries, apart from the naval dockyard, include fish and fruit canning, and the manufacture of tobacco, coffee, macaroni, and confectionery. The labor force includes some 8,300 men and 4,500 women from adjacent Spanish towns, who enter and leave Gibraltar daily. Exports of dutiable goods were valued at £729,381 (exclusive of petroleum products) in 1954; imports (principally from the United Kingdom), £6,493,686. Highways aggregate 17 miles. British European Airways provides daily services to Tangier and to London.

GILBERT AND ELLICE ISLANDS. See WESTERN PACIFIC ISLANDS, BRITISH.

GLAND DISEASES. See ENDOCRINOLOGY.

GLASS. See CERAMICS and Index entry, *Glass Industry*.

GOLD. Mine production of gold in the United States declined 6% in 1954, to 1,831,741 ounces compared with 1,958,291 ounces in 1953. Production of 1,555,248 ounces during the first 10 months of 1955 indicated a very slight gain. South Dakota, Utah, Alaska, and California together produced 78% of the total in 1954. Over half of the gold is produced from direct mining operations, and the remainder is recovered as a byproduct of base-metal ores.

Canada.—Production in the first half of 1955 was 2,215,152 ounces, compared with 2,092,096 in the same period of 1954 and 4,366,506 ounces for the full year 1954.

Union of South Africa.—The world's leading gold producer mined 10,885,119 ounces in the first 9 months of 1955, compared with 9,723,529 ounces in the same period of 1954 and 13,237,119 ounces during the full year 1954. (See MINERAL PRODUCTION for output of major countries.)

GOLD COAST. See BRITISH WEST AFRICA.

GOLDEN, John, American theatrical producer and playwright: b. New York, N.Y., June 27, 1874; d. Bayside, Queens, N.Y., June 17, 1955. One of the theater's most successful producers, whose productions were notable for their clean unsophisticated humor, he was also known as a writer of song lyrics and of plays.

Taken to Wauseon, Ohio, as an infant, John Golden received his early schooling there, but returned to New York City at the age of 14. During the next two decades, while seeking to establish himself in a career, he studied architecture, attended the New York University Law School, became a highly successful salesman, worked as an actor, and wrote songs, sketches, and plays.

In 1908 he finally abandoned all other activities for the stage, and in the following year wrote one of his earliest successes, *The Candy Shop*, which established itself as a stock company favorite.

In the following decade he wrote the books and lyrics for four Hippodrome shows: *Hip, Hip, Hooray* (1915), *The Big Show* (1916), *Cheer Up* (1917), and *Everything* (1918), one of which included the song, *Poor Butterfly*. A second song hit, *Goodbye Girls, I'm Through*, from *Chin Chin*, helped finance his first venture as a Broadway producer. The play, *Turn to the Right* (1916), written by Winchell Smith, marked the successful beginning of a collaboration with Golden which extended through *Three Wise Fools* (1918), *Lightnin'* (1918), which ran for 1,291 consecutive performances, and *The First Year* (1920). On his own, Golden produced the long-running *Seventh Heaven* (1922), but in 1925 he rejoined Smith to present Marc Connelly's *The Wisdom Tooth*. Golden's felicitous collaboration as producer with the playwright Rachel Crothers resulted in *Let Us Be Gay* (1928), *As Husbands Go* (1931), *When Ladies Meet* (1932), and *Susan and God* (1937). During this period he also presented such other successes as *Counselor-at-Law* (1931), *Skylark* (1939), *Claudia* (1941), and *Three Is a Family* (1943), his seventh play to run for over a year on Broadway. Revivals of *They Knew What They Wanted* (1949) and *The Male Animal* (1952) were among his last offerings as a producer.

Golden served during World War II as director of the American Theatre Wing, for the entertainment of servicemen, and of the United Service Organization's Camp Shows, and was the sponsor of playwrighting contests among service personnel. The War Department awarded him its highest civilian award for his services.

GOLF. See SPORTS, GAMES, AND SHOWS.

GOVERNMENT DEPARTMENTS AND AGENCIES.

See Index entry; also separate articles on the major government agencies and bureaus.

GOVERNMENT PRINTING OFFICE, U.S. Created by Congressional Joint Resolution 25 on June 23, 1860, the Government Printing Office has since come to comprise the largest and best-equipped printing plant in the world.

The Government Printing Office executes orders from units of the federal government for printing and binding; furnishes, on order, blank paper, inks, and similar supplies to all governmental activities; distributes government publications as required by law, and maintains necessary catalogues and a library of these publications; and prints, for sale to the public, such documents as are not of a confidential nature.

The total area occupied by the Government Printing Office proper in 1954 was 32.1 acres. During the fiscal year 1955, it was necessary to place orders with outside contractors for printing in the amount of \$19,723,386.73, as the Government Printing Office was unable to handle the volume of printing ordered. The value of the buildings in 1955 was \$9,085,172.60, and of machinery and equipment and building appurtenances, \$15,262,095.16.

During the fiscal year 1955, there were 6,806 employees on the rolls with a payroll of \$33,618,755.05. The office made charges for 526,528,507 copies of publications of all classes. This total included 6,066,080 copies of the *Congressional Record*; 3,698,845 copies of the *Federal Register*; 5,399,066 copies of specifications of patents,

trademarks, designs, etc.; and 353,083 copies of the Patent Office's *Official Gazette*. The number of postal cards printed amounted to 2,424,360,084. The Division of Public Documents mailed out approximately 47,428,137 publications; its receipts from the sale of government publications during the year amounted to approximately \$5,508,904.26. Charges made to Congress and all other government agencies totaled \$77,261,053.75.

RAYMOND BLATTENBERGER,
Public Printer.

GRAINS. Grain production in the United States increased during 1955. The harvest of the eight food and feed grains totaled 162 million tons, 3% more than in 1954 and 5% more than the 1944-53 average, according to the Agricultural Marketing Service. The 130 million tons of feed grains was second only to 1948. The oats crop established a record; barley and sorghum grain production was near record; and the corn crop was above average. Food grain production, on the other hand, was the smallest since 1943. The rice crop was the second largest of record, but the wheat crop was the smallest in 12 years. Rye production was above average, but the buckwheat crop was extremely small.

Production of the major grains in the United States has exceeded use in recent years, and stocks have been built up to higher levels than ever before, creating serious surplus problems. At the beginning of the crop year, 1,021 million bushels and 26.7 million hundredweight of rice were on hand from preceding crops. The feed grain carry-over totaled a record 38.9 million tons, including 1,024 million bushels of corn. Most of these stocks had been acquired by the government under the price support programs.

The world harvest of the principal food and feed grains also was large in 1955. Wheat and rye production in 1955-56 totaled 261 million short tons, according to preliminary estimates of the Foreign Agricultural Service. This was 4% above 1954-55 and close to the record of 1953-54. The rice harvest increased 3% and was only 2½% below the record. Corn production was at a new peak, while the output of oats and barley was the largest of the post-World War II period.

WHEAT PRODUCTION, BY PRINCIPAL COUNTRIES (1,000 bushels)

	Average 1945-49	1954	1955*
United States.....	1,202,396	984,846	938,159
Canada.....	362,774	308,909	494,090
France.....	238,200	388,220	385,000
Italy.....	227,200	266,400	338,000
India.....	212,336	293,920	317,330
Turkey.....	125,089	180,040	260,000
Argentina.....	193,740	282,560	240,000
Australia.....	177,742	166,610	210,000
Spain.....	116,700	180,000	150,000
Pakistan.....	129,017	137,500	118,000
World total.....	5,895,000	6,945,000	7,300,000

* Preliminary. Years shown refer to years of harvest in the Northern Hemisphere. Harvest in the Northern Hemisphere is combined with that in the Southern Hemisphere which follows immediately. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

Wheat.—The 1955 crop in the United States was estimated by the Agricultural Marketing Service at 938,159,000 bushels, 5% below 1954 and 19% below average. The crop was harvested from 47,222,000 acres, 13% less than in 1954 and nearly a third below average. Marketing quotas and acreage allotments restricted acreage for the second consecutive year. Yield per har-

vested acre was a record 19.9 bushels, 1.8 bushels more than in 1954. The crop included 705,372,000 bushels of winter wheat, 212,188,000 of spring wheat, and 20,599,000 of durum. Although production was reduced in 1955, the carry-over of old wheat boosted the total supply to 1,959 million bushels, largest in history.

World wheat production in 1955-56 was estimated at 7,300 million bushels, compared with 6,945 million in 1954-55 and only a little below the 1952 record. The increase over 1954-55 was largely accounted for by larger crops in Canada and the Soviet Union. Supplies of wheat in the four principal exporting countries—United States, Canada, Australia, and Argentina—reached a new high.

RICE PRODUCTION, BY PRINCIPAL COUNTRIES (Million pounds, rough)

	Average 1945-46 to 1949-50	1954-55	1955-56 ¹
India.....	76,000	85,000	85,000
Japan.....	24,734	24,988	30,000
Pakistan.....	26,889	28,266	28,500
Thailand.....	11,978	12,900	17,000
Philippines.....	4,872	7,061	7,162
United States.....	3,548	5,885	5,023
Formosa.....	2,897	4,461	4,900
Nepal.....	2,500	2,200	2,400
World total ²	225,782	261,334	270,211

¹ Preliminary. ² Excludes Communist China, North Korea, and the USSR. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

Rice.—The 1955 production of 53,420,000 bags (100 pounds each) in the United States was less than in 1954 but higher than in any other year. Acreage allotments and marketing quotas were in effect and the 1,822,000 acres from which the crop was harvested was 28% less than in 1954. However, the record yield of 2,932 pounds per acre was 406 pounds above 1954.

A world crop of 270,000 million pounds of rice was estimated for 1955-56 (excluding Communist China, North Korea, and the Soviet Union). This was 3% above the preceding year and 2½% below the 1953-54 record. Largest increases were in Asia, which accounted for 88% of the world total.

Rye.—Acreage from which rye was harvested in the United States in 1955 totaled 2,066,000, a fifth more than in 1954. The yield of 14.1 bushels per acre was slightly lower than in 1954, but 2 bushels above average. The crop of 29,187,000 bushels was one fifth above 1954 and a third larger than average. Only about 41% of the acreage seeded to rye was harvested for grain. The remainder was used for pasture, hay, cover, or plowed under for green manure.

The world rye crop for 1955-56 was estimated at 1,505 million bushels, 30 million less than in 1954-55 and 25 million less than the 1945-49 average.

Buckwheat.—The 2,055,000 bushel 1955 crop in the United States was a fourth less than that of 1954 and the smallest of record. Only 117,000 acres were harvested. Yields were about average.

Corn.—The United States crop of 3,184,836,000 bushels in 1955 was 175,000,000 more than in 1954 and the sixth largest of record. Acreage in corn has been decreasing for several years, and the 72,955,000 harvested in 1955 was 1% less than in 1954 and 6% less than average. However, rising yields have more than offset the decline in acreage. The 1955 yield was 39.8 bushels per acre, compared with 37.5 in 1954 and the average of 36.4. Production of corn for

grain in 1955 was estimated at 2,857 million bushels from 69.3 million acres. Of the remaining acreage, 6.8 million was used for silage and 3.8 million were harvested for forage, hogged off or grazed.

Preliminary estimates indicated a 1955-56 world corn crop of 6,060 million bushels, slightly above the 1948 record and 10% above 1954-55. Most of the increase was in the United States and in the Soviet Union where corn production is receiving increasing emphasis.

OATS PRODUCTION, BY PRINCIPAL COUNTRIES
(1,000 bushels)

	Average 1945-49	1954	1955*
United States.....	1,376,527	1,497,045	1,575,736
Canada.....	341,612	306,793	409,991
France.....	221,821	246,220	244,140
United Kingdom.....	204,692	170,800	179,550
Germany, West.....	144,500	170,370	171,340
Denmark.....	67,820	55,115	57,250
Sweden.....	58,000	59,320	49,860
Finland.....	35,275	56,000	49,500
World total.....	3,931,000	4,295,000	4,335,000

* Preliminary. Years shown refer to years of harvest in the Northern Hemisphere. Harvest in the Northern Hemisphere is combined with that in the Southern Hemisphere which follows immediately. (Source: Foreign Agricultural Service, U.S. Department of Agriculture.)

Oats.—Record yields on the second largest acreage harvested in 9 years resulted in a record oats crop of 1,575,736,000 bushels in the United States, compared with 1,497,045,000 in 1954. The crop was harvested from 40,933,000 acres, 1.4 million less than in 1954. Yields averaged 38.5 bushels per acre, 3.1 bushels above 1954.

A world oats crop of 4,335 million bushels was produced in 1955-56. This was the largest crop since the end of World War II.

Barley.—Production in the United States in 1955 totaled 390,969,000 bushels, 20 million bushels more than the 1954 crop and the second largest on record. Acreage harvested was 14,247,000, compared with 13,183,000 in 1954, and was the fourth largest on record. Yields averaged 27.4 bushels per acre, compared with 28.1 in 1954.

World barley production in 1955-56 was estimated at 2,830 million, slightly more than in 1954-55 and well above the 1945-49 average of 2,170 million.

Sorghum Grain.—The 232,638,000 bushel crop of 1955 was almost up to the 1950 record for the United States. Harvested acreage totaled 12,597,000, compared with 11,218,000 in 1954; but the yield of 18.5 bushels per acre was below the 1954 average of 19.3. (See also AGRICULTURE.)

WAYNE DEXTER,
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GRAPEFRUIT. See FRUITS.
GRAPES. See FRUITS.

GRAPHIC ARTS. New technical developments covering various branches of the industry, together with advances in the application of former developments, were announced in 1955.

The latest addition to the Intertype Fotosetter is the setting of Indian Devanagari. Devanagari, alphabet of Hindi, official language of India, is derived from ancient Sanskrit, and is one of the most complicated languages in the world to put in written form. In hand type, until now the only method of setting, it requires 700 to 1,000 characters in a basic font. It utilizes almost unlimited combinations of accents attached to bottoms and

tops of basic characters to indicate precise gradations of spoken sound and pronunciation.

The Fotosetter Devanagari has reduced the basic font to about 175 characters, including numerals and punctuation. Accents are superimposed on the basic characters by adjusting the movement of the film on which the characters appear. It is done automatically through a system roughly similar to that of typewriter keys bearing accents that are dead and do not move the carriage when depressed.¹

A new process for gravure platemaking, named Uniprint, is said to reduce plate costs while maintaining high quality of reproduction. Uniprint is described as utilizing the photographic technique of making negatives, the transfer technique of the gravure industry, and the molding of the transfer into a rubber material to produce an intaglio plate of fine quality that offers resiliency and acceptance of ink ideal for printing on cellophane, cardboard, parchment, and fine publication papers. Quality reproduction has been attained, according to the announcement, on runs of up to 500,000 without loss of detail. No special press equipment is required, regular cylinders or tubes being used. The feature stressed is the comparative low cost of platemaking by this method, designed to open up wider markets for gravure on short or long runs.

New fibers for papermaking were announced by du Pont de Nemours & Company. It is claimed that papers made from these fibers are three to ten times stronger than paper made from the conventional pulp or rags. The new papers, made experimentally from nylon fiber, Dacron polyester fiber, and Orlon acrylic fiber, were described recently for members of the Technical Association of the Pulp and Paper Industry.

The unusual properties of synthetic fibers are carried over into papers made from them. They are highly resistant to chemical attack, absorb very little moisture, and resist action of molds, bacteria, and light. Stability of the papers to moisture indicates possible use as map and tracing papers, and for important records and documents where permanence is necessary. The resistance of these papers to folding was up to 200 times that of papers made from wood pulp or rags.

Called the Metalmist plate by Huebner Laboratories, a new flat-plane plate takes ink where it should and repels ink where it is not needed. Its basic advantage is in the achievement of perfect color separation without need for etching relief dots and images. Long printing runs with this plate will also be possible. The ultimate objective is a million impressions from one plate; the immediate objective, 25,000 to 50,000 impressions before it is offered to the trade.

The basic principle of the plate is not new. It was tried out 30 years ago in England, using mercury on the plate and in the ink to replenish the mercury used up in printing. Its use was stopped because of the health hazards involved in the use of mercury. The present method, however, is new since it employs no mercury, and also utilizes a new way to produce the ink-repellent surface. Experiments are under way to test the durability and maintenance of fine-quality ink impression.

The Kemart Corporation has announced the

¹ On the Fotosetter the desired result is accomplished by the varying widths of the Fotomats, which determine the distance the film moves, and positioning of the character on the Celluloid image of the Fotomat, which dictates the position of the characters in their relationship to each other.

new Kemart color separation camera and presses. Designed to simplify and reduce time required in color separation and correction, the camera produces three- and four-color-process plate copy, and can be used for either lithographic reproduction or letterpress. The package unit for color separation consists of camera, dimensionally stable photo paper, retouching aids, and all the necessary equipment and supplies for preparing process work.

Color transparencies and negatives in small sizes can be made with highlight and principal masks fully color-corrected in less than an hour. The single-mask system with filter-separated negatives takes about 30 minutes, including development and drying of the mask. Employed is the pin-register system developed by Eastman Kodak Co. for its short-run three-color litho process, which is said to insure exact register from the smallest subject to the largest mask or final negative. With this register, the mask is projected onto the negative to be corrected.

An interesting application of the role of the atom as a useful industrial research tool, and the application of tracer chemistry to a specific study undertaken for Gravure Research, Inc., are discussed by James M. Dugan of Battelle Memorial Institute, Columbus, Ohio, in a study of the mechanism of penetration of a carbon tissue resist undertaken by means of radioactivity analysis.²

"Many other gravure problems could be studied profitably by the use of tracer chemistry," Dugan concludes. "These include a study of the manner in which ink is transferred from a gravure cup, the spread of ink on paper, foils or plastics, and wear of a cylinder. The drying of ink is another problem particularly suited to this method of investigation."

(See also BOOK PUBLISHING AND SALES; JOURNALISM; MAGAZINE PUBLISHING.)

MELVIN LOOS,

In charge of Graphic Arts Courses, School of General Studies, Columbia University.

GRAPHITE. See MINERAL PRODUCTION.

GRAY, Carl Raymond, Jr., American government official and railroad executive: b. Wichita, Kans., April 14, 1889; d. St. Paul, Minn., Dec. 2, 1955. An executive of a number of railroad companies before World War II, during which he was in charge of military railroads in North Africa and Europe, he was administrator of veterans affairs from 1948 until 1953.

The son of a president of the Great Northern and Union Pacific railroads, he began a long career in railroading as a yard clerk with the St. Louis-San Francisco Railway Company, on graduation from the University of Illinois in 1911. After serving in World War I, in which he rose to the rank of lieutenant colonel, he was active in business in Chicago and Kansas City, Mo., into the late 1920's. In 1929 he became general manager of the Chicago, St. Paul, Minneapolis, and Omaha Railway Company, and in 1937, executive vice president.

In 1943-45 he was director general of mili-

² Previous studies indicate that the presence of the sulfate ion in an etchant speeds the rate of penetration of a resist. Dugan points out. To study the method by which this effect is obtained, an etchant was prepared containing three radioisotopes with different radiation energies, so that radiation from the three could be separated by the use of proper absorbers. Illustrations show the special arrangement of a tissue resist used in the experiment, and Dugan explains the analyses through which it was determined that the resist acted as an ion-exchange membrane selectively absorbing negatively charged ions.

tary railroads in North Africa, and from Feb. 12 to Oct. 24, 1945, as director general of Military Railway Service in Europe, he was in charge of all European railroad service and was responsible for moving men and matériel to the front. Retired from the army in February 1946 with the rank of major general, he became in the same year executive vice president of the Chicago and North Western System. He left this position to take the office of director of the Veterans Administration on Jan. 1, 1948, after his appointment by President Harry S. Truman. He resigned on June 30, 1953, because of poor health.

GRAZIANI, Rodolfo, Italian military leader: b. Filetino, Italy, Aug. 11, 1882; d. Rome, Jan. 11, 1955. Conqueror of Ethiopia, and last commander in chief of Fascist forces in World War II, Graziani remained actively faithful to the cause of fascism until his death.

Graziani began his military career in 1908, serving first in Eritrea and later in Libya. With the outbreak of World War I, he returned to Europe to serve as a brigade commander in the Allied campaigns against Austria-Hungary. Returning to Libya in 1921, he spent the next decade militarily attempting to assert Italian sovereignty over rebellious Arab tribes. He attained the rank of brigadier general in 1923, was named commander of all Libyan forces in 1930, and was later appointed vice governor of Cyrenaica by Mussolini.

As a prelude to the Italian invasion of Ethiopia, Graziani was installed as governor of Italian Somaliland in February 1935. Shortly afterward, with Gen. Emilio De Bono, he launched and successfully carried out the notoriously barbarous southern campaign in Ethiopia. With the termination of hostilities in 1936, he was elevated to the rank of marshal, and in June was appointed viceroy of the conquered country, serving until December 1937. In 1937, King Victor Emmanuel conferred on him the hereditary title of marchese di Neghelli.

With the entrance of Italy into World War II in 1940, Graziani was made army chief of staff and placed in command of the Army of the Po, ranged along the French frontier. After the sudden collapse of France, he was sent late in June to Libya in the capacities of governor general and commander of all the Italian troops in Africa. His short-lived reputation as a desert fighter came in 1940 when, from his base at Bardia in eastern Libya, he launched an attack in September against the weak British Army and pushed eastward to Sidi Barrani, 75 miles inside Egypt. Stopping to consolidate his position, he gave the British, under Gen. Archibald Wavell, time to reorganize and take on reinforcements. On December 9, Wavell's forces struck at the Italians at Sidi Barrani, and, in a 500-mile advance, destroyed Graziani's army. In March 1941, the marshal "resigned" as chief of staff and governor of Libya.

After the Italian surrender in 1943, he came out of retirement to accept appointment as war minister of the puppet Fascist republic established by Mussolini in northern Italy. He was taken prisoner in April 1945 by Italian partisans and was incarcerated until 1950, when a military court found him guilty of collaboration with the Nazis and sentenced him to 19 years' imprisonment. He was released, however, as a result of a government amnesty after serving six months of his term. Shortly afterward he became an active leader of the Italian Social Movement, a neo-

Fascist organization, but was shelved by younger leaders to the position of "honorary president," which he resigned in 1954.

Graziani was the author of *Verso il Fezzan* (1930); *Cirenaica pacificata* (1932); *La riconquista del Fezzan* (1934); *Pace Romana in Libia* (1939); *Fronte Sud* (1939); and *Ho difeso la patria* (1948).

GREAT BRITAIN OR UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND. An island group off the northwest coast of Europe, the United Kingdom (loosely called Great Britain) consists of England (50,337 square miles), Wales (8,006 square miles), and Scotland (30,410 square miles), forming the true Great Britain, the largest island of the group; Northern Ireland (5,449 square miles); the Channel Islands (75 square miles); the Isle of Man (227 square miles); and about 500 smaller islands, which are included in England, Scotland, and Wales for administrative purposes. The total area of the group is 94,504 square miles.

Population.—The estimated total population on Dec. 31, 1954, was 50,887,000 (April 1951 census, 50,369,585), of which England and Wales contained 44,370,000; Scotland, 5,128,000; and Northern Ireland, 1,389,000. Population density averaged 538.5 in the United Kingdom as a whole, 760.5 in England and Wales, 168.6 in Scotland, and 254.9 in Northern Ireland.

Greater London, with a 1951 census population of 8,346,137 (County of London, 3,348,336; Outer Ring, 4,997,801) is the largest city, followed by Birmingham, 1,112,340; Glasgow, 1,089,555; Liverpool, 789,532; Manchester, 703,175; Sheffield, 512,834; and Leeds, 504,954. The leading ports, in addition to London, Liverpool, Glasgow, and Manchester, are Belfast, 443,670; Bristol, 442,281; Hull, 299,068; Newcastle-upon-Tyne, 291,273; Cardiff, 243,627; and Southampton, 178,326.

Government.—The United Kingdom is a limited constitutional monarchy, with fully democratic parliamentary institutions. The reigning sovereign, Elizabeth II, succeeded her father, George VI, on Feb. 6, 1952. Prince Charles, Duke of Cornwall, elder child and only son of Elizabeth II and her husband, Philip, Duke of Edinburgh, is heir apparent.

Executive power is in the hands of a cabinet, led by a prime minister, which sits in and is responsible to a bicameral Parliament. Though government is conducted in the name of the sovereign, she must act on the advice of her ministers. The prime minister, either as a party leader or as the head of a coalition, must be able to command a majority in the lower house of Parliament, the House of Commons. This consists of 630 members (including a speaker elected from among them at the beginning of each Parliament) elected from single-member territorial constituencies by universal suffrage. The voting age is 21. The normal life of a Parliament is five years, though it may be dissolved by the sovereign on the advice of the prime minister at any time. All money bills must originate in the lower house; other bills may originate in either house. The upper house, the House of Lords, can delay any bill except a money bill, but there is machinery whereby the House of Commons can pass bills in the face of Lords' opposition. To become law, all bills must be read three times in both houses and receive the sovereign's assent.

The House of Lords, basically hereditary in composition, is a revisionary chamber. It is composed of the Lords Spiritual (2 archbishops and 24 bishops of the Church of England), judges given life peerages to perform the house's function as the final court of appeal, 16 representative Scottish peers elected for the life of the Parliament, 6 representative Irish peers, and the hereditary peers, making a total membership of 873 as of September 1955.

The state of the parties in the House of Commons after a general election held on May 26, 1955, was: Conservatives and supporters, 344 seats; Labour, 277; Liberal, 6; Sinn Fein, 2; and speaker, 1.¹ The speaker

¹ On Oct. 25, 1955, 2 Ulster Unionists were seated in place of the 2 Sinn Fein candidates, who had been ruled incapable of being elected because they were in jail, but one of the former was found disqualified on December 19.

is W. S. Morrison, a Conservative. Sir Anthony Eden succeeded Sir Winston Churchill as prime minister on April 6, 1955. After he formed a caretaker cabinet to fight the election, his postelection cabinet included Harold Macmillan (foreign affairs), Richard Austen Butler (chancellor of the exchequer), the Earl of Home (Commonwealth relations), Alan Tindal Lennox-Boyd (colonies), and Selwyn Lloyd (defense). On December 20, the cabinet was reorganized, Macmillan becoming chancellor of the exchequer, and Lloyd foreign secretary. Sir Walter Monckton was named minister of defense.

Finance.—Revenue in 1954-55 totaled £4,738 million (£1 = U.S.\$2.80), and expenditure £4,305 million, giving a surplus of £433 million. The major items of expenditure were £1,512 million for defense, £602 million for national debt interest, £432 million for health services, and £469 million for National Insurance benefits. Revenue for the year 1955-56 was estimated at £4,844 million, and expenditure at £4,562 million. Of this, £1,494 million was allocated to defense, and £1,315 million (compared with £1,278 million in 1954-55) to social services.

Britain's overseas payments were roughly in balance in the first half of 1955. Excluding receipts from United States defense aid (£33 million), there was a deficit of £16 million over the period; with defense aid there was a surplus of £17 million, compared with a surplus of £165 million over the same period in 1954. The adverse change was entirely within the nonsterling area. With the dollar area, Britain had a trade deficit of £121 million, an increase of £86 million. Invisible earnings fell by £21 million to £11 million. As a result, gold and dollar reserves declined by \$82 million during the period, in contrast to a rise of \$449 million in the same period in 1954. A major factor was Britain's own larger deficit with the dollar area; the rest of the sterling area showed only a slight fall in its surplus with the dollar area, and this stability was due to the colonial territories. The other sterling countries had a considerable deficit (\$165 million), due to increased dollar imports. Britain's dollar balance was also adversely affected by a deficit, instead of a surplus, with the countries of the Organization for European Economic Cooperation (OEEC), where settlement is to a large extent in dollars.

The average monthly trade deficit in the third quarter of 1955 continued at about the same rate as in the first half of the year, owing to a large July deficit resulting from a dock strike (see below, *Principal Events, 1955*). Though the September figures showed an actual fall of about one third, the chancellor of the exchequer introduced a supplementary budget on October 26, containing measures designed to reduce home consumption and force goods into the export market. As these measures took effect, the situation promised some improvement. At the end of September 1955, the dollar reserves of the sterling area stood at \$2,345 million, compared with \$2,901 million a year earlier.

Taxation.—The standard rate of income tax was cut in the 1955-56 budget from 45% to 42½%. A single person's exemption was raised from £120 to £140, a married couple's exemption from £210 to £240, and that for a child from £85 to £100. There were some other changes in the rates, which now run from 11¼% on the first £100 of taxable income to 42½% on taxable income of £400 and above. Surtax, which remained unchanged, is payable on gross income over £2,000, rising from 10% on the first £500 of additional income to 50% on income over £15,000.

Profits tax, which is paid by companies on distributed profits in addition to income tax at the standard rate, was raised from 22½% to 27½% in the October supplementary budget. Changes in purchase tax rates were made in both the April and the October budgets.

Defense.—Military service has been compulsory in Great Britain since 1939. All male citizens between 18 and 26 must (with limited exceptions) serve for two years in the armed forces, plus three and one-half years with training liability (60 days) and a further five years without training liability in the reserves.

The strength of the Regular Army on April 1,

1955, was 223,800; that of the Royal Navy, 114,200; and the Royal Air Force (RAF), 180,100. In addition, there were 285,000 National Service men in service and 20,600 women.² Reserve and auxiliary forces, including part-time National Service men, totaled about 649,200, and the National Service reserve 530,000. The strength of the Home Guard, a part-time voluntary organization, was 37,300, plus 42,000 reserves. In September 1954, civil defense forces comprised 338,153 in the Civil Defense Corps, 160,000 in the Industrial Civil Defense Service, 20,640 in the Auxiliary Fire Service, 44,868 in the National Hospital Service Reserve, and 42,332 in the Special Constabulary.

In 1955, 4 army divisions (3 armored) were in Germany, and other forces were in Austria, Korea, Japan, Malaya, and Kenya. The force in the Suez Canal Zone was being reduced under the Anglo-Egyptian agreement of 1954, and small garrisons were guarding strategic points throughout the colonial territories. A base was being built in Cyprus to replace the Suez base. The Royal Navy, excluding attendant ships and small craft, consisted of about 600 vessels of all types. Units of the RAF were stationed in Europe, the Middle East, and the Far East. (See also NAVAL AFFAIRS.)

Atomic Energy.—Atomic research and development in Great Britain are the responsibility of the Atomic Energy Authority, set up in 1954. The authority is free from day-to-day government control, but unlike other statutory corporations in Britain, it derives the bulk of its revenue from public funds. A research establishment at Harwell, Berkshire, is the center for atomic research, as well as the site of reactor and isotope schools. A radiochemical center at Amersham, Buckinghamshire, is a dependency of Harwell. Production of fissile material is directed from Risley, Lancashire, and production factories are located at Springfields, Lancashire; Windscale, Cumberland; and Capenhurst, Cheshire. An experimental atomic power plant at Calder Hall, near Windscale, and a breeder reactor at Dounreay, Caithness, are also operated by the authority. Research on atomic weapons, with which the British forces are now being equipped, is conducted at Aldermaston, Berkshire. On Feb. 17, 1955, the government announced that it planned to produce hydrogen bombs.

A 10-year program for the production of nuclear power was announced on February 15. Twelve atomic power stations are planned at a cost of £300 million; by 1965 they would be producing 1,500,000 to 2,000,000 kw. of electricity, saving 5 million to 6 million tons of coal a year and providing one quarter of Great Britain's requirements of new generating capacity.

Education.—School attendance is compulsory in Great Britain from 5 to 15 years of age (14 in Northern Ireland until April 1957). Expenditure on public education in 1955-56 is estimated at £271.3 million in England and Wales and £38.2 million in Scotland. Grants to universities will amount to £32.3 million. In January 1954, there were 6,795,262 children in 31,244 schools recognized as efficient by the Ministry of Education, 6,445,614 of them in 29,603 schools maintained by public funds. The corresponding figures for Scotland were 854,322 children in 3,186 schools, and 829,916 in 3,162 schools, respectively. During the year new building provided

for 210,000 pupils in England and Wales and 34,410 in Scotland. The number of teachers increased by 7,000 to 256,506 in England and Wales, and there were 11,942 new teachers entering training. In Scotland there were 34,771 teachers on Oct. 1, 1954. New educational building started in 1954 totaled £59.4 million in England and Wales and £7.8 million in Scotland. The number of full-time students in technical colleges in England and Wales in the winter of 1953-54 rose to 59,000, and the number of part-time students was about 372,000. In Scotland there were 10,503 students undergoing full-time technical education and about 124,000 part-time technical students.

There are 16 degree-giving, self-governing universities and 2 university colleges in England and Wales. Scotland has 4 universities, and Northern Ireland 1 university and 1 university college. In 1953-54 there were about 80,602 full-time students (including 19,809 women) and 15,755 part-time students at universities and university colleges in the United Kingdom. Over 74% held scholarships or grants providing wholly or in part for their expenses. Included in the total were 4,607 full-time and 1,819 part-time students from the Commonwealth and 3,373 full-time and 1,379 part-time students from foreign countries. Recurrent income of the universities and university colleges in 1953-54 amounted to £31,112,204, of which 74.1% came from public funds.

Religion.—The Church of England, an established church, lies doctrinally between Roman Catholicism and Continental Protestantism. The sovereign, as constitutional head of the church, of which he must be a member, appoints all deans and bishops on the advice of the prime minister. There are 29 dioceses in the province of Canterbury, and 14 in that of York, each administered by a bishop; there are also 40 suffragan bishops. Church law is framed by the Church Assembly, consisting of Houses of Bishops, Clergy, and Laity. Anglican churches, not established, exist also in Ireland, Scotland, and Wales. The freedom of the Church of Scotland (Presbyterian) is recognized by Parliament, and the sovereign is represented at its General Assembly by a lord high commissioner.

Church membership figures in the United Kingdom are misleading, for they are compiled on different bases. The enrolled membership of the Church of England in 1955 was about 3,000,000, but about two thirds of the population are eligible for membership. The membership of the Anglican churches in Scotland, Ireland, and Wales was about 106,000, 400,000, and 200,000, respectively. Other church memberships were Church of Scotland (Presbyterian), 1,250,000; Methodist, 750,000; Baptist, 335,600; Congregationalist, 227,000; and Roman Catholic, 4,000,000.

Social Services.—The state, either through central or local authorities, provides subsistence for the needy, education and health services, housing, unemployment benefits, care of the aged and handicapped, nutritional services for mothers and children, sickness and industrial benefits, widows' and old-age pensions, and children's allowances. These services are financed by contributions from both employer and employee and by national and local taxation. The estimated cost to the central government in 1955-56 was £901 million.

At the end of 1954 nearly 3,250,000 families, with nearly 8,250,000 children, were receiv-

² On Oct. 8, 1955, the prime minister announced that it was planned to reduce the armed forces by 100,000 by March 1958.

ing family allowances of 8 shillings a week for each child after the first. Over 900,000 persons were receiving war pensions; 500,000, widows' benefits and guardians' allowances; 4,500,000, retirement pensions; and 115,000, disablement pensions. During 1954 new claims for sickness benefits totaled more than 7,000,000; for unemployment benefits, over 2,500,000; and for industrial injury benefits, over 800,000. The combined cost of these and other benefits was about £700 million.

In July 1954, there were 42,442,990 patients registered with 19,300 doctors under the National Health Service in England and Wales. In Scotland, about 2,500 doctors are in the service. About 1,250 dentists in Scotland and 9,599 in England and Wales were participating in the service in December 1954. Beds available and staffed in hospitals totaled 476,944 on that date, and there were 50,434 trained nurses and 7,570 midwives. There are about 250 hospitals and nursing homes outside the service. In 1954, 218,712,815 prescriptions were dispensed, at a cost of £45,969,620.

Agriculture.—Unfavorable weather resulted in a decline in the output of food from United Kingdom farms in 1954-55. Production for the year was estimated at 53% above the pre-World War II level, compared with 55% in 1953-54. The output of pigs, fat cattle, milk, and eggs, however, rose during the year. Acreages and production figures are shown in Table 1.

TABLE 1—AGRICULTURAL PRODUCTION
(Years beginning June 1)

Crop	1953-54	1954-55 ¹
Acreage (thousands):		
Wheat and rye.....	2,285	2,501
Other grains.....	5,870	5,253
Potatoes.....	985	946
Sugar beets.....	415	437
All tillage.....	12,304	11,835
Production (thousand tons):		
Wheat and rye.....	2,730	2,829
Other grains.....	6,187	5,219
Potatoes.....	8,260	7,201
Sugar beets.....	5,275	4,623
Eggs ²	526	532
Beef and veal.....	637	672
Mutton and lamb.....	176	183
Pig meat ²	606	720
Milk (million gallons).....	2,170	2,177
Net agricultural output (1936-39 = 100):		
Agricultural holdings ³	155	152
Total ¹	155	153

¹ Provisional. ² Includes production of eggs, pig meat, and other output from gardens, allotments, pig clubs, and other small producers. ³ Holdings of 1 acre and above (or over ¼ acre in Northern Ireland); excludes output from gardens, allotments, pig clubs, etc.

Minerals.—Coal production in 1954 totaled 223,795,100 tons (223,518,600 tons in 1953), and in the first nine months of 1955 about 162,984,000 tons. Average output per man-shift in 1954 was 3.26 tons at the coal face and 1.23 tons for all employees, as compared with 3.14 and 1.21 tons, respectively, in 1953. Manpower in the coal industry totaled 704,860 in December 1954, and 700,575 in September 1955. The industry, which is nationalized, is managed by the National Coal Board.

British refineries produced about 25.5 million tons of petroleum products in 1954. Home production of iron ore (iron content of about 28%) totaled about 19,930,000 tons.

Industrial Production.—The iron and steel industry, which had been nationalized in 1951 under an act passed in 1949, was denationalized under the Iron and Steel Act, 1953. It is now

run under the general supervision of the Iron and Steel Board. Steel production in 1954 reached a record 18,517,000 tons, and in the first nine months of 1955 about 14,624,000 tons.

The index of industrial production (1948 = 100) rose from 121 in 1953 to 129 in 1954, and the gross domestic product increased by about 4%. In the first six months of 1955 production was 6% higher than in the same period of 1954. Of the total increase in national output and imports, about half was due to increased consumer expenditure, one sixth to increased investment in buildings, and one third to the rise in exports.

In December 1954, 2,011,000 tons of shipping were under construction in British yards, including 650,000 tons for overseas owners. During the year, 1,424,000 tons of shipping were laid down, and 1,493,000 tons completed. The working population of the country in August 1955 numbered 24,009,000, of whom 23,028,000 were in civil employment; 182,000 were wholly unemployed. The output of selected industries is shown in Table 2.

TABLE 2—OUTPUT OF SELECTED INDUSTRIES

Commodity	1953	1954
Rayon and other synthetic fibers:		
Staple fibers (million lbs.).....	202	228
Continuous filament yarn (million lbs.).....	217	220
Cotton and cotton waste yarn (million lbs.).....	777	841
Spun rayon and mixture yarn (million lbs.).....	157	155
Woven cotton cloth (million linear yards).....	1,829	1,994
Woven rayon and mixture cloth (million linear yards).....	754	781
Woolen and worsted yarn (million lbs.).....	535	539
Woven wool cloth, excluding blankets (million square yards).....	412	414
Metalworking machine tools (£ million).....	66	66
Internal combustion engines (thousands).....	255	352
Steam turboalternators and turbines (thousand kw.).....	2,708	2,287
Electric motors (£ million).....	43	44
Cars and chassis (thousands).....	595	769
Commercial vehicles and chassis (thousands).....	240	270
Steam locomotives.....	500	583
Railroad freight cars (thousands).....	51	62
Agricultural tractors (thousands).....	110	135

External Trade.—There was a noticeable expansion of the United Kingdom's overseas trade between 1953 and 1954. Exports, at £2,673.4 million, compared with £2,582.0 million in 1953, reached a record level in both value and volume. Imports totaled £3,378.9 million, compared with £3,342.9 million in 1953, an increase of 1% in value and 2% in volume. Re-exports, at £100.8 million, showed a 5% decline from 1953 (£105.5 million). The adverse trade balance was thus £604.7 million.

Exports reflected changes in the pattern of world demand. Chemical exports rose by 15%, road vehicles by 11%, agricultural tractors by 15%, and nonelectrical machinery by 3%. Within the sterling area, exports to Australia and New Zealand rose from £313 million in 1953 to £404 million in 1954. This, coupled with a slight rise to India, Pakistan, and Ceylon and a decline to the colonial territories, resulted in a rise in exports to the sterling area as a whole from £1,254 million in 1953 to £1,330 million in 1954. Exports to the dollar area fell from £386 million to £360 million, but exports to the non-sterling area as a whole rose from £1,328 million to £1,343 million.

Though the volume of imports changed by only 2%, there were changes within this total. Imports of food, beverages, and tobacco actually fell in volume, though the value was slightly higher. Imports of textile materials and finished steel also declined, but those of other industrial materials rose. Dollar imports, after a fall, were

rising again in the latter part of 1954, and trade with the OEEC countries also rose.

United Kingdom imports in the first half of 1955 rose by 14% to £1,909.5 million, and by 9% in volume, one of the main features being a substantial rise in purchases from the dollar area. In the same period exports rose by 4% in value to £1,449.5 million, and by slightly more in volume, compared with the first six months of 1954. Statistics of British trade in 1953 and 1954 are shown in Table 3.

TABLE 3—BRITAIN'S IMPORTS AND EXPORTS, 1953 AND 1954

	1953	1954
(£ million, c.i.f.)		
PRINCIPAL IMPORTS:		
Food, drink, and tobacco:		
Cereals and cereal preparations.....	236	176
Meat and meat preparations.....	266	256
Dairy produce.....	170	161
Sugar and sugar preparations.....	129	103
Fruits and vegetables.....	174	204
Tobacco.....	78	77
Materials and manufactures:		
Wood and cork.....	159	155
Raw cotton.....	107	126
Raw wool and other animal hair.....	245	198
Rubber (including synthetic and re-claimed).....	57	51
Petroleum and petroleum products.....	310	312
Iron and steel manufactures.....	61	28
Nonferrous base metals and manufactures.....	151	175
Machinery (nonelectric).....	98	75
Textile yarns and manufactures.....	48	71
Chemicals.....	76	102
EXPORTS OF BRITISH PRODUCE: (£ million, f.o.b.)		
Iron and steel.....	135	137
Nonferrous metals.....	60	56
Motor vehicles and parts.....	248	276
Aircraft and engines.....	63	52
Machinery and electric goods.....	549	557
Other engineering products.....	212	225
Chemicals.....	177	204
Textiles (excluding clothing).....	326	325
Pottery and glassware.....	24	27
Other manufactures.....	260	265
Food, beverages and tobacco.....	149	157
Coal, coke, and briquettes.....	71	68
Refined petroleum.....	77	84
Raw materials.....	97	101

Communications.—All facilities owned by the railroads, including hotels, ports, and canals, are operated through the British Transport Commission. Road transport, also formerly nationalized, was denationalized in 1953. Civil aviation and air transport were handed over to state-owned corporations in 1946, though private companies operate charter flights under agreement with the Air Transport Advisory Council.

British Railways operated 51,508 miles of track in 1954, and owned 45,953 passenger coaches, 698 dining cars, and 1,124,710 freight

cars in December of that year. During the year, 991 million passengers and 283 million tons of freight were carried. Gross receipts in 1954, at £435.5 million, were £14.1 higher than in 1953, but the British Transport Commission as a whole showed a loss of £11.9 million on the year's working. In 1954, there were 1,019,388 vehicles engaged in road haulage. (See also below, *Principal Events, 1955.*)

British Overseas Airways Corporation (BOAC), which operates Britain's long-range overseas services, carried 291,136 passengers and 6,003 tons of freight in 1954-55. Traffic revenue earned during the year totaled £36,609,979, and the corporation showed a profit of £1,362,180. British European Airways, operating services to Continental Europe, carried 1,874,316 passengers and 14,884 tons of freight in 1954-55. Traffic revenue totaled £16,594,461, giving a profit of £63,039. Associated with BOAC are a number of regional airlines overseas, which are either direct subsidiaries or companies in which BOAC has a financial interest. There are approximately 100 civil airports in the United Kingdom, of which 30 are controlled by the Ministry of Transport and Civil Aviation and 17 by municipalities. There are also 59 military airports available for civil use. (See also *AERONAUTICS.*)

Radio broadcasting in the United Kingdom is provided by the British Broadcasting Corporation (BBC), a chartered public corporation, which operates 1 long-wave and 47 medium-wave transmitters. Short-wave transmitters provide a worldwide service 24 hours a day. Work is under way on nine VHF transmitters to supplement existing internal services. The corporation's income in 1954-55 amounted to £18,943,844 from licenses for receivers, £1,772,205 from publications, and £88,938 from investments.

The BBC operates a television service through 5 high-power and 6 medium-power stations, providing coverage of 90% of the country. An alternative service, with controlled commercial sponsorship, provided by the Independent Television Authority, a government-controlled body, began on Sept. 22, 1955. In April 1955, 13,980,496 licenses, including 4,503,766 for television receivers, were held in the country.

Overseas telecommunications services are operated by Cable and Wireless, Ltd., a public company under the indirect control of the postmaster general. The company's income in 1954-55 was £11,788,515, and the year's operations showed a profit of £1,828,220.

British merchant shipping in active operation on Dec. 31, 1954, totaled 17,286,000 tons of ships of 500 tons and over, and an additional 500,000 tons were laid up. The net tonnage of shipping in the foreign trade entering British ports in 1954 was 72,377,469, of which 55.9% was British; clearances totaled 51,144,591 tons, of which 63.6% was British.

Principal Events, 1955.—The outstanding event in British affairs in 1955 was the resignation of Sir Winston Churchill from the premiership on April 5, amid tributes from leading statesmen all over the world. His great contributions to British affairs and his lifelong service to the nation were acknowledged both in Parliament and in special ceremonies held in Westminster Hall. Sir Winston, however, did not retire completely from public affairs and retained his seat in Parliament.

Sir Anthony Eden, secretary of state for foreign affairs in Sir Winston Churchill's government, succeeded him as prime minister on

Sir Anthony Eden (at microphone) campaigns before his Conservative Party's victory in 1955 general elections.

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BRITISH INFORMATION SERVICES

(Left photo) Sir Winston and Lady Churchill entertain Queen Elizabeth II (right) on April 4, 1955, the day before Sir Winston announced his resignation as British prime minister. (Right photo) Sir Hubert Rance, then governor of Trinidad, delivers official welcome (February 1) to Princess Margaret, who toured British West Indies in 1955.

April 6, made several changes in the government on the next day, and announced a general election for May 26. This resulted in an increase in the Conservative majority in the House of Commons and the continuance of Eden as prime minister (see above, *Government*).

Later in the year, on December 7, Clement R. Attlee, former prime minister, who had been re-elected head of the Labour Party on June 10, resigned his party leadership and was raised to the peerage as Earl Attlee. He was succeeded as party leader by Hugh Gaitskell, who was elected on December 14 in a contest with Herbert Morrison and the left-wing leader, Aneurin Bevan.

A major reorganization of the cabinet took place on December 20. Prime Minister Eden named Robert Austen Butler lord privy seal and leader of the House of Commons, replacing him as chancellor of the exchequer by Harold Macmillan. Macmillan in turn was succeeded as foreign secretary by Selwyn Lloyd, whose post as minister of defense went to Sir Walter Monckton.

Notable also in domestic affairs were the announcements of a nuclear power program (see above, *Atomic Energy*), a road program, and a railroad modernization program. The road program, announced on February 2, would provide the country with a system of fast motor roads, to be authorized in the 4-year period 1955-59 at a minimum cost to the government of £147 million. Railroad modernization will be undertaken over a 15-year period and will result in both track improvement and improved equipment. The principal change, announced on January 24, will be a change-over from steam to electric and diesel locomotives. The plan will cost £1,240 million. There were major strikes, both on the docks (May 23-July 4) and on the railroads (May 29-June 14), and the government was forced on May 31 to declare a state of emergency in order to obtain the powers necessary to maintain supplies and services in the face of the railroad strike.

The chief development in Commonwealth

affairs in 1955 was the agreement that Pakistan should continue as a Commonwealth member when she became a republic, reached at a conference of Commonwealth prime ministers held in London on January 31-February 8. A number of matters of common concern were also discussed at this meeting (see also *COMMONWEALTH OF NATIONS*). During the year new defense agreements were reached (June 15-30) with South Africa.

Foreign relations were dominated by the Geneva Conference (q.v.), held on July 18-23, and the subsequent Geneva meeting of foreign ministers on October 27-November 16. In a report to the House of Commons on July 27, Prime Minister Eden outlined the British view of the Geneva talks and the proposals he had presented there. He felt that the outstanding problems to be solved were those of German unity and European security. He agreed that the discussions between the leaders of the four major powers had enabled them to get to know each other, and that the meeting had "certainly changed the climate of international relations." His cautious optimism about the outcome of the meeting of foreign ministers proved to be unjustified. Britain was represented at this meeting by Foreign Secretary Macmillan, who maintained the close alignment of British, French, and United States policy shown at earlier meetings.

Sir Anthony Eden, then still foreign secretary, attended the first meeting of the Council of the Southeast Asia Treaty Organization (q.v.), held at Bangkok, Thailand, on Feb. 23-25, 1955. In the course of his journey to and from Bangkok, he visited Egypt, Bahrain, Pakistan, Burma, India, Iraq, Lebanon, and Italy, and had talks with ministers and heads of state of those countries. Visitors to Britain during the year included Premier Mario Scelba and Foreign Minister Gaetano Martino of Italy, on February 15-20, to discuss Anglo-Italian relations; and the Libyan defense minister, Ibrahim Benshaban, on July 17-30, to discuss matters arising out of the 1953 Anglo-Libyan treaty of friendship and alliance. A

second visit by Foreign Minister Martino, on September 8-9, provided the opportunity for further discussions with Foreign Secretary Macmillan. On November 21-22 Macmillan attended a meeting at Baghdad of the signatories³ of the Baghdad Pact (q.v.), at which a permanent council was set up and the foundations of a Western-sponsored economic and military organization were laid.

During the year a number of agreements were reached, including an oil agreement between the Iraqi government and the Iraq Petroleum Company, which retained the 50-50 profit-sharing arrangement and amended the pricing formulas (March 24); atomic agreements with France (May 5) and Denmark (June 9); a payments agreement with Brazil (August 16); a sterling agreement with Egypt (August 29); trade agreements with Argentina (March 31) and Japan (October 17); and an agreement with Egypt providing for a plebiscite in the Sudan (December 3). Britain also took part in the International Conference on the Peaceful Uses of Atomic Energy, held at Geneva on August 8-20.

One of the most troublesome problems facing Britain in 1955 was the future of Cyprus (q.v.). A conference between Britain, Greece, and Turkey, held in London on August 29-September 7, to discuss the island's future and problems of the eastern Mediterranean, ended without agreement. Greece, in support of the Greek Cypriotes favoring union with Greece, attempted unsuccessfully to bring the matter before the United Nations in September, and increasing internal disturbances resulted in the declaration of a state of emergency on November 26. In other matters which came before the United Nations, Britain opposed the inclusion of Algeria on the agenda, and played an important part in the discussions of the Subcommittee of the U.N. Disarmament Commission, which met in New York on August 29-October 7, following the recommendation of the Geneva Conference. In these discussions, Anthony Nutting, minister of state for foreign affairs, elaborated on Sir Anthony Eden's Geneva proposal of a pilot scheme of inspection of the forces confronting one another in Europe, and supported the United States position on the Russian proposals.

In general, relations with the United States remained good. The main difference of opinion arose over the question of defense of Chinese offshore islands early in the year. The British position, as outlined by Sir Anthony Eden on January 26, did not seem to go as far as that of the United States, a distinction being drawn between Formosa and the coastal islands. This resulted in apprehension in some quarters in Britain that the United States policy was more likely to lead to hostilities. On all major world questions, both inside and outside the United Nations, there was, however, a similarity of outlook and approach between the two governments.

(For further references, see the Index entry, *Great Britain*.)

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GREECE. A kingdom in the Balkan Peninsula, Greece is 51,182 square miles in area, and is bounded on the north by Albania, Yugoslavia, and Bulgaria; on the east by Turkey, from which it is separated by the Maritsa (Evros) River; and on the southeast, south, and west, respec-

tively, by the Aegean, Mediterranean, and Ionian seas.

Population and Language.—The population of Greece at the end of 1955 was estimated as somewhat in excess of 8,000,000 (official estimate for 1953, 7,821,295). Athens, the capital, is the largest city, with a population of 565,084 (1951 census), while Greater Athens, including its seaport, Piraeus (186,014), and the suburbs, had 1,378,586 inhabitants. Other important cities (1951 populations) are Salonika (Thessalonikē), 217,049; Patras (Pátrai), 79,014; Nikia, 72,176; Volos, 54,919; and Herakleion, 51,144. In general terms 63.2% of the total population is rural and 36.8% is urban. With about 156 inhabitants per square mile, Greece is one of the most thickly populated countries of Europe.

Greek is the language of 94% of the population. Other languages include Turkish, Macedonian, Slavic, Vlach, Albanian, Armenian, and Pomak Bulgarian.

Government and Politics.—Greece is a constitutional monarchy under King Paul I, who ascended the throne on April 1, 1947, upon the death of his brother George II. The constitution now in operation is that of 1911 as amended in 1951. The representatives of the people, elected for 4-year terms, constitute the unicameral Chamber of Deputies. Women have had the right to vote in parliamentary elections and to stand for election to parliament since May 29, 1952.

The Greek Rally, founded by Marshal Alexander Papagos in 1951 with the support of politicians of the right and center, is the party in power, having won the elections of Nov. 16, 1952. The opposition consists of three major parties: the middle-of-the-road Liberal Democratic Union; the moderately socialist Union of Democratic Leftists; and the newly established Progressive Party, headed by Spyros Markezinis, who resigned from the Papagos government in April 1954. General elections are scheduled for March 1956.

Religion.—Although all religions are tolerated, the constitution recognizes as the state religion the Eastern Orthodox form of Christianity, which is the faith of approximately 96% of the people. The Church of Greece is independent under a Holy Synod headed by the archbishop of Athens. The synod represents the dioceses of the Old Kingdom of Greece (prior to 1912) and the new provinces (Epirus, Macedonia, and Thrace), annexed by Greece as a result of the Balkan Wars (1912-13) and World War I. The patriarchate of Constantinople exercises a "spiritual" jurisdiction over the churches of the new provinces. The Church of Crete is autonomous under the patriarchate, and the Dodecanese Islands and Mt. Athos are directly under the authority of the patriarch of Constantinople and his synod.

Education.—Education is compulsory at the elementary level. In October 1954 there were about 938,000 elementary school pupils and 18,792 teachers. Secondary schools, for the most part classical gymnasia, exist in the chief towns. In 1954 they were attended by about 192,000 students and were served by 4,775 teachers. At the higher level there are two universities (Athens and Salonika) and half a dozen schools of university status, such as the National Polytechnic Institute, the College of Agriculture, and the Graduate School of Commercial and Economic Studies at Athens. There are three American colleges—Anatolia College in Salonika, Athens College, and Pierce College in Athens.

Finance.—The rate of exchange since the devaluation of the drachma in April 1953 has been 30 drachmas to the U.S. dollar and 84 drachmas to the British pound. Exchange receipts during 1954 were \$42 million (or 15%) greater than those of 1953 and about \$95 million (50%) above those of 1952. At the same time, however, imports exceeded those of the preceding year by \$94 million (37%), and they absorbed the exchange earnings, leaving a deficit of \$59.5 million.

Of the \$54 million in United States aid for 1954-55, \$6 million remained to be carried over to the 1955-56 allocation; a serious reduction in monetary reserves was thus avoided. Originally limited to \$15 million, American aid has been increased by an additional \$19.2 million for the reconstruction of towns destroyed by earthquakes. In all, American assistance amounts to \$41.7 million for 1955-56.

The preliminary budget for 1955-56 provides for revenues of 10,300 million drachmas and an expenditure of 11,500 million drachmas, thus leaving a deficit of 1,200 million drachmas (\$40 million).

General Economic Conditions.—By 1955, Greece had not yet recovered from the effects of the German occupation. One of the principal obstacles to total recovery is the fact that the government's military expenditures are disproportionate to the country's revenue. Although the national income has risen above the prewar level (\$47,128,000 in 1954), wages and purchasing power of the workers are considerably below

³ Great Britain, Iran, Iraq, Pakistan, and Turkey. Britain signed the pact on April 4, 1955.

those of 1938. Out of a potential working force of approximately 3,997,000 there are 166,000 unemployed, exclusive of the underemployed and the periodically employed.

The rise in currency circulation during 1954 amounted to 475 million drachmas. Wholesale prices increased 6%; the cost of living, 7 or 8%; and retail prices, approximately 3%. To avoid inflation the government has imposed restrictions on credit. The shortage of capital has been a perennial drawback to economic activity.

Agriculture.—Although only one tenth of its area consists of arable land, Greece is primarily a food-importing agricultural country. The total area under cultivation in 1953 was 3,598,000 hectares. With the help of American experts and the extension service of the Ministry of Agriculture, farming methods have shown improvement in most of the 400 rural sections into which the country was divided in 1952.

In 1953 the production of foodstuffs (in metric tons) was as follows: wheat, 1,400,000; barley, 258,000; oats, 167,000; rye, 67,000; maize (corn), 309,000; rice, 66,000; potatoes, 445,000; fresh vegetables, 891,000; legumes, 101,000; olives, 56,000; olive oil, 175,000; and citrus fruits, 179,000. There has been a 22% increase in the quantity of foodstuffs, as compared with prewar figures, but production has failed to keep up with increasing domestic needs.

On the other hand, agricultural production as a whole, including such export items as tobacco and dried fruits, is 50% greater than in the prewar years. The production of cotton (160,000 bales of 500 pounds each in 1954) is 100% higher. The yield of tobacco in 1953 was 61,000 metric ton; currants, 77,000; sultanas, 46,000; and dried figs, 30,000.

Livestock is approaching or exceeding the prewar figure. There are about 904,000 cattle, 603,000 pigs, 8,254,000 sheep, 4,510,000 goats, 315,000 horses, 200,000 mules, and 500,000 donkeys.

Forestry and Fishing.—About 15% of the entire area of Greece is wooded, even after the destruction of 5 million acres of forests during World War II. A reforestation program is under way. The annual income from forest products, is estimated at \$12 million. There are more than 70 million olive trees in the country.

The extent of the fishing industry is unprecedented, although it meets only 71% of the country's needs. The annual yield of seafood exceeds 50,000 metric tons (60,000 in 1954), and represents a value of approximately \$20 million.

Manufacturing and Mining.—In 1955, Greek industry was producing at a rate of 65% above the prewar level. It provides 18.9% of the national income and employs approximately 150,000 persons. Principal products are textiles, chemicals and fertilizers, processed foods, soap, paper, cement, farm equipment, cigarettes, and electrical appliances. The Ladoa River hydroelectric plant, the last of four built under the Marshall Plan program, was inaugurated in May 1955; it will supply Greece with an additional 35 million kw.-hr. of electricity annually. The total power supply in 1955 was 1 billion kw.-hr. per year, as compared with 272 million in 1938. Plans were announced in 1955 for the construction of an 84,000-kw. hydroelectric plant on the Megdova River in Thessaly and an oil refinery near Athens with a capacity of 1.3 million tons.

Most of Greece's minerals are exported unprocessed. The 1953 yields included iron, 88,333 metric tons; iron pyrites, 237,323; lead,



WIDE WORLD

Greece's King Paul (l.) and Yugoslavia's President Tito, shown during the king's visit to Yugoslavia in September.

6,487; zinc, 11,198; antimony, 5,003; chrome, 36,759; bauxite, 328,241; barite, 26,903; manganese, 17,000; and emery, 10,000. A new plant, which went into operation in November 1955, will process nickel and produce 60,000 tons of pig iron annually. The lignite reserves of Ptolemais will yield 1,800,000 tons annually beginning in 1959.

Foreign Trade.—In 1954, Greek exports were valued at 4,556 million drachmas, as compared with 3,397 million in 1953; imports were valued at 9,901 million drachmas, as compared with 7,156 million in 1953. Tobacco constituted 40% of the total exports; raisins, 18%. The principal markets for Greek products were Germany (24%), the United Kingdom (13%), and Italy (13%); the principal suppliers of Greece were Germany (16%), Italy (16%), and the United States and Canada (14%).

Transportation and Communication.—Greece's railway network, destroyed by the Germans during World War II, has been restored. In 1951 there were 13,714 miles of roads, serving 4,796 buses, 18,600 trucks, and 10,143 passenger cars. A domestic air transport company provides service between Athens and the larger cities of Greece, Rhodes, and Crete. Thirty foreign lines connect Athens with the principal cities of the world.

In March 1955 there were 488 ships in the Greek merchant marine, with a gross tonnage of 1,370,000. Greek citizens in Greece and abroad own 1,257 vessels with a gross tonnage of 9,303,321.

Principal Events, 1955. Foreign Relations.—In their first meeting (Feb. 28–March 2) since the conclusion of a mutual assistance treaty on Aug. 9, 1954, the foreign ministers of Greece, Turkey, and Yugoslavia announced from Ankara that their respective countries would continue to build up their military strength, but would employ all appropriate political methods to help promote international peace. Relations between Greece and Turkey, however, took a sudden turn for the worse as a result of mob violence perpetrated against the Greek inhabitants of Istanbul and Izmir (Smyrna) on September 6. The pretext for the riots was tension over the Cyprus question (see CYPRUS). It was estimated that the loss of property in Istanbul exceeded \$300 million. A large number of Greek Orthodox churches

were desecrated or destroyed. On September 7, the Turkish government imposed martial law on Istanbul, Izmir, and Ankara, and issued a statement expressing deep regret for the damage inflicted on Greek property and promising compensation commensurate to the losses.

Relations with the United Kingdom reached a very low ebb as a result of British refusal to recognize the principle of self-determination in the case of Cyprus. Great Britain was severely criticized by the Greek press for involving Turkey in the Cyprus question and thus provoking the anti-Greek riots of September 6.

Domestic Affairs.—Field Marshal Alexander Papagos (q.v.), prime minister since November 1952, died on Oct. 4, 1955. He was succeeded by Constantine Karamanlis, a political moderate and anti-Communist, who was minister of public works in the Papagos cabinet. With few exceptions, the new government consists of "new men" of the Greek Rally. On October 12 the Karamanlis government won an overwhelming vote of confidence in its first test.

On April 19–21 the city of Volos was hit by a major disaster in the form of an earthquake. Eight persons were killed, over 100 were injured, and 40,000 were left homeless in Volos and 20,000 in the surrounding area. To meet this and other disaster emergencies the government announced an increase of taxes up to 600 million drachmas.

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GREENLAND. A department of Denmark in the North Atlantic. Area, about 840,000 square miles (132,000 ice free); pop. (Dec. 31, 1952), 24,768, including 23,360 native Eskimos and persons of Eskimo-Scandinavian descent. Godthaab (1,021) is the capital. Formerly a colony, Greenland became a department of Denmark on June 5, 1953, Greenlanders obtaining equal political rights with other Danish subjects. Greenland elects two representatives to the Danish Parliament. The Greenland Council has 13 members elected for four years. The budget for the fiscal year ended Sept. 30, 1953, was: revenue, 3,140,880 kroner; expenditure, 3,077,000. In 1952, pupils in elementary schools totaled 4,258. In 1951 the United States and Denmark signed a 20-year pact for the joint defense of Greenland, and a United States airbase was subsequently established at Thule.

Chief occupations are fishing (fish landings in 1953: 25,000 metric tons), processing of fish

British North Greenland Expedition, which studied northern Greenland ice cap, prepares to return home.

BRITISH INFORMATION SERVICES



products, sheep raising, hunting and trapping, and mining. Greenland is the world's chief source of cryolite, an aluminiferous ore. Exports in 1953 totaled 40,289,000 kroner; imports, 57,891,000. Trade is mostly with Denmark. Greenland had 1,500 radio receivers in 1952. (See also ARCTIC EXPLORATION.)

GRENADA. See WINDWARD ISLANDS.

GRIFFITH, Clark (Calvin), American baseball executive: b. Clear Creek, Vernon County, Mo., Nov. 20, 1869; d. Washington, D.C., Oct. 27, 1955. A major league pitcher with a lifetime record of 233 wins and 147 losses (13 full seasons), one of the founders of the American League, and owner of the Washington Senators, he had been elected to Baseball's Hall of Fame in Cooperstown, N.Y., in 1946.

Clark Griffith entered organized baseball in 1888 as a pitcher with the Bloomington (Ill.) team of the old Inter-State League. In 1893, following a number of years in the minor leagues, he joined Adrian "Cap" Anson's famous Chicago Colts (National League), with which he made his reputation as a pitcher and earned his nickname, "Old Fox," winning 148 games and losing 96 in eight seasons.

In 1900 Griffith, with Byron "Ban" Johnson, president of the Western League, and Charles Comiskey, manager of the St. Paul team, planned the establishment of an American League to challenge the National League's monopoly in the Eastern cities. Financial backing was obtained, and in 1901 the American League, with players lured from the senior circuit, became a reality. In the 1901 season, Griffith led Comiskey's Chicago White Sox to the first American League pennant.

In 1903, when the junior circuit transferred the Baltimore franchise to New York, a National League stronghold, Griffith became manager of the new team called the Highlanders (later the Yankees). Despite an unfriendly press, he fielded strong teams, and in a few years the American League was firmly established there. Griffith's pitching career ended in 1907, and in 1908, after a disagreement with the Highlanders' owners, he reluctantly returned to the National League as manager of the Cincinnati Reds.

He rejoined the American League at the close of the 1911 season, when he bought a 10% interest in the Washington Senators, a team which in the 11 preceding years had not finished above sixth place. As the largest single stockholder, he took over the club's managership, and in his first season (1912) led it to a second-place finish. In that year he also helped further establish baseball as the national pastime by persuading President William Howard Taft to throw out the first ball in Washington's opening game. In 1919 he gained controlling interest in the Senators with William Richardson. Named the club's president, a post he held until his death, he relinquished his managership of the team at the close of the 1920 season to take full charge of its policy matters. In his nine years as manager, the Senators had failed to win a pennant, but finished in the first division five times. Subsequently, under his shrewd direction the Senators won the American League pennant in 1924 (defeating the New York Giants in the World Series), in 1925, and again in 1933.

GRONCHI, Giovanni, president of Italy: b. Pontedera, near Pisa, Italy, Sept. 10, 1887. A member of the left wing of the Christian Democratic

Party, he was elected third president of the Italian Republic for a seven-year term by the National Assembly on April 29, 1955. Gaining office by 658 of a total of 833 possible votes, he succeeded Luigi Einaudi, who was a candidate for re-election.

While a student at the University of Pisa, Gronchi became interested in politics and was active in the initial stages of the Roman Catholic workers' movement. After serving with distinction in World War I, he became a teacher of Italian in a technical school, but continued his political activities. In 1919 he helped found the Popular Party, the forerunner of the present Christian Democratic Party, and was elected to Parliament. In the same year he was also appointed head of the Confederation of Christian Workers. In 1922 he served briefly as under-secretary of industry and commerce in Mussolini's first government before going over to the opposition in 1923. He was forced out of active politics by the Fascists for his outspoken criticism of their policies. During World War II he was one of the leaders of the resistance movement in Italy.

With the fall of Mussolini, Gronchi returned to public life as co-founder, with Alcide De Gasperi, of the Christian Democratic Party. He served as minister of industry, commerce, and labor in the first and second cabinets of Ivanoe Bonomi (1944-45) and in the cabinet of Ferruccio Parri (1945), and as minister of commerce in the first cabinet of De Gasperi (1945-46). After the referendum of June 2, 1946, which called for the establishment of an Italian republic, he was elected to the Constituent Assembly. On May 8, 1948, he was elected speaker of the Chamber of Deputies, a post he held until his election to the presidency of Italy. He was sworn into office on May 11, 1955. (See also ITALY.)

GROUP INSURANCE. The growth of employee protection under group insurance and annuity plans established new records in 1954, with more individuals covered for larger amounts of insurance, and more insurance companies offering their services in this branch of the insurance business, resulting in a substantially higher total premium income.

Premiums.—A new high of \$3,299,000,000 in total premiums and considerations for all forms of group insurance and group annuities was recorded by the 427 life, accident and health, and

casualty insurance companies in the group field in 1954. This represented a 9% increase for the year in total premium income and a 9% increase in the number of group-writing companies. Premiums in both the group life and the accident and health lines increased about 11.5%; in the annuity branch they rose about 2.5%.

Group Life Insurance.—The largest amount of new group life insurance ever purchased in a year was recorded for 1954: \$14,279,000,000, covering 6 million individuals. This represented a volume increase of more than 100% over the previous year's production. Included in these figures was the largest group ever written—1,685,000 United States Government employees for \$6,738,000,000 of insurance.

The volume of group life insurance in force reached the record figure of \$94,312,000,000 covering 45 million individuals. The largest part of this insurance—\$86.4 billion—covered individuals under employer-employee contracts for an average amount of \$3,000 each. (See also LIFE INSURANCE.)

Group Accident and Health Insurances.—The volume of weekly indemnity in effect for loss of income through sickness or accident increased about 5%, although the number of contracts and individuals covered declined 2% and 1.5%, respectively. Group accidental death and dismemberment insurance increased substantially both in the volume of new business and in business in force.

Increases were registered in hospital, surgical and medical expense benefits in force. The total daily benefit payable under hospital expense insurance increased 9% for both employees and dependents, while maximum surgical benefit increased 5.5% for employees and 15% for dependents. The number of employees and dependents insured under group medical expense contracts increased 10% and 18.6%, respectively. The greatest percentage advance in the number of persons covered occurred in group major medical expense insurance, a more recent group offering.

Protection under the blanket Blue Cross-Blue Shield and independent plans also increased in 1954. According to the Health Insurance Council, 52,680,000 individuals were covered by these plans for hospital expense, 39,700,000 for surgical expense, and 29,576,000 for medical expense. The Health Insurance Council reported a net total in group plans or individual contracts of

GROUP INSURANCE AND GROUP ANNUITY COVERAGE—CONTINENTAL U.S., DEC. 31, 1954

(All life, accident and health, and casualty insurance companies)

Type of coverage	Master policies	Individuals covered	Volume in force	Premiums and considerations
Group life insurance ¹				
For employees.....	81,210	27,476,000	\$85,794,000,000	\$843,400,000
For dependents.....	1,220	1,065,000	601,000,000	3,100,000
Group creditors insurance.....	22,410	16,236,000	7,917,000,000	69,100,000
Wholesale life insurance.....	32,120 ²	291,000	619,000,000	11,000,000
Group annuities.....	4,170	3,185,000	1,025,000,000 ³	990,000,000
Group accident and health insurance.....	214,020	18,323,000	552,000,000 ⁴	473,600,000
Group hospital expense:				
For employees.....	76,850	14,281,000	131,000,000 ⁵	227,300,000
For dependents.....	68,250	20,729,000	168,000,000 ⁵	285,900,000
Group surgical expense:				
For employees.....	77,070	14,993,000	3,287,000,000 ⁶	104,100,000
For dependents.....	66,990	20,654,000	4,220,000,000 ⁶	183,600,000
Group medical expense:				
For employees.....	31,270	7,463,000	...	31,200,000
For dependents.....	25,090	8,256,000	...	24,000,000
Group major medical expense:				
For employees.....	1,190	796,000	...	8,800,000
For dependents.....	1,120	1,093,000	...	9,600,000
Group accidental death and dismemberment insurance.....	56,950	13,972,000	35,023,000,000 ⁷	33,500,000

¹ Not including group creditors or wholesale life insurance. ² Units. ³ Annual income. ⁴ Weekly indemnity. ⁵ Daily benefit. ⁶ Maximum benefit. ⁷ Principal sum. (Source: Life Insurance Association of America, using group annuity data supplied by the Institute of Life Insurance.)

101,493,000 persons with hospital expense, 85,890,000 with surgical, and 47,248,000 with regular medical expense protection.

Group Annuities.—The number of individuals covered under group annuity plans increased modestly, as did the amount of annual income payable at retirement, which passed the billion dollar mark. This, however, is only part of the story of old-age protection for employees. In addition to the benefits provided by the Federal Social Security Act (see also **SOCIAL SECURITY**), the Institute of Life Insurance estimated that, as of Dec. 31, 1954, there were 11,550 individual policy pension trusts in force covering 455,000 persons and 1,560 other pension plans covering 275,000 persons, in addition to group annuities, making a total of 17,280 insured plans covering 3,915,000 persons and providing an aggregate annual income of \$1,625,000,000. There were also a large number of uninsured trusted plans in effect for employee retirement.

Legislative Expansion.—The removal of the legal minimum requirement of 25 lives in a number of states and the passage of legislation in 1954 and 1955 permitting the writing of group coverage on 10 lives have opened up a new field for insurance service to employees. An ever-growing number of insurance companies are offering package plans of life insurance, accidental death and dismemberment, weekly indemnity plans for employees, and hospital, surgical and medical expense insurance for employees and dependents.

Major legislation was the adoption of the National Insurance Commissioners' Model Group Life Insurance bill, which increased the statutory maximum from \$20,000 to \$40,000 for higher salaried personnel where the amount of coverage is based on annual salary.

WILLIAM J. GRAHAM,
Consulting Actuary.

GADELOUPE. An overseas department of France, in the Lesser Antilles islands of the Caribbean Sea. Area, 687 square miles; pop. (1954 census), 229,120, the great majority of whom are colored. The department consists of two large islands—Basse-Terre (Guadeloupe proper) and Grande Terre (combined area, 583 miles; pop., 203,454)—and six outlying small islands (Désirade, Les Saintes, Marie Galante, Petite Terre, St. Barthélemy, and the French part of St. Martin). The city of Basse-Terre (12,837) is the capital; and Pointe-à-Pitre (26,160), on Grande Terre, is the chief port. The prefect is aided by an elected general council of 36 members. Elementary schools in 1950 numbered 128 (35,156 pupils); secondary and technical schools, 7 (2,616).

Sugar is the mainstay of the economy. The sugar crop for 1954 (prelim.) totaled 128,000 short tons (114,000 in 1953). Other cash crops are bananas, coffee, cacao, vanilla, and pineapples. Subsistence crops include sweet potatoes, manioc, corn, and other vegetables. Chief industries are sugar refining, rum distilling, and molasses production. Exports in 1954 totaled 11,709 million francs; imports, 12,677 million. Chief exports were: sugar, 102,666 metric tons (5,407 million francs); bananas, 76,914 (4,810 million); and rum, 8,691 (940 million). Railways serve the sugar plantations; there are no public carriers. Roads total 775 miles. Four international lines provide air services. Passenger cars numbered 4,300 in 1955; telephones, 1,513.

GUAM. Largest and most populous of the

western Pacific islands known as the Marianas. Guam is an unincorporated territory of the United States. It lies about 5,000 miles southwest of San Francisco, is 30 miles in length, varies from 4 to 8½ miles in width, and has a land area of about 203 square miles.

Population.—According to the 1950 federal census the population was 59,498, including (July 1, 1951) 28,170 Guamanians. Half the population comprises American military and civilian personnel and their families. Guamanians are a mixture of ancient Chamorro stock with outside strains and are predominantly Roman Catholic in religion. Although English is the official tongue, the Chamorro language is widely used.

Populations of principal municipalities (1950 census, with numbers of permanent residents as of July 1, 1950, given in parentheses) are: Agaña, the capital, 800 (496); Agat, 4,682 (2,025); Asan, 3,090 (1,179); Barrigada, 11,534 (4,352); Dededo, 6,441 (1,404); Sinajana, 9,169 (4,064); and Yigo, 9,002 (886). Sumay had a 1950 population of 6,718.

Government.—Guam is administered under the Organic Act of Guam of Aug. 1, 1950, which provides statutory local powers of self-government and places Guam's relations with the United States under the general supervision of the secretary of the interior. The act also made Guamanians citizens of the United States without conferring the right to vote in national elections or of having representation in the U.S. Congress.

The local government comprises executive, legislative, and judicial branches, with the executive headed by a civilian governor appointed by the president of the United States, with the approval of the Senate.

A 21-member unicameral legislature, biennially elected at large, is empowered to pass laws on local matters. Among major enactments of the 1955 session were those which continued and implemented the territorial reconstruction and capital improvements program and extended the jury system in civil and criminal cases.

The District Court of Guam has jurisdiction in all cases arising under the laws of Guam. Its decisions are reviewable by higher United States courts. The Island Court and the Police Court and a newly established juvenile court have jurisdiction in certain cases arising under the laws of Guam.

Chief territorial officers in 1955 included Ford Q. Elvidge, governor (inaugurated April 23, 1953); R. S. Herman, secretary; Paul D. Shriver, judge of the District Court of Guam; and F. B. Leon-Guerrero, speaker of the Guam legislature.

Finances.—The operating budget for Guam in the 1955-56 fiscal year called for expenditures of \$7,105,370, to be met through local taxes and revenue, derived largely from individual income, specific sales, and business gross receipts taxes. Banking facilities are provided by the island's Bank of America, which moved into its new modern concrete building on March 8, 1954: The Guam Savings and Loan Association began operations on July 7, 1954.

Education and Social Welfare.—School attendance is compulsory for all between the ages of 6 and 16, inclusive, and budgeted school expenditures for 1955-56 were \$2,065,195. The 1955 enrollment for the island's 21 elementary schools and its single high school reached 10,775. In addition, over 1,100 pupils attended parochial schools offering primary and secondary education. The only public institution of higher learning is the Territorial College of Guam, situated at Agaña, and having a 1955 enrollment of 238. The government also maintains a vocational school. In 1955 over 150 Guamanians attended colleges and universities in the United States.

Economy.—Relatively poor in natural resources, the island is nevertheless one of the important military bases of the United States in the Pacific, thereby providing an important service economy for local residents.

Agriculture is the principal other factor in the economy. A 1955 census showed 1,300 persons engaged in active farming, with a harvest of over 3.3 million pounds. Major crops include bananas, truck crops, cassava, papaya, coconuts, mangoes, citrus fruits, and taro. The livestock census of 1954 reported 171,840 chickens, 11,895 swine, and 6,136 cattle on the island.

Nonfarming activities are largely limited to fisheries and quarry production. In the period of

July 1953 to July 1954, fisheries yielded an estimated 405,164 pounds and engaged 312 persons. The production of concrete in the same period was 14,707 cubic yards; crushed stone output in 1953 was 2,080,650 short tons. There are also several bottling, construction, and marketing companies with plants or headquarters on Guam, and there is some handicraft manufacture. The government's Department of Commerce seeks to encourage new industries and to induce American firms to locate their central Far Eastern offices on the island. A provision in the general tax laws exempts production or manufacturing industries from the 2% gross receipts tax. During 1955 a strong program of utility expansion went forward.

Foreign Trade.—The commercial port of Guam at Apra Harbor has experienced a steady increase in trade. The physical plant comprises 27 acres, 8,400 square feet of warehouse space, and 1,500 lineal feet of deep-water docking frontage. During the 1953-54 fiscal year, commercial imports and exports totaled 154,264 revenue tons valued at \$26,199,158. Principal imports, mainly from the United States, are foods, building materials, hardware, tobacco, liquors, and textiles.

Transportation and Communications.—Guam is a port of call for the Pacific Far East Lines, with an average of four arrivals a month, and for the American President Lines, with one arrival a month. Guam is also the home port of the Pacific Micronesian Lines. The island is a regular stop for Pan American World Airways and Transocean Air Lines. Guam's first commercial broadcasting station, KUAM, began operations on March 14, 1954. The U.S. Navy maintains the local telephone service, and the government of Guam administers the service for the civilian community. The Radio Corporation of America provides external commercial radio and telephone service.

There are about 100 miles of paved roads and more than 60 miles of improved secondary roads. English-language newspapers, with a combined circulation of 30,000 in 1954, include the *Guam Daily News* and two Sunday papers. There were 15 motion picture houses with a total attendance of 300,000 in the 1953-54 fiscal year.

JOHN P. BARTON,
Special Assistant to the Governor.

GUATEMALA. Most northerly and largest (42,042 square miles) of the Central American republics, Guatemala is divided into four main geographic regions—the tropic lowlands along both the Pacific and the Caribbean coasts, the low tableland in the north (Petén), and the central highlands, where most of the 3,201,000 (est., Dec. 31, 1954) Guatemalans live. Spanish is the official language of the republic, but many of the Indians still use their own languages. Cities of over 10,000 population (1950 census) are Guatemala City, the capital (293,998), Quezaltenango (36,209), Cobán (29,242), Zacapa (27,696), Puerto Barrios (15,332), Mazatenango (11,032), and Antigua (10,744).

Government.—By the plebiscite of Oct. 10, 1954, Col. Carlos Castillo Armas was continued in office as president for a term which the Constituent Assembly, elected on the same date, extended to March 15, 1960. Until the new constitution, which the assembly is drawing up to replace that of 1945, has been approved, the president rules under a political statute issued on Aug. 11, 1954. He has appointed judges to serve on the nation's courts. Under an election law approved by the Constituent Assembly on Nov. 22, 1955, congressional and municipal elections were set for December 18. On November 19, by executive decree, President Castillo legalized the formation of political parties which could give signatory proof of a minimum of 5,000 members. Since all candidates for the 66 seats in Congress had

promised their support to Castillo, it is not surprising that he was able to announce the victory of his National Democratic Movement in the December elections. Some 2,000 municipal councilors and 322 mayors were also elected.

Religion and Education.—Roman Catholicism is the prevailing religion in Guatemala, but, with freedom of worship, many of the Indians still cling to their ancient beliefs.

As of 1953 there were 3,537 primary schools (with 7,809 teachers and 191,330 pupils) to contend with an illiteracy rate estimated at 72.2% in 1950. Opportunities for higher education are provided in 125 "postprimary" schools (2,234 teachers and 17,251 pupils) or in the University of San Carlos of Guatemala, where 4,005 students were enrolled in 1954.

Economic Conditions.—The \$45 million debt left by the administration of ex-President Jacobo Arbenz Guzmán, in addition to some \$11 million "borrowed" by its officials from government banks and the withdrawal of \$50 million of private capital which took refuge abroad, left the new government of President Castillo with an economic problem made still more serious by the effects of social unrest and civil war. Guatemala met this situation by confiscations of property of the absconding officials, by regular and new emergency taxes, and through a gradual return to a more normal economic life. Favored by a good banana harvest and high coffee prices, the government closed the fiscal year on June 30, 1955, with a surplus of 2 million quetzales (1 quetzal = U.S. \$1), and it had paid off 2 million quetzales of the national bonded debt. Gold and foreign exchange totaled \$56,442,500. The 1955-56 budget was fixed at 66,385,825 quetzales.

Aid from the United States had come from private capital when businessmen, their confidence in the Guatemalan government renewed, came in search of investment opportunities. The United States government allocated \$10 million for aid in the fiscal year 1954-55 and \$16.5 million in 1955-56.

There was a large favorable trade balance in 1954, with exports totaling \$95,660,365 and imports, \$86,310,997. The United States supplied \$55,663,838 of the imports and received \$67,753,573 of the exports.

Agriculture.—As in the old Mayan days, corn is Guatemala's basic food. There are no accurate production figures—the 1954-55 crop was estimated at 10 million quintals (1 quintal = 101.43 pounds)—but the reality of a tragic food shortage in early 1955 was evident. The International Cooperation Administration sent 30,000 tons of corn from United States surplus stocks to help until new crops could be harvested in August. With village mayors in charge of distribution, the grain was sold by the government at around the usual, and far below the current, price. The program not only relieved widespread hunger, but brought in about \$1,500,000 for use in easing unemployment or in settling more farmers on the land.

Guatemala's two chief agricultural export crops are coffee and bananas. Estimated 1954-55 coffee production was 1,175,000 bags (of 132 pounds each), of which 975,000 were for export. Although bananas did well (6,102,788 stems were exported in 1954), the solution of the government's dispute with the United Fruit Company, the producing firm, was of greater importance for Guatemalan economy. By the terms of a revised contract signed on Dec. 27, 1954, the company withdrew its \$15 million claim for payment for the land expropriated by the Arbenz regime, agreed to pay a 30% tax on net profits, and turned over to Guatemala 109,500 acres of land in return for 245,640 acres restored to it by

the government. The government thus gained added income and yet kept some of the land for distribution as small farms. It is needed for raising subsistence crops, since the tilled acreage has been estimated at less than one acre per person, and too large a proportion has been used for cash export crops.

In a speech on July 3, 1955, commemorating his first year in power, President Castillo said that up to May 6, 61,370 acres had been distributed to 10,359 farmers by his government, and that \$1,666,980 was budgeted to cover expenses of distributing more land. The farms are sold at nominal prices (for as little as \$50), and the Agrarian Bank grants loans of \$200 to \$300 to help the new owners until harvest time.

Industry.—Of 243,000 salaried workers in Guatemala, only 28,000 were employed in industry in early 1955. To encourage new industrial activity, the country has fixed a sliding scale of tax exemptions over an 8-year period, lifted duty on imports of equipment, and signed an investment guarantee agreement with the United States. Thus far actual results have been small, but they are significant in the Guatemalan economy, and the changed complexion of the government, as indicated by the agreement made with the United Fruit Company, is encouraging foreign investment. Since President Castillo came into power in 1954, 15 new industries either have begun operation or have definite plans for the near future. As of June 1955, the industrial production index was 114 (1948 = 100).

Labor.—Only 26 of the estimated 300 unions which existed under Arbenz had been permitted to reorganize by mid-1955, but this figure included all of the major unions of the country. Labor union representatives have reached an amicable agreement with the United Fruit Company, increasing the base wage from \$1.36 to \$1.80 a day, a wage which compares favorably with the average farm worker wage (60 to 80 cents) paid in Guatemala.

Under a program to provide low-cost housing for low-salaried workers, a group of 200 postmen received homes on July 3, 1955. Their houses cost more than \$4,000 each (although the government assumed any cost over that figure), and they were sold with 20-year mortgages.

Mineral Products.—Although oil is produced across the northern border in Mexico, and geological work hints that rich deposits may be present in Guatemala as well, the country now pays some \$9 million yearly for imported oil products. Early in 1955 several United States firms received permits for exploration under a preliminary decree, but the new petroleum law signed by the president in July requires each company to drill at least one well every six months on each concession and seems to involve prohibitive expense. Under this law, which became effective on November 9, foreign investment is favored,

however, by release from all import duties on oil machinery and all export duties on oil and its derivatives.

Transportation and Communications.—As of 1954, Guatemala had 16,704 motor vehicles. In an ambitious program to add to its 2,316 miles of paved and 3,227 miles of unpaved roads (1952), the country has under construction a 190-mile Atlantic highway to connect the capital with Puerto Barrios and with the fine new nearby port of Santo Tomás, which was inaugurated on Sept. 13, 1955, as well as the Pacific and Inter-American highways, extending from the Mexican to the Salvadoran border. Also planned is a northern highway to the Petén region of hardwood forests and, possibly, petroleum. Guatemala allocated \$14.3 million to its road program for the fiscal year 1954-55, and an \$18.2 million loan was obtained from the International Bank for Reconstruction and Development on July 29, 1955, in addition to Inter-American Highway aid of \$12 million from the United States.

Guatemala has 725 miles of railway. There are (1954) 6,428 telephones. In 1955 the country opened its first television station.

Principal Events, 1955.—A quickly suppressed January 20 attack on the Aurora military base outside Guatemala City was attributed to Communists, former Arbenz supporters, and disgruntled military men. A state of siege was imposed until February 17, and 417 persons were arrested. Meanwhile, the failure of the extradition proceedings which had been begun in Mexico against leading Arbenz regime refugees was reportedly followed by their preparation of a Free Guatemala movement there.

Happier events of the year were Guatemala's formal adherence to the 1947 Inter-American Treaty of Reciprocal Assistance and its ratification of the 1948 Charter of the Organization of American States. The meeting at Antigua on August 18-24 of the Organization of Central American States was further evidence of Guatemala's return to inter-American cooperation. On June 18, a military assistance agreement was signed with the United States, and at the end of October, President Castillo made an official visit to Washington. Addressing the U.N. General Assembly on November 3, he urged all nations to adopt a policy of peaceful coexistence without "the renunciation of principles, or appeasement, or the acceptance of injustice."

MADALINE W. NICHOLS,

Specialist in Latin American Affairs.

GUIANA. See BRITISH GUIANA; FRENCH GUIANA; SURINAM.

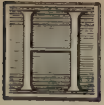
GUIDED MISSILES. See INDEX ENTRY.

GUINEA. See FRENCH WEST AFRICA; PORTUGUESE TERRITORIES; SPANISH COLONIES.

GYMNASTICS. See SPORTS, GAMES, AND SHOWS.

GYPSUM. See MINERAL PRODUCTION.





HAITI. A republic occupying the western third of the Caribbean island of Haiti (Hispaniola). Area, 10,714 square miles; pop. (est. mid-1953), 3,227,000. Chief cities and populations (1950 census): Port-au-Prince, the capital, 134,117; Cap-Haïtien, 24,423; and Gonaïves, 13,634. The people are Negroes. French, the official language, is spoken by a small educated minority, chiefly in the capital. Creole French is the popular tongue. The majority of Haitians are peasants who eke out a subsistence on tiny farm plots. Annual per capita income is less than \$70.

Government.—Col. Paul Magloire was elected president on Oct. 8, 1950, in the country's first direct presidential election. The president's term is 6 years and he may not succeed himself. The National Assembly consists of a Chamber of Deputies of 37 members who hold office for 4 years, and a Senate of 21 members who serve for 6 years. Senators and deputies are elected by the primary assemblies of the departments.

Education and Religion.—Over 85% of the population is illiterate. In 1952, primary schools had 135,023 pupils; secondary schools, 6,067; technical schools, 2,605; teachers training schools, 79; and higher institutions, 632. Higher education is provided by the state-controlled University of Haiti and by schools of law, medicine, agriculture, and technical studies. Many schools are maintained by Catholic teaching orders, and a few are under Protestant direction. Roman Catholicism is the principal religion, although voodoo priests flourish in the rural areas.

Finance.—Receipts in the fiscal year ended Sept. 30, 1954, totaled 161,091,110 gourdes (the Haitian gourde equals U.S.\$0.20); expenditures, 175,029,467. The gross public debt as of March 31, 1955, was 136,039,000 gourdes.

Production.—Subsistence crops grown by the peasants include maize, rice, beans, peas, manioc, yams, mangoes, citrus fruits, and avocados. Chief cash crops and exports in the 1953-54 fiscal year were (in metric tons): coffee, 31,777; sisal, 23,975; cacao, 2,246; and sugar, 15,359. Cotton, castor beans, essential oils, and bananas are among the other cash crops. The hurricane of October 1954 reduced coffee exports in 1954-55 to an estimated 18,000 metric tons.

Manufactures include sugar, molasses, rum, sisal and straw products, shoes, sandals, soap, cement, wood products, and essential oils. An American company has recently begun to work the bauxite deposits at Miragoâne. Haiti's national income approximates \$200 million, of which industry contributes about 25%.

Foreign Trade.—For the fiscal year ended Sept. 30, 1954, exports totaled 277,663,130 gourdes; imports, 237,782,472. Chief exports and values were: coffee, 217.8 million gourdes; sisal, 24.6 million; cacao, 9.8 million; and sugar, 6.1 million. Imports are mainly cotton cloth, foodstuffs, machinery and parts, iron and steel manufactures, motor vehicles, and other manufactures. The United States provided 63.2% of Haiti's 1953-54 imports and purchased 45.3% of exports. Tourists in 1954 numbered about 48,000, spending a record \$3.5 million.

Transportation and Communications.—At the end of 1952, Haiti had about 750 miles of improved earth and gravel roads, and 120 miles of paved or asphalted roads. The country's 2 railroads have an aggregate length of 187 miles. The Haitian Aviation Corps provides internal air services, and several foreign airlines land at Bowen Field in Port-au-Prince. Motor vehicles in 1955 included 4,970 passenger cars and 2,921 trucks; telephones (1955), 4,293. In 1952 there were 6 daily newspapers with a total circulation of about 10,000.

Principal Events, 1955.—President Magloire arrived in Washington on January 26 on a three-day state visit. Addressing a joint session of the

U.S. Congress on January 27, Magloire expressed his thanks for the \$2,740,000 in emergency aid following the hurricane of October 1954, as well as for the \$3,581,000 contributed since 1950 toward the development of agriculture and education in Haiti. Magloire declared that he was seeking to immunize Haiti against communism by raising the living standards of his people. In New York City on January 31, the Haitian president sought to stimulate private capital investment in Haiti. Magloire then proceeded to Ottawa on February 9, on a five-day visit to Canada.

During Magloire's visit to Washington, a bilateral military aid agreement was signed on January 28 by U.S. Secretary of State John Foster Dulles and Haitian Foreign Minister Maclair Zephirin. A treaty of friendship, commerce, and navigation was signed by the two nations on March 3 at Port-au-Prince. The Export-Import Bank of Washington announced on April 18 a \$7 million loan to Haiti for the Artonibon Valley irrigation project; and the International Bank for Reconstruction and Development at the same time reported a \$10 million loan to Haiti for road construction and port improvement.

Painfully recovering from the disastrous 1954 hurricane, Haitians suffered a further blow to their marginal economy in 1955, when a spring drought withered crops. In mid-August, starvation conditions were reported in the Jérémie area, with thousands of peasants dying in the remote districts to which food or medical supplies could not be supplied quickly.

HALL OF FAME. Quinquennial elections to the Hall of Fame for Great Americans, announced by its director, Dr. Ralph W. Sockman, on Oct. 31, 1955, added two inventors, Wilbur Wright and George Westinghouse, and a Confederate hero, Gen. Thomas J. (Stonewall) Jackson, to the 83 persons so honored since 1900. Although 7 names could have been selected from 209 candidates who had been dead at least 25 years, only these three men received a majority of the votes cast by the shrine's College of Electors. Their busts will be placed with those of their predecessors in an open-air colonnade on the campus of New York University, in the Bronx, New York.

HAMPDEN, Walter (real name WALTER HAMPDEN DOUGHERTY), American actor: b. Brooklyn, N.Y., June 30, 1879; d. Los Angeles, Calif., June 11, 1955. Firmly established as the dean of the American stage, he held the interest and imagination of a vast audience in the theater, in motion pictures, in radio, and in television with the excellence and variety of his performances.

Educated at Harvard College and Brooklyn Polytechnic Institute (B.A. 1900), he rounded out his dramatic studies in Paris before crossing the channel for his first role, a walk-on with Sir Frank R. Benson's Company at Brighton, England, on Sept. 2, 1901. His apprenticeship in classical repertory lasted until 1904, when he achieved the distinction of leading man at the Adelphi Theatre in London for three seasons, and for one week, in May 1905, replaced Henry B. Irving as *Hamlet* in his first real theatrical triumph.

He returned to the United States in 1907 to make his Broadway debut as a supporting actor for Alla Nazimova in a number of Ibsen's plays produced at the Bijou Theatre, and in 1908 began a three-year success as Manson in Charles R. Kennedy's *The Servant in the House*. It was not until 1918 that he was able to introduce Shake-

speare to American audiences as regular theatrical fare, first in individual offerings of *Hamlet* and *Macbeth*, and, in the following year, with his own repertory troupe. In the 1923-24 season he revived Rostand's *Cyrano de Bergerac* at the National Theatre in an eight-month run that ended in a triumphant tour of the nation. Leasing the Colonial Theatre in 1925, he renamed it the Hampden, and during the following season appeared with Ethel Barrymore in *Hamlet* and *The Merchant of Venice*, and in subsequent seasons in Goodrich's *Caponsacchi*, Ibsen's *An Enemy of the People*, Bulwer-Lytton's *Richelieu*, Barrie's *The Admirable Crichton*, and his entire repertory of Shakespearean roles.

Hampden essayed the motion picture field in 1939 with *The Hunchback of Notre Dame*, and continued in a series of sustainedly workmanlike performances, notably in *The Adventures of Mark Twain* (1944), *The First Legion* (1950), *All About Eve* (1950), *Sabrina* (1954), and *The Silver Chalice* (1954). At the time of his death he was preparing to appear in *Diana*.

Radio knew him almost from its inception, particularly in a serial called *The Adventures of Leonidas Withersall* and as host on *Great Scenes from Great Plays* (1948). He also led the Players' excursion into television in 1949 with a two-hour presentation of *Macbeth*.

Never quite abandoning the stage, he appeared during 1941-42 in Sheridan's *The Rivals* and toured with Joseph Kesselring's *Arsenic and Old Lace* (1942-43). In 1949 he had a brief run in Herman Wouk's *The Traitor* and, on December 26 of the same year, launched a successful run in Rosemary Casey's *The Velvet Glove*. His last stage appearance was in 1953 in Arthur Miller's *The Crucible*. In the following year he became the first person to step down from the traditionally lifetime presidency of the Players, a post he had held since 1927.

HANDBALL. See SPORTS, GAMES, AND SHOWS.

HARBORS. See PORTS AND HARBORS.

HARNES RACING. See SPORTS, GAMES, AND SHOWS.

HARRIMAN, (William) Averell, American public official: b. New York, N.Y., Nov. 15, 1891. After an extensive career in finance and government service, Averell Harriman was elected governor of New York on Nov. 2, 1954. Graduating from Yale University in 1913, he entered his family's railroad enterprises and later banking (1920-31). He served as ambassador to the USSR (1943-46) and Great Britain (1946), and as secretary of commerce (1946-48). In President Truman's administration he also acted as roving administrator (1948-50) for the Economic Cooperation Administration, as special assistant on foreign affairs (1950-51), and as director of the Mutual Security Agency (1951-January 1953).

A severe critic of the Republican administration, Harriman scored the administration's policies in 1955 on Formosa, Communist China, civil defense, and other matters. During the International Longshoremen's Association strike (Sept. 7-14, 1955), Governor Harriman, with Gov. Robert B. Meyner of New Jersey, refused to intervene, saying that the strikers should return to work and submit their grievances to the Water-front Commission.

An active candidate for the Democratic presidential nomination in 1952, Harriman was in 1955 again being seriously considered as a prospective contender at the 1956 Democratic con-

vention, although he did not formally announce his intention to campaign for the nomination.

HATOYAMA, Ichiro, premier of Japan: b. Tokyo, Japan, Jan. 1, 1883. A leading prewar political figure and founder of the Liberal Party in 1945, Hatoyama broke with Liberal Premier Shigeru Yoshida in 1953, and in 1954 organized the Democratic Party. Following Yoshida's resignation, Hatoyama was named premier on Dec. 9, 1954, heading a caretaker coalition government pending the holding of national elections.

In the pre-election campaign, Hatoyama stated that he wished to retain close ties with the United States but also favored greater trade with Communist China and negotiations with Soviet Russia on ending the state of war. The elections of Feb. 27, 1955, gave Hatoyama's Democratic Party 185 of the 467 seats in the Japanese House of Representatives. Obtaining the support of the Liberals, who had run second with 112 seats, Hatoyama was re-elected premier by the House of Representatives on March 18, by a vote of 254-160. He resigned on November 21, and was re-elected on November 22. A conservative and a moderate nationalist, Hatoyama in 1955 pressed for a revision of the Japanese Constitution to permit further rearmament. He also defended the extension of United States military bases in Japan as consistent with Japan's self-interest, sought the return of Soviet-held former Japanese territories, and called for repatriation of remaining Japanese war prisoners in Soviet Russia and Communist China. (See also JAPAN.)

HAWAII, Territory of. The Territory of Hawaii, a large archipelago of volcanic origin, lies in the Pacific Ocean, 2,090 miles southwest of San Francisco between 18°55' and 22°15' north latitude and between 154°50' and 160°30' west longitude. Honolulu, on the island of Oahu, is the capital of the territory and is its largest city and principal port, and has a population (July 1, 1955) of 259,580.

Area and Population.—The eight major islands of the territory, with a total area of 6,407 square miles and a civilian population (July 1, 1955) of 500,976, are as follows:

Island	Land area (sq. mi.)	Population (July 1, 1955)
Hawaii.....	4,021	63,366
Maui.....	728	38,263
Oahu.....	589	362,196
Kauai.....	551	29,437
Molokai.....	259	5,051
Lanai.....	141	2,450
Niihau.....	72	213
Kahoolawe.....	45	0

The population is of diverse racial extraction and is characterized by a high ratio (currently about one third) of intermarriages between the various ethnic stocks. Persons of Japanese and Caucasian origin constitute the two largest groups; others include full-blooded Hawaiians (less than 3% of the population), part Hawaiians, Chinese, Filipinos, Koreans, Puerto Ricans, and Samoans. Approximately 85% of the entire population are United States citizens.

The exact area of the territory was not established either by the terms of the joint resolution of the U.S. Congress which annexed Hawaii to the United States in 1898, or by the Organic Act of Hawaii (1900), so that there remains some ambiguity as to whether certain outlying islands come officially within the territory. The convention of 1950, which drafted a constitution in anticipation of statehood, avoided the issue by defining the State of Hawaii to "include the islands and territorial waters heretofore constituting the Territory of Hawaii."

In addition to the eight major islands listed above, the area of the territory includes the Leeward Islands (except Midway), a chain of small islands, shoals, and reefs extending some 1,250 miles northwestward from Niihau and forming the Hawaiian Islands Bird Reservation, almost uninhabited (except for a few Coast Guard and other official personnel). The Leeward group includes the following: Kaula, Nihoa, Necker, French Frigate Shoal, Gardner Pinnacles, Maro Reef, Laysan,

Lisianski, Pearl and Hermes Reef, Brook Shoal, Dowsett Reef, Gambia Shoal, Frost Shoal, and Kure (or Ocean) Island. The latter is under U.S. Navy administration.

Palmyra Island (area about 1 square mile), one of the Line Islands some 960 miles south of Honolulu, is also within the territory and, like all distant points of Hawaii, falls within the jurisdiction of the city and county of Honolulu. Actual administration is exercised by the Civil Aeronautics Administration.

Johnston Island, 717 miles southwest of Honolulu, was annexed to Hawaii in 1859; actual operations there are under the U.S. Air Force.

Administration.—Both the governor and the secretary (the latter position corresponding to a state's lieutenant governor) are appointed to four-year terms by the president of the United States, with Senate approval. Judges of the Supreme Court of Hawaii and of the four circuit courts are similarly appointed. The only major units of local government are the three counties of Maui, Kauai, and Hawaii, and the city-county of Honolulu. Most major functions of government are exercised by the territory.

Chief territorial officers in 1955 were:

Governor: Samuel W. King (Republican)

Secretary: Farrant L. Turner

Attorney General: Edward N. Sylva

Treasurer: Kam Tai Lee

Superintendent of Public Instruction: Clayton J. Chamberlin

Chief Justice, Supreme Court: Edward A. Towse

Legislature.—The legislature consists of 15 senators and 30 members of the House of Representatives, who are popularly elected. It convenes in odd-numbered years on the third Wednesday of February for a 60-day session. The 28th territorial legislature convened on Feb. 16, 1955 (see below, *Principal Events*). Hawaii is represented in the federal House of Representatives by a delegate, elected by the entire territory, who has the right to introduce legislation and participate in debate, but who has no vote. The present delegate to Congress is Elizabeth P. Farrington, Republican.

Finances.—Under its Organic Act, Hawaii has a taxing power equal in scope to mainland states. Chief revenue sources are the general excise (a comprehensive turnover) tax; a 2% tax on wages and dividends; gasoline, liquor, and tobacco taxes; a corporate income tax; and a real property tax collected by the territory for the counties. The net assessed valuation of real property was \$676,100,000 for the calendar year 1955.

During the biennium ended June 30, 1955, \$114,-371,537 was received by the territorial general fund, while \$121,136,248 was disbursed. On July 1, 1955, the cumulative general fund deficit was \$8,032,931, and territorial bonded indebtedness was \$47,875,000.

Banking.—Five banks, operating 46 branches, had total deposits of \$386,748,755 on June 30, 1955, and assets totaling \$418,498,095.

Education.—Compulsory education for children between 6 and 16 years of age, inclusive, is administered by the territorial Department of Public Instruction. Expenditures for public instruction during the fiscal year 1954-55 amounted to \$25,070,972 for a program administering to 203 public schools with an enrollment of 119,046 students and employing 4,146 teachers. There were 114 private schools, ranging from kindergarten to the 12th grade, which employed (1953-54) 1,254 teachers for an enrollment of 25,897 pupils. Five junior colleges were in operation in 1955, four on Oahu and one on the island of Maui. The University of Hawaii, a land-grant college, had a student enrollment of 6,491 and a staff of 534 for the academic year 1954-55.

Social Welfare.—During the fiscal year 1954-55, the territorial Department of Public Welfare expended a total of \$7,583,125, including \$918,-783 for administrative costs. The remaining \$6,664,342 was spent on public assistance as follows:

Type of assistance	No. of cases ¹	Expenditure
General assistance	1,836	\$1,260,133
Disabled persons	1,276	735,150
Old-age	1,844	799,198
Dependent children and their parents	3,195 ²	3,420,114
Children under foster care	825	388,102
Blind	111	61,645

¹ Average number assisted monthly. ² 9,629 children involved.

Approximately 49% of these costs were borne by the federal government under national social welfare laws.



"LIFE" PHOTO BY N. R. FARMAN

Lava spurts skyward from fissure in Kilauea, crater on Hawaii's Mauna Loa, which erupted in 1955.

Industry.—The production of cane sugar and the production and processing of pineapple, both highly mechanized, are the two most important industries in Hawaii. The combined value of these two crops for 1954, approximately \$249 million, constituted about 85% of total agricultural income. In the calendar year 1954, 220,138 acres of sugar cane were cultivated, producing 1,077,347 short tons; 28 plantations (and about 2,000 independent planters) employed 19,833 persons, paying wages amounting to \$62,158,000. For the crop year ending May 1954, pineapple production totaled 29,411,000 cases of canned fruit and juices; the industry employed 12,775 workers and paid wages of \$33,017,000. Coffee production for 1953-54 was estimated at 8,264,-000 pounds. Animal products for this period had a value of \$24,763,000.

A steadily expanding tourist industry brought an estimated 106,000 visitors to Hawaii in 1955, who spent some \$56 million in the territory.

Labor.—The labor force for all industries in 1954 was estimated to be 205,700. Diversified agriculture, forestry, and fishing employed 25,746 persons, paying average annual wages amounting to \$2,925. Manufacturing of food, textiles, chemicals, and miscellaneous commodities gave employment to 20,724 persons, who received average annual wages of \$3,395. Wholesale and retail trade employed 32,145, paying average wages of \$3,038.

The largest single employer in Hawaii, the federal government, had a 1954 payroll of \$231,-403,000, employing 60,963 persons, more than half of whom were in the military service, with about 25,000 civilian employees. Local government agencies employed 17,900 persons; their wages aggregated about \$65,500,000.

Communications.—Honolulu is a regular port of call for steamship lines, with several lines con-

necting the islands with the United States mainland and with Canada, Australia, the Philippines, China, and Japan. During the year ending June 30, 1955, 996 overseas vessels entered (with 2,557,518 tons) and cleared (with 941,569 tons) the port of Honolulu. Freighters and barges provide transport between the islands, but almost all passenger travel is by air, with 3 airlines and 15 airports serving the territory. One nonscheduled and six scheduled airlines connect Hawaii with the United States west coast, Canada, Australia, and the Far East. For the year ending June 30, 1955, airlines carried 255,421 passengers.

In December 1954, 141,326 passenger motor cars were locally registered. Interisland communications, as well as communications with the continental United States, are facilitated by radiotelephone service. Wireless telegraph service is maintained between the six principal Hawaiian islands. The U.S. Federal Communications Commission on Sept. 8, 1955, authorized the American Telephone and Telegraph Company to embark on a \$35 million project of building twin undersea cables connecting Point Reyes, Calif., with Koko Head on Oahu. These projected 2,000-mile telephone-telegraph submarine cables are scheduled for completion in 1957.

Other communications facilities in 1955 included 131,752 telephones; 13 radio stations, of which 8 are on Oahu; and 3 television stations, all located at Honolulu.

Principal Events, 1955.—On Feb. 16, 1955, for the first time in Hawaii's history, the legislature convened with a majority of Democrats, both in the Senate and the House of Representatives. In an attempt to finish its work, the normal 60-day session was extended by the device of stopping the legislative clocks on the 60th day. The session was thereby allowed to complete its interrupted course 28 days later.

The U.S. Congress, for the 20th time since 1903, failed to act on a statehood bill for Hawaii in 1955. In November, Gov. Samuel W. King called on the delegates of the 1950 Constitutional Convention to meet for the purpose of considering one portion of the 1950 "hope-chest" constitution—that of reapportionment of representation in the legislature.

February 28 marked the beginning of a volcanic eruption on the island of Hawaii, which was active intermittently over a period of three months, causing much property damage and necessitating the evacuation of several villages in the Puna area (southeast coast) of Hawaii. In April, Puna was declared a federal disaster area. There was an underwater volcanic disturbance approximately 430 miles northwest of Honolulu in August, resulting in the formation of an island of pumice, which sank soon after its birth. September brought reports of similar underwater disturbances about 380 miles northwest of Honolulu, but geologists were divided in opinion as to the significance of these eruptions in an area formerly believed to have completed its period of volcanic activity.

In September, the Episcopal Church held its 58th international convention in the city of Honolulu. Honolulu also was the meeting place on Nov. 1, 1955, of members of the Southeast Asia Treaty Organization (q.v.). The Honolulu meeting was held to integrate plans of subordinate committees of SEATO working toward a regional defense pact.

ROBERT M. KAMINS,
Director, Legislative Reference Bureau,
Territory of Hawaii.

HAY. The United States crop of hay harvested in 1955 totaled 109.7 million tons, a record high figure (4.7 million tons more than in 1954, and 7.5 million tons above average), according to the Agricultural Marketing Service, U.S. Department of Agriculture. Production by kinds in 1955, in millions of tons, was as follows: alfalfa and alfalfa mixtures, 53.0; clover and clover mixtures, 26.7; wild, 9.7; lespedeza, 4.9; grain, 4.4; soybean, 1.0; peanut, 0.8; cowpea, 0.2; and other kinds, 9.0. The 1955 yield of 1.48 tons per acre was also a record high figure, and resulted from generally favorable growing conditions in most of the important producing areas, plus increased acreage of the higher-yielding alfalfa.

HEALTH, Public. See Index entry *Public Health*.

HEALTH, EDUCATION, AND WELFARE, Department of. See DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE.

HEARING. See Index entry, *Deafness*.

HEART DISEASE. Both the number of deaths and the rate of deaths per 100,000 population from diseases of the cardiovascular system dropped in the United States in 1954, as compared with 1953, according to figures released by the National Office of Vital Statistics. However, the decrease in cardiovascular deaths paralleled a drop in total death figures, so that the proportion of all deaths attributed to heart and blood vessel disease was 52.3 per cent, approximately the same as in previous years.

Rheumatic Heart Disease.—Continued studies of acute rheumatic fever, the cause of rheumatic heart disease, have established that both initial and recurrent attacks are precipitated by infections with hemolytic streptococci. The American Heart Association has thus been able to publish definite recommendations for prevention of rheumatic fever. The main points are: (1) About 3 per cent of untreated streptococcal infections in the general population are followed by rheumatic fever; early treatment of these infections with penicillin and maintenance of effective blood levels of penicillin for 10 days will prevent this complication. (2) Prophylactic (preventive) treatment should be given to all individuals who have had rheumatic fever or who show definite rheumatic heart disease; this can be carried out by daily oral administration of penicillin or sulfadiazine or by monthly injection of benzathine penicillin G.

A cooperative clinical trial of aspirin and two hormonal products, ACTH and cortisone, in the treatment of acute rheumatic fever in children was carried out at 5 centers in the United States, one in Canada, and 6 in the United Kingdom. Records of 497 children treated (162 with ACTH, 167 with cortisone, and 168 with aspirin) for a period of six weeks showed that the hormones controlled acute manifestations more promptly, but rheumatic fever could not uniformly be terminated by any of the compounds. At the end of one year the incidence of heart damage was the same in the three groups. Two new hormonal drugs, prednisone (Meticorten) and prednisolone (Meticortelone), also apparently are effective in the control of acute rheumatic fever symptoms, and lack some of the undesirable effects of previously employed hormones.

Surgical relief of narrowing of the mitral heart valve due to rheumatic fever is producing satisfactory results in properly chosen cases throughout the world. Since correction of nar-

rowing of the aortic heart valve has proved more difficult, Stanley J. Sarnoff of Bethesda, Md., has employed a lucite bypass of this valve in experimental animals. A rigid tube containing a polyethylene ball valve was placed between the left ventricle and the aorta. Surviving dogs with this implant exhibited their normal tendency to run, play, and fight. (See also ARTHRITIS; PEDIATRICS.)

Coronary Artery Disease.—Since the heart muscle receives its blood largely through the coronary arteries on the outside of the heart, disease of these vessels impairs muscle nutrition. Some surgeons remain enthusiastic about procedures designed to bring additional blood to heart muscle from other parts of the body, but the clinical results and experimental background of such operations have not been generally accepted. Charles P. Bailey of Philadelphia has resected a large aneurysm (outpouching) of the left ventricle due to muscle destruction secondary to coronary artery disease in a 56-year-old man, with relief of congestive failure and heart pain.

Disorders of Heart Rhythm.—The treatment of heart block (interruption of conduction between the auricles and ventricles) has been greatly improved by the use of Isuprel to speed up the rate of the ventricles, and also by the intravenous administration of sodium lactate as suggested by Samuel Bellet of Philadelphia. Charles P. Bailey has grafted right auricular muscle into the ventricle to improve conduction in a patient with heart block. Boston workers have found Ambonestyl (2-diethylaminoethyl-isonicotinamide) effective in controlling disorders of rhythm originating in the ventricles.

Surgery.—Study continued of methods to temporarily suspend blood flow through the heart, permitting operation under direct vision in a dry field. University of Minnesota workers have aerated blood during operation on the heart of a 13-year-old boy by pumping it through a dog's lung. At the Mayo Clinic, a modification of the mechanical oxygenator developed by J. H. Gibbon, Jr., was used in 8 heart operations on very ill patients; 4 survived. In repairing or replacing damaged peripheral arteries, technical improvements included use of preserved human vessels as permanent shunts around occluded segments. A pig artery has been used as a temporary bypass around a section of diseased human aorta during insertion of a graft taken from a cadaver. (See also NUTRITION.)

JOHNSON MCGUIRE,

Director, Cardiac Laboratory, and Professor of Clinical Medicine; and

ARNOLD IGLAUER,

Assistant Professor of Medicine; College of Medicine, University of Cincinnati.

HEATING. See Index entry.

HEBRIDES, The, or WESTERN ISLANDS. Politically part of the Scottish counties of Argyll, Inverness, and Ross and Cromarty, the Hebrides form an archipelago of some 500 islands (about 100 inhabited) lying off the west coast of Scotland (area, 2,812 square miles). The Little Minch divides the islands into two groups: the Outer Hebrides, including Lewis-with-Harris, on which is Stornoway, the chief town (pop., 3,121 in 1951), North Uist, South Uist, Benbecula, and Barra; and the Inner Hebrides, of which Skye (pop., 8,267 in 1951), Mull, andIslay are principal islands. The aggregate population, estimated at 53,000 in 1951, had declined by 15.5 per cent since the 1931 census. Gaelic is the

predominant language. Subsistence crops of oats, barley, and potatoes are grown under primitive conditions, the major economic resource being sheep raising and the weaving of Harris tweed, the latter industry engaging some 2,000 persons.

HEDTOFT, Hans Christian, premier of Denmark: b. Aarhus, Denmark, April 21, 1903; d. Stockholm, Sweden, Jan. 29, 1955. Ousted by the Nazis as chairman of the Social Democratic Party of Denmark, he played a significant role in the Danish underground movement during World War II. After the war, as leader of his party and later as premier, he advocated a strong Scandinavian defense alliance and customs union, and was instrumental in Denmark's decision to enter the North Atlantic Treaty Organization (NATO).

The son of a tailor, Hans P. Hansen (the surname Hedtoft was adopted later), Hedtoft entered politics early in life. In 1922, while serving as an apprentice to a lithographic printer, he was elected secretary of the National Social Democratic (Socialist) Youth Organization, an office he held until 1928, when he became the group's president. In 1929 he was elected assistant secretary of the Social Democratic Party, and in 1935 won a seat in the Folketing (then the lower house of Parliament). Four years later, at the age of 36, he was elected chairman of the Social Democratic Party.

With the invasion and occupation of Denmark by Germany in 1940, Hedtoft, who refused to cooperate with the Nazis, was stripped of his party leadership. During the occupation, however, he often and dramatically slipped out of the country, on at least one occasion going to Sweden to negotiate for arms for the Danish underground.

With the termination of hostilities, he was recalled as chairman of his party, served as Danish minister of labor and social affairs in 1945, and on Nov. 12, 1947, after elections in which none of the several contending parties won a majority, was called upon by King Frederick IX to form a new government. He held the office of prime minister twice: from Nov. 12, 1947, to Oct. 28, 1950, when he yielded to a coalition choice, Erik Eriksen, and from Sept. 30, 1953, after the Social Democratic Party significantly increased its parliamentary strength. The prime minister died in Stockholm while attending a session of the Nordic Council.

HELICOPTERS. See Index entry.

HEMPEL, Frieda, German-American coloratura soprano: b. Leipzig, Germany, June 26, 1885; d. Berlin, Oct. 7, 1955. Gifted with an exquisite purity of tone and a wide vocal range, Miss Hempel came to be recognized as one of the foremost interpreters in her time of Mozart's operas.

Frieda Hempel began her career in music as a piano pupil at the Leipzig Conservatory in 1900. After her voice had matured, she entered the Stern Conservatory in Berlin, where she studied from 1902 to 1905. She made her operatic debut at the Royal Opera House in Berlin in August 1905 in Otto Nicolai's *The Merry Wives of Windsor*. Subsequently she sang for two years at the Court Opera of Schwerin, Germany, before being permanently engaged by the Royal Opera House. In 1912 she went to the United States, where she made her debut at the Metropolitan Opera House as Marguerite de Valois in Meyerbeer's *Les Huguenots*. With the

exception of the 1913 season, when she sang in London with Sir Thomas Beecham's opera company, she remained with the Metropolitan Opera Company until 1919.

During her career, Miss Hempel developed a varied and extensive repertoire, although it was her rendering of Mozart's operas that won her widest critical acclaim. Her most admired roles included Violetta in Verdi's *La Traviata*; Gilda in Verdi's *Rigoletto*; Eva in Wagner's *Die Meistersinger*; Marguerite in Gounod's *Faust*; Rosina in Rossini's *The Barber of Seville*; the Marschallin in Richard Strauss' *Der Rosenkavalier*; Susanna in Mozart's *The Marriage of Figaro*; and the Queen of Night in Mozart's *The Magic Flute*.

After 1919, a year after she became an American citizen, Miss Hempel turned her attention to the concert stage. In 1920 she impersonated Jenny Lind in a concert at Carnegie Hall celebrating the great soprano's centennial year. In the ensuing years she gave many "Jenny Lind" concerts and personal recitals in the United States, Great Britain, and continental Europe. After her 1927 concert appearance in Berlin, which evoked a Nazi demonstration against her, she did not return to Germany until a few months before her death in 1955. Her autobiography, *Mein Leben dem Gesang (My Life for Song)* was scheduled for publication in Germany in 1955.

HIGH-FIDELITY ("HI-FI"). See RECORDS, PHONOGRAPH.

HIGHWAYS. Federal-aid highway improvement and all other highway work went forward at a record-breaking rate in the United States during 1955. Continued growth in highway traffic with a corresponding gain in motor vehicle revenues for highways, increased federal funds, continued building of toll roads, and other factors combined to make the year one of great physical accomplishment.

The significant feature of the year, however, was not the record volume of construction, but the increased recognition of the much greater improvements still needed to remove congestion, delays, and accidents on the nation's highways. There was increasing evidence of public demand for highway improvements. A report submitted to Congress showed that the cost of construction needed to modernize the nation's roads and streets in a period of 10 years was \$101 billion. Legislation looking toward a greatly enlarged program of highway improvement was given careful consideration by Congress.

Estimated expenditures for highways during 1955 amounted to \$7.6 billion. Of this total, \$4,625 million was for construction plus right-of-way costs, \$1,848 million was for maintenance, \$261 million was for interest on highway debt, \$377 million was for debt retirement, and \$441 million was for administrative costs and the policing of highways. Funds were derived from the following sources: highway user taxes, \$3,344 million; property taxes, general revenue, and miscellaneous receipts, \$1,403 million; federal funds, \$771 million; toll receipts, \$253 million; and borrowing, \$1,563 million. Of the total highway revenue, state governments provided 62.5%; the federal government, 13.3%; counties and other rural units, 10.5%; and urban places, 13.7%.

Motor vehicle registrations were expected to exceed 61 million in 1955, a gain of nearly 2½ million over 1954. Vehicle-miles traveled on all roads and streets during the 12 months ending

June 30, 1955, increased by 3.7% over the preceding 12 months.

Federal-Aid Program.—Completions of all classes of federal-aid projects during the fiscal year ending June 30, 1955, accounted for the improvement of 22,155 miles of roads—an increase of 1,166 miles over the previous year. Included were 6,050 miles of highways and 1,202 bridges on the federal-aid primary highway system outside of cities; 842 miles of highways and 465 bridges on urban portions of the federal-aid primary system; 14,692 miles of roads and 1,764 bridges on secondary or farm-to-market roads; and 571 miles of highways in national parks, forests, parkways, etc.

Federal-aid work in progress or in the "plans approved" stage in 1955 consisted of improvements to 23,902 miles of highways and streets and construction of 5,015 bridges. This work was estimated to cost \$2.1 billion, including \$1.08 billion of federal funds.

The active program of highway improvements in national forests and parks and public lands, and the restoration of flood-damaged roads and bridges involved an additional 1,255 miles with an estimated cost of \$63.9 million, of which \$56.3 million was federal funds.

Urban Highways.—Federal-aid highway improvements in urban areas have increased gradually over a 10-year period, reaching almost \$500 million in the fiscal year ending June 30, 1955.

Expressways were under construction in 1955 in 44 cities of between 100,000 and 500,000 population and in 58 smaller cities. Construction has been started in Boston, Baltimore, Louisville, and other cities, of circumferential routes near the outskirts of the metropolitan areas. These routes will permit a free interchange of traffic between the several radial routes without passing through the more congested areas. Some of the major improvements were as follows:

Two-Level Highway in Newark, N.J.—To relieve extreme congestion, a two-level road—a viaduct and ground-level highway—was constructed on a 42-foot right-of-way. The elevated roadway has 3 lanes for southbound traffic; northbound traffic will use the 3 lanes under the 2,000-foot steel and concrete viaduct.

Baltimore-Washington Parkway.—This route, entirely on new location, has complete control of access on a right-of-way ranging from 400 to 1,200 feet in width, with opposing traffic lanes separated by as much as 200 feet by a grassy, tree-studded median. The grading, base, and bridges are all wide enough to permit the construction of two additional lanes when needed.

Atlanta Freeway System.—The north-south section of Atlanta's freeway system consists of a main artery and legs to the northeast and northwest, totaling 20.3 miles, of which 18.3 miles had been completed in 1955. The northwest leg carries route U.S. 41 and connects with 40 miles of completed 4-lane development. The northeast leg connects with a 10.6-mile section of the National System of Interstate Highways. The south leg of the expressway carries U.S. 41 and 19, and connects with 29 miles of 4-lane development.

Detroit Expressways.—The first two sections of the Edsel Ford and John C. Lodge expressways were completed during 1955, providing free, unrestricted traffic flow from the west limits of Detroit to the heart of the business district. Both routes are urban extensions of the interstate system. About 8 miles in length, the completed sections provide a continuous 6-lane depressed

freeway. The 14-structure interchange at the junction of the two expressways provides for unrestricted traffic flow in all directions. A 6-mile extension of the Lodge Expressway to the northwest city limits and a 9-mile extension of the Ford Expressway from the interchange to the northeast city limits were under construction in 1955.

Elevated Structure in New Orleans.—To improve properly U.S. 90 in New Orleans and avoid conflict with the large volume of highway and rail traffic near the Union Passenger Terminal, it was necessary to construct a viaduct 3,450 feet long. Divided roadways, each 40 feet wide, provide for three streams of traffic in each direction.

San Bernardino Freeway.—The San Bernardino Freeway is the established routing of the interstate system into Los Angeles from the east. At the end of 1955, construction was under way on a 15.1-mile section scheduled for completion during 1956. Upon its completion, there will be a continuous section of 4-lane and 6-lane divided roadway 53.5 miles long between Los Angeles and the westerly outskirts of Colton, near San Bernardino. Construction of a 2-mile section through Colton has been scheduled.

Forest and Park Roads.—Typical projects constructed in 1955 were the following:

William-Grand Canyon Highway.—The main approach to Grand Canyon National Park in Arizona is a 52-mile forest highway connecting with U.S. 66. Reconstruction of the route to modern standards was completed in 1955.

Huntington Lake Highway.—A forest highway serves the Huntington Lake area of the Sierra Nevada range east of Fresno, Calif. Construction of 16.5 miles on new location through rugged terrain was scheduled for completion in the fall of 1955. The road provides access from Fresno and the Central Valley.

Kenai River Bridge at Schooner's Bend, Alaska.—Completion of a bridge over the Kenai River, consisting of four 70-foot prestressed-concrete spans with a 24-foot roadway, removed an old bottleneck on the Kenai River forest highway. The new bridge is unique in several respects. The entire superstructure, including girders, deck and curbs, was precast at Portland, Oreg., and then shipped to Seward, Alaska, for hauling to the job site.

Foreign Activities.—Since the end of World War II, the Bureau of Public Roads has assisted in launching highway programs in several countries. Such work has included the training of foreign visitors in highway practices, supervision of highway aid programs in underdeveloped areas, and furnishing technical advisers.

The Inter-American Highway.—Since 1930 the bureau has been assisting the Central American republics in the construction of a 3,200-mile road from the Mexico-Texas border to Panama City. In June 1955, 95% of the highway was usable in all kinds of weather. The two still impassable gaps were a 25-mile strip in Guatemala and a section of about 150 miles from San Isidro, Costa Rica, to Concepción, Panama.

Turkey.—Turkey's extensive program of highway development showed further progress in 1955. The bureau's program of technical and economic assistance, begun in 1947, continued through the year. All-weather roads on the national highway system have been extended to 13,400 miles since 1948. Fairly good highway facilities are now available to all important sections of the country.

Ethiopia.—More than 90% of the 3,100-mile



BUREAU OF PUBLIC ROADS

Interchange between Edsel Ford and John C. Lodge expressways, which extend into Detroit's business center, allows free traffic flow in all directions.

primary highway system was open in 1955 to year-round travel at reasonable speeds.

Other Countries.—The Bureau of Public Roads also was active in the Philippines, Liberia, Jordan, and Pakistan. Bureau representatives also assisted in Nepal, Korea, Haiti, Cambodia, Vietnam, and Laos.

Highway Safety.—The bureau continued to participate in the joint effort to advance safety on the highways. Assistance was extended to five national organizations, including the President's Action Committee for Traffic Safety. The most noteworthy undertaking of the year was a 30-day "safe driving" campaign that culminated in Safe Driving Day on Dec. 15, 1954. In spite of a continuing increase in highway travel, traffic deaths declined 2% in the 1954-55 fiscal year.

(See also ACCIDENTS; AUTOMOBILES; BRIDGES; CITY PLANNING; *Transportation and Communications* sections of individual countries and states; and for information on state turnpikes and tollroads, under construction in 1955, see articles on the states concerned—for example, Florida, Kansas, New York, and Ohio.)

R. E. ROYALL,
Chief, Research Reports Branch,
Bureau of Public Roads.

HIRSHBERG, Herbert Simon, American librarian; b. Boston, Mass., July 7, 1879; d. Winter Park, Fla., Sept. 15, 1955. Dean of the School of Library Science at Western Reserve University from 1929 to 1943 and director of the university's libraries from 1943 to 1945, he was from 1945 an editorial adviser of THE ENCYCLOPEDIA AMERICANA and the contributor of a number of its articles on library themes.

A graduate of Harvard College (1900), Herbert Hirshberg obtained his Bachelor of Library Science degree in 1905 from the New York State Library School. He began his career in library as an assistant in the music division of the Library (1902-03), then as an assistant in the New York State Library in Albany (1904-05). He was an assistant in the music division of the Library of Congress from 1905 to 1906, and for the next two years was assistant and branch librarian of Pittsburgh's Carnegie Library. From 1908 to 1914 he was reference librarian of the Cleveland Public Library, serving at the same time as instructor in the Library School of Western Reserve University. Appointed librarian of Toledo's Public Library in 1914, he remained there until 1922 when he became head of the

Ohio State Library. From 1927 to 1929, the years immediately preceding his deanship at Western Reserve University, he served as librarian of the Akron Public Library.

He was the author of *Elements of the Library Plan* (1930); *Subject Guide to Reference Books* (1942; 2d ed. 1952), and, with Carl H. Melinat, *Subject Guide to United States Government Publications* (1947).

HISPANIOLA (formerly also HAITI or SANTO DOMINGO). An island in the West Indies, east of Cuba; area, about 30,000 square miles; divided politically into the Republic of Haiti and the Dominican Republic (qq.v.).

HOCKEY. See SPORTS, GAMES, AND SHOWS.

HODIAK, John, American actor: b. Pittsburgh, Pa., April 16, 1914; d. Tarzana, Calif., Oct. 19, 1955. For over a dozen years he acted in a variety of roles in motion pictures, and his stage portrayal of Lieutenant Maryk in Herman Wouk's *The Caine Mutiny Court Martial* in New York in 1954 brought him critical acclaim.

The quality of his acting in Russian and Ukrainian plays put on by his local parish in Detroit, to which his family had moved, brought him a scholarship in dramatics at Northwestern University. Succeeding in a second attempt to become a radio actor, he began his career by playing villainous roles in such radio programs as *The Lone Ranger* and *The Green Hornet*. In 1942 he went to Hollywood, where he played small parts until 1944, when he was chosen to appear with Tallulah Bankhead in *Lifeboat*.

Hodiak acted in a variety of films, ranging from the musical, *The Harvey Girls*, to the war film, *A Bell for Adano*. In his last picture, *On the Threshold of Space*, he was cast as an army officer who volunteered to ride in a high-speed rocket sled for medical research. Also among the more than 20 motion pictures in which he appeared were *Command Decision*, *Across the Wide Missouri*, *Desert Fury*, and *Trial*, released several days before his death. Hodiak had been married in 1946 to the actress Anne Baxter, but they were divorced on Feb. 9, 1954.

HOLLAND. See NETHERLANDS.

HOME ECONOMICS. See Index entry.

HOME FURNISHINGS. See FURNITURE INDUSTRY; INTERIOR DECORATION.

HONDURAS. The most mountainous and most heavily mineralized of the Central American republics, Honduras is bounded by Guatemala on the northwest, El Salvador on the southwest, and Nicaragua on the south. It has an area of 43,227 square miles and a population (United Nations est., 1954) of 1,608,000. The principal cities (with 1950 populations) are Tegucigalpa (which includes Comayagüela), the capital (district, 99,948; urban area, 72,385), and San Pedro Sula (district, 54,268; urban area, 21,139). Among smaller cities are Puerto Cortés, Choluteca, La Ceiba, Santa Rosa de Copán, Tela, Trujillo, Comayagua, Danlí, and Juticalpa. According to the 1950 census, racial distribution is as follows: mestizos, 91%; Indians, 6%; Negroes, 2%; and whites, 1%.

Government.—Dr. Julio Lozano Díaz has been governing Honduras as chief of state with all executive, legislative, and judicial power since December 6, 1954, in a *de facto* government, assisted by a 59-member Council of State. The country is divided into 16 departments and one territory, 31 districts, and 245 municipalities.

Education and Religion.—Education is free and compulsory for children aged 7 to 15. The budget for 1955-56 allocated 6,462,880 lempiras, the largest amount ever to be spent in one year, for education. A strong effort was begun in 1950 to reduce the illiteracy

rate (63.71% of those 10 years of age or over in 1953). Of the 220,438 children of school age in 1953, 117,292 were enrolled in 2,214 primary schools; 6,847 students were enrolled in 32 secondary and normal schools, and 636 in the 7 faculties of the National University.

Over 95% of the population is Roman Catholic. The constitution of 1936 guaranteed religious freedom and separated church and state. The Roman Catholic Church has 133 priests in 76 parishes and operates 15 schools with 2,753 students.

Finance.—The budget for the fiscal year 1955-56 was fixed at 76,327,358 lempiras (2 lempiras equal U.S.\$1), much the largest in the country's history. The Ministry of Development was given 23,175,080 lempiras, about 30% of the total budget, most of which will be spent on road construction and the Rio Lindo hydroelectric project. The chief sources of revenue are expected to be: import duties, about 20 million lempiras; income taxes (doubled in 1955), 15 million; and monopolies, about 12 million. The government expects to borrow up to 12 million lempiras in loans divided about equally between internal and external sources. The national debt, without additional borrowing, is 14 million lempiras.

Foreign Trade.—Exports to the United States during the first half of 1955 amounted to \$18,600,000, and imports from the United States during the same period were \$14,900,000. In 1953-54, the United States took 77.2% (102,769,986 lempiras) of Honduras' exports and supplied about 69.3% (68,226,890 lempiras) of its imports. Bananas and coffee usually constitute about 80% of Honduras' exports. Other exports are silver, pine lumber and logs, mahogany, livestock, abacá, and tobacco.

Agriculture and Industry.—About 83% of the people are engaged in agricultural work. Approximately 42% of the land surface is in forests, 26% in mountains, 17% in pasture, 3% in untilled land, and 4% in cultivated land. There are approximately 102,000 acres of banana plantations on the Caribbean coastal plain. Coconuts are grown on about 10,000 acres, and rice, tobacco, and sugar are also produced.

Banana production in late 1954 and in the first half of 1955 suffered considerably from the combined effects of a blowdown of 2 million bunches of bananas in February 1954, the prolonged strikes of May-June 1954, and the disastrous floods of September-October 1954. During the five months after the floods of late 1954, banana exports were about one third of normal, and in the first quarter of 1955 they were even lower. Shipments of bananas in 1954 amounted to 9.2 million stems, compared with 12.4 stems in 1953, an average year. It is not expected that banana exports will reach the 1953 level until late in 1956.

By the end of June 1955, an estimated 90% of the exportable coffee had been shipped. The 1955 coffee crop, the harvesting of which begins in October, was expected to be at least as large as that of 1954, when coffee exports were valued at 25,524,709 lempiras (\$12,762,354).

Silver is the principal mineral resource of Honduras (5,807,028 fine ounces in 1953-54). Gold and lead are mined in small amounts, and there are deposits of zinc, copper, iron, and antimony. During the year ending Dec. 31, 1954, the El Mochito mine of the New York and Honduras Rosario Mining Company produced a total of 1,145,916 ounces of silver, 880 ounces of gold, and 2,172,612 pounds of lead.

With the assistance of the International Bank for Reconstruction and Development, an interim Committee for the Organization of a Plan of Economic Development was formed in October 1954. The committee drew up a five-year plan which calls for the expenditure of \$150 million over a 5-year period for road construction,

schools and hospitals, agriculture, electric power, and rehabilitation of the flood-damaged Sula Valley. The plan will be financed by a \$25 million internal loan, external loans totaling \$50 million, and \$75 million from taxation during the fiscal years 1955-56 through 1959-60.

The Fundamental Charter of Labor Guarantees, the first broad labor law in Honduras, took effect on Feb. 16, 1955. It provides for conciliation, collective bargaining, minimum wages, maximum hours, social security institutions, and the framework of a state employment service.

Through an exchange of notes with the United States, Honduras has agreed to co-operate in the United States investment guaranty program administered by the International Cooperation Administration (ICA) against currency inconvertibility and expropriation. The ICA allocated more than \$1 million in the fiscal year 1955 for Honduras, in order to raise productivity, increase agricultural output, expand and improve aviation and transportation, and improve public administration.

Transportation and Communication.—The finest road ever built in Honduras, the South Highway linking Tegucigalpa with the Inter-American Highway at Jicaro Galán, was inaugurated on June 2, 1955. The road reduces the distance from Tegucigalpa to Jicaro Galán on the Pacific coast from 72.7 to 57.2 miles. In 1953 the country had 1,238 miles of roads, and in October 1954, 6,342 vehicles. The Tela Railroad Company and the Standard Fruit Company operate 388 and 216 miles of railroad lines, respectively, and the state-owned National Railway operates about 110 miles. Honduras is served by 14 radio broadcasting stations, 7 of them in Tegucigalpa, and by 6 commercial aviation companies. There is one large international airport and 15 smaller ones.

Principal Events, 1955.—The dangers of civil war following the indecisive presidential election of October 1954 seemed to subside during 1955. On numerous occasions, Chief of State Dr. Julio Lozano stated that he wished to relinquish his monopoly of power and retire from office as soon as free elections were possible. An electoral census, as a first step toward new elections, was to have been completed by the end of October 1955. On Jan. 24, 1955, Chief of State Lozano issued a decree giving women the right to vote.

Honduras contributed to the important progress made in 1955 toward successful operation of the Organization of Central American States. Representatives of Honduras attended the meeting of the Committee for Economic Integration of Central America early in May 1955, and the conference of foreign ministers of the five member countries in Antigua, Guatemala, in August 1955. A minor border dispute with Nicaragua in May was settled amicably in June.

WILLIAM S. STOKES,
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HONDURAS, British. See BRITISH HONDURAS.

HONEGGER, Arthur, Franco-Swiss composer: b. Le Havre, France, March 10, 1892; d. Paris, Nov. 27, 1955. One of the foremost composers of contemporary music, he was noted for his use of a harsh and complex modern idiom to create dynamic architectonic musical compositions.

A Swiss national, Honegger began his formal musical studies at the age of 13 in Le Havre. From 1909 to 1911 he studied at the Conservatory of Zurich, and from 1911 to 1913, at the

Paris Conservatory under André Gédalge and Lucien Capet. Subsequently he settled in Paris to continue his studies under Widor and d'Indy and to compose in earnest.

In much of Honegger's early work are apparent his academic concern for technical problems and the conflicting influences of Johann Sebastian Bach and the impressionists, particularly Debussy. Soon, however, he had assimilated Bach to his own needs and had repudiated the methods (although not the complex harmonics) of impressionism to give vent to his private awareness of 20th century life. His incidental music for Paul Mèral's masque, *Le Dit des jeux du monde*, performed in 1918, was the first large-scale work in which he fully expressed his individuality as a composer.

Although he was one of the famous *Les Six* (a name given rather arbitrarily by the critic Henri Collet to a group of young Parisian composers, comprising Honegger, Darius Milhaud, Francis Poulenc, Georges Auric, Louis Durey, and Germaine Tailleferre), Honegger refused to betray his nature, as much Germanic as French, and his artistic conceptions to conform to a "Parisian" school.

During 1920, one of his most productive years, Honegger wrote three sonatas (for viola and piano, cello and piano, and two unaccompanied violins); the *Pastorale d'été* for small orchestra, which won the Prix Verley; and his first ballet, *Verité? Mensonge?* His public reputation was firmly established in 1921 with the production of the "dramatic psalm" *Le roi David*, after the drama by the Swiss poet René Morax, and was greatly enhanced by his "mouvement symphonique," *Pacific 231* (1924), whose popular appeal was due more to its unusual subject than to its merit as music. He was a bold experimentalist, with an acute dramatic sense, and with an awareness of the evocative power of realism, of orchestral color, and of complex harmonies. Nevertheless he subordinated these within the framework of traditional musical form.

Honegger composed a large number of important pieces for the theater, the subjects and forms of which indicate the wide range of his interests and technical virtuosity. These include the biblical opera, *Judith* (libretto by René Morax, 1926); the classical opera, *Antigone* (Jean Cocteau, after Sophocles, 1924-27); the ballet-melodrama, *Amphion* (Paul Valéry, 1929); the operetta, *Les aventures du roi Pausole* (Albert Willemetz, from a story by Pierre Louÿs, 1930); the stage oratorio, *Jeanne d'Arc au bûcher* (Paul Claudel, 1934-35); the mimed symphony, *Horace victorieux* (1920); the ballet, *Les mariés de la Tour Eiffel* (with others of *Les Six*, 1921); and incidental music of the plays, *Sail* (André Gide, 1922), *Phaedre* (Gabriele d'Annunzio, 1926), *Le soulier de satin* (Paul Claudel, 1943), and *Hamlet* (translated from Shakespeare by André Gide, 1946).

In his later years, Honegger turned more insistently to orchestral composition to express his increasingly abstract and intellectual ideas. These include five symphonies (1930, 1941, 1945-46, 1946, 1951), a prelude (1936), and two suites (1943, 1952). Stylistically characterized by elaborate counterpoint and harsh polytonality, these later works reveal most fully in their tragic themes and heroic romanticism the artist's Teutonic heritage.

A versatile and prolific composer, Honegger also wrote songs, choral works, works for solo instruments, and music for the radio and films.

His last major composition was the *Christmas Cantata*, completed in 1953.

HONEY. Due primarily to drought conditions throughout much of the country in the summer of 1954, the honey crop in the United States, produced by 5,467,000 colonies of bees, dropped to 217,414,000 pounds in 1954—about 3% less than the 1953 crop of 224,414,000 pounds, and the smallest crop since 1948. Beeswax production totaled 4,031,000 pounds in 1954, or 2% less than in 1953. Chief honey-producing states in 1954 were California, Minnesota, Florida, Wisconsin, Iowa, Idaho, Texas, Ohio, Illinois, and Michigan; together these states supplied 59% of the total crop.

HONG KONG. Situated only 20 miles east of the Pearl River estuary on the southeastern coast of the Province of Kwangtung, Hong Kong lies "on the doorstep of Communist China" and serves as a frequent channel of return to the free world of prisoners released by the Communist government. This famous center of Far East trade is a British crown colony comprising the island of Hong Kong (32 square miles) and the ceded territory of Kowloon on the mainland (3¼ square miles), in each of which are cities with nearly one million inhabitants; and the leased New Territory (356 square miles), extending inland on the Kowloon peninsula. Principal industrial, commercial, and port facilities are within Victoria, the capital, on Hong Kong Island, and Kowloon, across the almost landlocked, deep-water harbor. The climate is subtropical.

Population.—The population was estimated in December 1954 at 2,300,000, of which about 19,000 were non-Chinese, including 13,000 British subjects from the United Kingdom and Commonwealth countries. There were also approximately 1,600 Portuguese, 1,500 Americans, 340 Dutch, and 300 Filipinos. The findings were made public in March 1955 of a United Nations mission appointed to investigate the problem of Chinese refugees in Hong Kong. It was revealed that in 1954 there were 385,000 Chinese political refugees, with 282,000 dependents in the colony, creating conditions of poverty, overpopulation, and unemployment—problems which the government had faced, thus far without outside help, with "energy and determination."

Government.—Hong Kong is administered by a governor (Sir Alexander Grantham, appointed April 21, 1947); a 12-member Executive Council, headed by the commander of British forces (Lieut. Gen. Sir Cecil S. Sugden); and a 17-member Legislative Council whose procedures follow those of the House of Commons.

Finance.—In 1954–55 administrative revenue was estimated at HK\$434,452,321; expenditure, including HK\$16 million for re-inforcement of the Hong Kong garrison, HK\$373,343,609 (HK\$1 = U.S.\$0.175).

Education.—In 1955 there were 1,136 primary and secondary schools (246,833 pupils, of whom 90,342 were receiving government-aided education). Government expenditure for education rose from HK\$26.5 million in 1954 to HK\$41 million in 1955. The University of Hong Kong (844 students in 1955) has faculties of medicine, engineering, arts, science, and architecture; maintains the colony's most extensive library; and receives an annual government grant of HK\$4 million.

Economy.—Some 315,000 persons are employed in 2,300 registered factories. Manufacturing has become increasingly important with the curtailment of Hong Kong's entrepôt trade since the Communist conquest of the China mainland. Local manufacturing industries accounted for about 30% of the total value of exports in 1954, compared with about 10% in 1947. Cotton spinning and weaving (the largest single industry) were responsible in 1954 for exports of cotton piece goods, valued at HK\$181,488,369; cotton yarn, HK\$96,780,395; cotton singlets, HK\$66,655,667; and shirts, HK\$64,031,438. Products of local industry exported during 1954 also included footwear, HK\$57,407,209; household utensils, HK\$65,878,018; and flashlights and

flashlight batteries, foodstuffs, towels, lacquers, varnishes, and paints, and embroidered clothing. Also manufactured are iron and steel bars, cement, rope, matches, cigarettes, firecrackers, furniture, and diesel engines. Ship repairing, sugar refining, and a motion picture industry are also important.

The fishing fleet (largest in the Commonwealth of Nations) consists of 6,160 junks (719 mechanized and 31 company-operated, distant-water trawlers). The further mechanization of the fleet is being assisted by allocations from the Colonial Development and Welfare Fund.

Production of subsistence crops of vegetables amounted to 61,939 metric tons in 1954, together with 26,000 metric tons of rice paddy. Minerals produced in 1954 included iron ore, 90,800 tons; kaolin, 6,053 tons; lead ore, 368 tons; graphite, 1,840 tons; wolframite, 60,530 pounds; and molybdenum, 193 pounds.

Foreign Trade.—In 1951 the United Nations passed a resolution forbidding the export of strategic goods to China; strict controls were then imposed and remained in force in 1955. The embargo accounted mainly for the decline in the value of exports from HK\$2,899,010,064 in 1952 to HK\$2,417,015,601 in 1954. (Of total exports, 39% went in 1950 to China; 16% in 1954.) Imports in 1954 were valued at HK\$3,435,419,225 (a decline of more than HK\$437 million from the 1953 total), and came chiefly from China, HK\$691,845,761; the United Kingdom, HK\$369,370,054; Commonwealth countries (except Malaya), HK\$352,659,228; Japan, HK\$464,537,320; the United States, HK\$281,051,186; West Germany, HK\$155,572,923; and Malaya, HK\$161,609,904. Principal imports were textile yarns and fabrics, HK\$555,232,679; grains, including 105,400 tons of rice, HK\$146,717,350; fruits and vegetables, HK\$197,747,469; and textile fibers, HK\$259,048,350. In 1954 exports went mainly to China, HK\$350,786,609; Indonesia, HK\$224,642,245; Malaya, HK\$330,540,133; Commonwealth countries (except Malaya), HK\$315,847,845; the United Kingdom, HK\$162,165,696; and South Korea, HK\$170,133,476. Principally exported were textile yarns and fabrics, HK\$496,036,277; clothing, HK\$264,842,354; and dyeing materials, HK\$150,840,460.

Transportation and Communications.—In 1954–55 a total of 31,788 vessels (net tonnage, 25,756,509) entered and cleared the port of Hong Kong, and 775,556 passengers were embarked and disembarked. A government-owned railway links Kowloon with Shunchun, affording direct communication with Canton, Hankow, and Shanghai. Highways aggregate 431.63 miles. Fourteen airlines provide services to Europe, the United States, and neighboring territories (excluding China), from Kai Tak airport. In 1954–55, aircraft on 6,230 international flights carried 121,160 passengers to and from Hong Kong.

HOOVER COMMISSION. The second Hoover Commission, headed by former president Herbert Hoover, and officially known as the Commission on Organization of the Executive Branch of the Government, was created by Congress in July 1953 and was terminated on June 30, 1955. Vested with a broader scope than its predecessor (1947–49), the second Hoover Commission was granted the authority to investigate not only the manner in which the agencies of the executive branch of the government were operating, but also whether the federal government should be operating in certain areas. It was composed of

12 members (7 Republicans and 5 Democrats), 4 of whom were appointed by President Dwight Eisenhower, 4 by Vice President Richard Nixon, and 4 by former Speaker of the House Joseph Martin, Jr.*

Based on the findings of individual study groups, the detailed reports issued periodically by the commission covered 60 of the government's 64 agencies and made 314 recommendations, approximately half of which would require legislation before enactment. The general subject, major provisions, and date of issuance of these reports were as follows:

Personnel and Civil Service (Feb. 13, 1955).—Recommended creation of a "senior Civil Service group" of nonpartisan, well-paid executives of exceptional skill and considerable experience, and the political appointment of more executives to assume partisan duties.

Paper Work Management (first part, February 20; second part, July 17, after the commission's termination).—Recommended a paper work management program, and proposed that the General Services Administration supervise all such work in the executive branch.

Federal Medical Services (February 27).—Recommended creation of an advisory council of health to advise on all aspects of government health programs; stricter control of medical care for veterans; and closing of certain uneconomic hospitals.

Federal Lending Guaranteeing, and Insurance (March 13).—Recommended liquidation or curtailment of federal lending services in favor of private interests.

Transportation Operations (April 3).—Recommended methods for ending waste and inefficiency in federal transportation operations.

Legal Services and Procedures (April 10).—Recommended creation of a 3-section federal administrative court to deal with judicial aspects of taxation, trade, and labor.

Use and Disposal of Federal Surplus Property (April 17).—Recommended more efficient and economical methods for disposing of and reducing excess and surplus stock.

Subsistence Services: Food and Clothing (April 24).—Recommended creation of two central agencies in the Defense Department to manage purchasing, distributing, and storing food and clothing for the armed forces.

Business Enterprises in Competition With Private Enterprise (May 15).—Recommended termination or transfer to private hands of over 1,000 government enterprises, including the Postal Savings System, post exchanges, bakeries etc.; termination of all chemical research by the Tennessee Valley Authority; and increase of parcel post rates "to eliminate unfair competition" with private express service.

Depot Utilization: Warehousing and Storage (May 25).—Recommended means of eliminating duplication and waste in government storage.

Research and Development in the Government (May 31).—Recommended appropriation of more funds, higher salaries, and more personnel to accelerate scientific research and development in both military and civilian programs.

Overseas Economic Operations (June 5).—Recommended continuation of foreign aid, but on a reorganized, more economical basis, and declared that the primary purpose of foreign aid should be that of strengthening the security of the United States.

Real Property Management (June 13).—Recommended strengthening the Bureau of the Budget and the General Services Administration to effect tighter administrative control on federal property dealings.

Budget and Accounting (June 19).—Recommended adoption of private business methods in budgeting and accounting, including the shifting of the executive budget and congressional appropriations from an obligation to an accrued expenditures basis; and creation

of an Office of Accounting under the Bureau of the Budget.

Business Organization of the Department of Defense (June 26).—Recommended creation of a civilian-administered fourth branch of the Defense Department to supply the armed forces with nonmilitary goods, such as food and clothing.

Intelligence Activities (June 28).—Expressed concern over the lack of adequate intelligence information on the USSR, and recommended reorganization of the CIA and creation of a permanent commission consisting of members of Congress and presidential appointees to observe its operations.

Water Resources and Power (June 29).—Recommended a power policy designed to equalize public and private power rates, and the return of public power production to private enterprise wherever possible.

Final Report (June 30).—Recommended that supervision of 33 of the 64 agencies reporting directly to the president be undertaken by other officials; listed estimates of potential savings totaling \$8.5 billion annually, and an additional \$10 billion which could be derived from the recovery of investments, liquidation of liabilities, and property sales.

Among the commission's announced objectives were: the preservation of national security; the stimulation of fundamental research; the improvement of efficiency and elimination of waste in executive agencies; the elimination or reduction of government competition with private enterprise; and the strengthening of the national economic, social, and governmental structure. The general tenor of its recommendations was expressed by Chairman Hoover when he stated that "private enterprise is the root of our system, and the underlying thesis of the commission has been to preserve and strengthen the fundamentals of our system and government." Thus a great many of the recommendations were the subjects of partisan controversy. In a dissenting statement accompanying the final report, Representative Holifield declared that in dealing with United States policy, the commission was usurping the function of Congress. After the commission passed out of existence on June 30, 1955, bills designed to implement most of its recommendations requiring legislative action were introduced in Congress.

W. V. S.

Chiefs of Hoover Commission on government reorganization, which was terminated in 1955, are ex-President Hoover (r.), chairman, and W. H. Tuck, executive director.

WIDE WORLD



* Members appointed by the president were: Herbert Hoover (chairman); Herbert Brownell, Jr., attorney general of the United States; James A. Farley, former postmaster general; and Arthur S. Flemming, director of defense mobilization; those appointed by the vice president were: Homer Ferguson, former Republican senator from Michigan (resigned April 4, 1955, succeeded by Styles Bridges, Republican senator from New Hampshire); John L. McClellan, Democratic senator from Arkansas; Solomon C. Hollister, dean of the Cornell School of Civil Engineering; and Robert C. Storey, dean of the Southern Methodist University Law School; those appointed by Representative Martin were: Clarence J. Brown, Republican representative from Ohio; Chet Holifield, Democratic representative from California; Joseph Kennedy, former ambassador to Great Britain; and Sidney Mitchell, executive director of the first Hoover Commission.

HORGAN, Paul, American author: b. Buffalo, N.Y., Aug. 1, 1903. A prolific and versatile writer, he was awarded the 1955 Pulitzer Prize in history (announced May 2, 1955) for his book, *Great River: The Rio Grande in North American History* (1954).

Moving with his family to Albuquerque, N. Mex., early in his youth, Paul Horgan enrolled in the New Mexico Military Institute at Roswell in 1920. After three years as a student, when he also worked as a reporter and music critic for the Albuquerque *Morning Journal*, he returned to the East to become a student of singing at the Eastman School of Music in Rochester, N.Y. (1923-26). In 1926 he was appointed librarian of the New Mexico Military Institute, a post he held until 1942, when he entered the U.S. Army. He was awarded the Legion of Merit for his services as chief of the Army Information Branch of the War Department's Information and Education Division. After the war, he taught in the graduate school of the University of Iowa during the first half of 1946 before being named assistant to the president at the New Mexico Military Institute. He held the latter post until 1950.

Horgan has published numerous works in fiction and history, including *Men of Arms* (1931); *The Fault of Angels* (1933; winner of the Harper Prize Novel Award); *No Quarter Given* (1935); *Main Line West* (1936); *A Lamp on the Plains* (1937); *Far from Cibola* (1938); *The Habit of Empire* (1939); *Figures in a Landscape* (1940); *The Common Heart* (1942); *One Red Rose for Christmas* (1952); and *The Devil in the Desert* (1952). He is also the author of an opera, *A Tree on the Plains* (music by Ernst Bacon, 1942); and a play, *Yours*, A. Lincoln (1942).

HORMONES. See Index entry.

HORSE RACING. See SPORTS, GAMES, AND SHOWS.

HORSE SHOWS. See SPORTS, GAMES, AND SHOWS.

HORTICULTURE. During 1955 major interest has been in the marketing, storage, and handling of horticultural products. Rising labor and transportation costs and relatively low commodity prices, coupled with available federal marketing research funds and the widespread use of plastic film for packaging and storage, have spurred activity in this field. Merchandising studies have been conducted to explore methods of selling increased volume through chain stores and supermarkets. Growing ornamental plants, especially roses and evergreens, in cheap metal or paper containers has lengthened the sales and planting season. Controlled atmosphere storage for fruits, and the commercial storage of cut flowers at 31°F. have been increasingly adopted. The preparation of vegetable commodities at the point of origin in consumer packages ready for use has also made progress.

Fraudulent advertising of horticultural products has been discouraged by the imposition in the courts of heavy fines and imprisonment for violators.

The practice of irrigation on horticultural crops under intensive cultivation in the central and eastern United States has been increasing rapidly.

A significant step toward the standardization and registration of names of horticultural plants is the invitation of the 14th International Horticultural Congress to the American Rose, Iris, Hemerocallis and Holly societies to act as the international registration authorities for fancy names of varieties of plants within their specialties.

Research.—Basic research on the environmen-

tal factors of temperature, light, length of day, and soil and water relations continues at a high level. In addition, emphasis has been placed on the evaluation of various trends and practices which have been in evidence for some time. The application of fertilizers by foliar sprays has proved to be of some value with certain fruits under special conditions, but is not considered an inexpensive or effective way to apply fertilizers, and has only limited use. Leaf analysis to determine nutrient needs of crops, although a useful tool under some conditions, is proving to be limited in its application.

The place of the plant hormones in horticulture is becoming stabilized as the effect of these substances is better understood. Their use for stimulating root formation, thinning fruit by blossom sprays, preventing fruit drop at harvest, and controlling weeds is becoming standard practice. Effective chemical weed control is being extended to new crops as more materials are tested for their selective value. A selective weed control in tomato plantings is promising.

The propagation of plants by cuttings, using intermittent mist and the growing of florist crops under mist, is gaining favor.

Insects and Diseases.—The Dutch elm disease has now spread almost throughout the natural range of the American elm. Control measures are so costly as to be impractical in forest areas, so that utilization of elms before they are killed by the disease is recommended. Effective protection is possible in restricted areas where the cost of control measures is justified.

Many insect pests, including the two-spotted mite, the cabbage looper, and the potato beetle, have developed spray-resistant strains and present serious control problems. The systemic poison, Cystox, has been cleared for use on some fruits. New and promising nontoxic materials for the control of mites are being tested. (See also AGRICULTURAL RESEARCH SERVICE.)

New Varieties.—Circus, a multicolored floribunda rose, is the 1955 choice of the All American Rose Selections. The All America Seed Selections awarded their bronze medal to the crested coxcomb, variety Toreador, and to the giant columbine, variety McKana. The Michigan State Experiment Station introduced two new peach varieties, the Sunhaven and the Richhaven. Ned Seymour is a new dahlia introduction.

Awards.—The George Robert White Medal of the Massachusetts Horticultural Society went to Richard P. White, and its Jackson Dawson Medal to Paul Vossberg. The Men's Garden Club awarded its gold medal to F. F. Rockwell, and the Johnny Appleseed Medal to James Handy.

The awards of the American Society for Horticultural Science for the best research papers published were as follows: Alex Laurie Award to H. M. Cathey for *Chrysanthemum Temperature Studies*; Leonard Vaughan Award (Floriculture) to B. L. Johnson for *Effect of Crossovers on Deterioration in Percentage of Doubles in Ever-sporting Lines of Matthiola incana* (stocks); Woodbury Award to Otmar Silberstein for *Volatile Carbonyl Compounds of Vegetables and their Possible Role in Flavor*; J. H. Gourley Award (Pomology) to E. L. Probsting and A. L. Kenworthy for *Growth and Leaf Analysis of Montmorency Cherry Trees as Influenced by Color Radiation and Intensity of Nutrition*; Vaughan Award (Vegetable Crops) to C. M. Geraldson for *Control of Blackheart of Celery*.

Merit awards of the American Horticultural Council were as follows: Mrs. Bessie R. Buxton,

Ezra Jacob Kraus, H. Harold Hume, James H. Burdett, Harland P. Kelsey, Eric Walther, Richardson Wright, Fred F. Rockwell, Edward I. Farrington, and Edward L. D. Seymour.

The Norman J. Colman Award of the American Association of Nurserymen went to H. Harold Hume for his book, *Hollies*. The Society of American Florists' Award for outstanding research of the year went to Henry M. Cathey. The first Garden Writer's Award went to Jean Lawson of *House Beautiful*.

Books.—Among recent books on horticulture are: *Growing Plants under Artificial Light*, by Peggy Schulz; *Fruit Nutrition*, by Norman F. Childers; *Improved Nut Trees of North America*, by C. A. Reed and John Davidson; *The Care and Feeding of Garden Plants*, edited by Kenneth Post; *The Pruning Manual*, by E. P. Christopher; *Cacti and Succulents*, by G. Gilbert Green; and *A Treasury of American Gardening* edited by John Whiting.

(See also AGRICULTURAL RESEARCH SERVICE; BOTANY.)

L. H. MACDANIELS,

Professor of Horticulture and Head of the Department of Floriculture and Ornamental Horticulture, Cornell University.

HOSPITALS. Starting in August 1955, the official source for all hospital statistics is *Hospitals* (Part 2), published each year by the American Hospital Association (AHA). As a result of joint action, the American Medical Association will discontinue its program of registration of hospitals which began in 1909 and has been published annually since 1931. The AHA will expand its statistical program to include certain tabulations on hospital utilization, nursing and nursing schools, and paramedical personnel.

HOSPITAL STATISTICS, 1954

(Source: *Hospitals*, Part 2, Administrators Guide Issue, August 1954)

	United States	Canada
Number of hospitals (total) . . .	6,970	852
Short-term nonfederal . . .	5,212	661
Short-term nonprofit . . .	3,056	434
Number of beds (total) . . .	1,577,961	159,421
Short-term nonfederal . . .	553,068	67,050
Short-term nonprofit . . .	377,863	51,078
Admissions (total) . . .	20,345,431	1,981,350
Short-term nonfederal . . .	18,391,675	1,842,941
Short-term nonprofit . . .	13,364,431	1,419,164
Births in hospitals (all) . . .	3,342,599	252,051
Average daily census (all) . . .	1,342,508	133,684
Short-term nonfederal . . .	392,969	50,912
Short-term nonprofit . . .	273,818	38,978
Per cent occupancy (all) . . .	85.1	83.9
Short-term nonfederal . . .	71.1	75.9
Short-term nonprofit . . .	72.5	76.3
Average days stay:		
Short-term nonfederal . . .	7.8	10.1
Short-term nonprofit . . .	7.5	10.0
Outpatient visits (total) . . .	65,397,318	...
Short-term nonfederal . . .	50,408,617	...
Short-term nonprofit . . .	30,690,537	...
Plant assets per bed (all) . . .	\$5,640	...
Short-term nonfederal . . .	\$8,256	\$7,043
Short-term nonprofit . . .	\$8,663	\$7,469
Operating expenses (all) . . .	\$5,229,040,000	\$415,368,000
Short-term nonfederal . . .	\$3,120,598,000	\$261,158,000
Short-term nonprofit . . .	\$2,276,457,000	\$201,878,000
Cost per patient day:		
Short-term nonfederal . . .	\$21.76	\$14.05
Short-term nonprofit . . .	\$22.78	\$14.19
Payroll (all hospitals) . . .	\$3,344,416,000	\$244,756,000
Short-term nonfederal . . .	\$1,894,987,000	\$154,154,000
Short-term nonprofit . . .	\$1,366,400,000	\$118,256,000
Number of full-time personnel . . .	1,245,669	115,740
Short-term nonfederal . . .	777,215	75,656
Short-term nonprofit . . .	567,871	58,657
Personnel per 100 patients (all) . . .	93	87
Short-term nonfederal . . .	198	149
Short-term nonprofit . . .	207	150

Hospital Finance.—Nonprofit general hospitals, which care for a large majority of the acute short-term cases, spent \$22.78 a day for each patient during 1954, an increase of \$1.69 since

1953. Much of this rise may be attributed to increased payroll expenses of \$1.32 per day during the same period. Payroll expenses during 1954 were \$13.67 per day, representing 60% of total expenses.

Patients in nonprofit general hospitals provided 90.4% of the total hospital income in 1954. Each patient paid an average of \$1.71 per day less than the cost of caring for him. Total income of nonprofit general hospitals during 1954 was \$2,330,005,000, or \$23.31 per patient day.

Primary sources of nonpatient income, which totaled \$223,811,000 in 1954, are endowments, subsidies from state and local governments (often in lieu of payment for charity cases), community chests, organized fund drives, and gifts from individuals. Nonpatient income, which in 1946 provided 16.5% of total hospital income, declined to 9.6% of total income in 1954.

The Commission on Financing Hospital Care in the United States, a nongovernmental study group sponsored by the AHA and financed by foundations and industry, published its findings and recommendations in a three-volume report. Many recommendations are made for future hospital and community action in the areas of *Factors Affecting the Cost of Hospital Care*, *Prepayment and the Community and Financing Hospital Care for Non-Wage and Low Income Groups*.

Hospital Construction and Research.—Funds totaling \$111 million were appropriated by Congress to continue the services of the Hospital Survey and Construction Act during the fiscal year ending June 30, 1956. Of this total, \$21 million is allocated for the construction of diagnostic treatment centers, chronic-disease hospitals, nursing and convalescent homes, and rehabilitation facilities. For the first time, an appropriation of \$1.2 million was made for research studies on "effective development and utilization of hospital services, facilities and resources."

Accreditation of Hospitals.—During 1954 the Joint Commission on the Accreditation of Hospitals examined survey reports of 1,385 hospitals. The approval list as of Dec. 31, 1954, included 3,513 hospitals in the United States, 585 of which are only provisionally approved. Hospitals which receive provisional approval are inspected twice during the following two years; if they still do not meet the joint commission standards they are removed from the approval list.

Health Services for the Needy.—A joint committee of the American Dental Association, American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association has written a statement of 14 principles on the provision of tax-supported personal health services (hospital care, and care of physicians, dentists, and other health personnel) required for those individuals who are unable to obtain such services through their own resources or with the assistance of family or voluntary agencies. Among the principles approved by the AHA were:

- (1) Tax-supported personal health services . . . should be administered by an appropriate government unit . . . as close to those being served as is consistent with economical . . . administration.
- (2) This responsibility should be assumed by a single government agency at each level of government.
- (3) Care provided in tax-supported personal health service programs . . . should meet as high standards . . . as are available to others in the community.
- (4) Persons eligible for service should . . . receive care from a family physician, dentist or clinic . . . of their choice.

(5) Financial eligibility . . . should be determined by a public agency. . . . The process of determining eligibility should not delay receipt of necessary care.

(6) Methods and amounts of payment . . . should be equitable and determined in conference between the responsible public agency and representatives of the providers.

JAMES A. HAMILTON,
*Professor of Hospital Administration,
University of Minnesota.*

HOTELS. Average room occupancy of hotels in the United States during the first nine months of 1955 was 72%, 1% lower than in the corresponding period of 1954, but there was a 4% rise in the average room rate. On a 12-month basis, however, the 1954 rate was also 72%, according to Horwath & Horwath, national hotel accounting and consulting firm. Highest rate of occupancy (92%) occurred in 1946.

Latest available Bureau of the Census data revealed that in 1948 there were 29,650 hotels of all sizes, with 1,550,000 guest rooms and a combined sales volume of \$2,173 million. Between January 1949 and July 1955, according to the Ahrens Publishing Company, 596 new hotels with almost 86,000 guest rooms were added. These additions represented an expenditure of slightly more than \$1 billion, or a per-room expenditure of almost \$12,000.

As of July 1955 the Ahrens organization placed the American hotel industry at 30,246 hotels of all sizes, with 1,654,000 guest rooms. The industry has an approximate value of \$8 billion, including land, buildings, and furniture and fixtures. Hotels employed between 460,000 and 500,000 persons in 1955.

Gross sales by the nation's hotels in 1954 were estimated at \$2,439 million, and increased by 3% in the first nine months of 1955. Approximately 46% of the 1954 income was derived from room sales, and 47% from food and beverage sales.

The American Hotel Association estimates that American hotels are currently spending about \$300 million annually for modernization. Part of this expenditure is for parking lots and garages to attract motorists.

In addition to some 35 new major conventional or vertical hotels built between January and July 1955, hotel interests announced the building of 26 new luxurious motor hotels with 5,460 guest rooms. This activity reflects an expenditure of almost \$61 million. Total known

expenditures for all new hotels and additions were \$260 million in the first six months of 1955, resulting in the addition of 17,800 rooms.

The most conspicuous hotel opening in 1955 was that of the \$18 million Beverly Hilton in Beverly Hills, Calif. On a cost per room basis (\$44,000), it is the most expensive hotel ever built. The greatest concentration of other new hotels opening in 1955 was at Miami Beach, Fla., with, among others, the swank Fontainebleau (554 rooms, \$15 million) and the Eden Roc, Seville, Bal Harbour, and Lucerne hotels; and in Las Vegas, Nev., with the Riviera (315 rooms, \$3.5 million) leading the list. The first part of a large project in Disneyland (q.v.), Anaheim, Calif., was also completed.

Among the most important hotels finished abroad in 1955 were the Istanbul Hilton in Turkey, the Westbury and Leofric hotels in London, and the Princess Kaiulani in Honolulu, Hawaii.

WALTER O. VOEGELE,
Editor, "Hotel Management."

HOUSING. Figures covering the first six months of 1955 forecast an annual construction rate of 1,300,000 private and public, urban and rural nonfarm dwelling units in the United States—the sixth consecutive year in which over 1 million units will have been built. During this period the number of starts equaled 684,300, an increase of 114,800 (or 20%) over the number in the comparable period of 1954. Public housing starts declined by 1,000 (from 10,800 to 9,800) so that the increase was due entirely to the boom in private housing construction. (See also BUILDING AND CONSTRUCTION.)

Statistics as to type of housing indicate that, compared with the first six months of 1954, the increase in the number of one-family house starts was entirely responsible for the overall rise. During this period, one-family house starts amounted to 612,500, an increase of 115,700 over the 496,800 such starts in the first six months of 1954. Two-family house and multiple-dwelling starts showed no significant change (17,700 and 54,100 in 1955, as against 16,300 and 56,400 in 1954, respectively).

An important change in the method of financing new dwellings took place beginning in late 1954 and continuing into 1955. Whereas starts financed by the Federal Housing Administration (FHA) remained relatively stable (declining

Part of the New York Life Insurance Company's 2,000-unit apartment project, shown under construction in Chicago.

CHICAGO PLAN COMMISSION



from 26% of all housing starts in 1951 to 23% in 1954), starts financed by the Veterans Administration (VA) mounted from 15% of all starts in 1951 to 26% in 1954 and to 29% in the first six months of 1955. This aspect of the housing picture had a great influence on federal credit policies. (See below, *Federal Credit Policies*.)

In the first six months of 1955 the advance in dollar value of new, nonfarm private residential construction amounted to 28% over the corresponding period in 1954 (\$7,202 million, as against \$5,598.3 million in 1954).

Mortgage Financing.—The dollar volume of recorded nonfarm mortgages of \$20,000 or less rose 36% from \$10,170 million in the first six months of 1954 to \$13,910 million in the corresponding period in 1955. The average amount of each mortgage registered a 12% increase, from \$6,399 to \$7,183.

Costs.—In July 1955, most cost indexes stood at an all-time high. This was true of the Boeckh Index of residential construction costs (124.6), based on average costs for the years 1947-49; the Boeckh Index of apartment, hotel, and office building costs (131.5); and the index of production and price of building materials (both of which stood at 125.7). Residential rents climbed to 130.4 (the average for the first six months of 1954 was 128.1). Average hourly earnings (\$2.64) in building, however, showed no significant change from the levels reached in December 1954 (\$2.65).

Congressional Action.—On Aug. 11, 1955, President Dwight D. Eisenhower signed the bill known as the Housing Amendments of 1955, which thus became Public Law 345. Its principal provisions included the following:

Urban Renewal.—The original capital grant authorization of \$500 million was increased by an additional \$200 million as of July 1, 1955, and by another \$200 million as of July 1, 1956. The president was authorized to increase the amounts at any time by an additional \$100 million.

The original requirement that not more than 10% of all grants made under this program by the federal government be allocated to any one state was amended to permit \$70 million to be allocated to local public agencies in states where more than two thirds of the permitted maximum has been obligated.

Public Housing.—The Public Housing Administration (PHA) was authorized to enter into new contracts for loans and annual contributions for 45,000 units in the period between the enactment of the bill and July 31, 1956 (the president had requested 70,000 units over a two-year period).

Certain restrictions in the Housing Act of 1954 were eliminated. These had formerly limited public housing to cities with Title I Urban Renewal projects, had also required certification by the local governing body that new public housing units were needed for relocation purposes, and had required a determination by the HHFA administrator that not more than the number of units needed for relocation purposes were placed under contract.

The requirement that a community must have a "workable program" for eliminating and for preventing the recurrence of slums and blight was retained as a prerequisite for federal grants for urban renewal, but it was eliminated as an eligibility requirement for federal aid for public housing.

Federal Housing Administration Programs.—

The FHA's general mortgage insurance authorization over and above outstanding insurance liability and commitments on June 30, 1955, was increased by \$4 billion.

The Title I home repair, modernization, and improvement program was extended to Sept. 30, 1956.

The dollar limitation (applicable only to each insured mortgage, not to individuals or corporations) on FHA-insured mortgages on multifamily housing under Sections 207, 213, 220, and 221, was increased from \$5 million to \$12.5 million.

Whereas formerly, in order to qualify for mortgage insurance on rental properties under Sections 207 and 213 a project had to include at least 12 units, the new measure reduced the number to 8.

Henceforth the maximum mortgage amounts under Sections 213 and 220 will be determined not on the basis of "estimated value" of the property, but on the basis of "estimated replacement cost." The purpose of this amendment was to bring the maximum mortgage amount closer to the actual cost of construction of a given project, and thus to help stimulate the rental and cooperative housing programs, which were at a virtual standstill since the "windfall profits" investigations of 1954.

Fifty million dollars was made available to the Federal National Mortgage Association (FNMA) to enter into advance commitments to purchase FHA-insured Section 213 cooperative mortgages, subject to the limitation that not more than \$5 million may be committed in any one state. Also, to assist the exceedingly slow-moving cooperative housing program, a special assistant with adequate staff was made available to the FHA commissioner.

The rental housing section (207) was amended to include insurance on land, utilities, and other improvements in trailer parks, with a maximum limit set at \$1,000 per trailer or \$300,000 per mortgage.

Miscellaneous Provisions.—Title IX (defense housing and community facilities program) was discontinued, except for commitments issued before Aug. 1, 1955.

The military housing program under Title VIII was extended to Sept. 30, 1956. A 100,000-unit program was authorized, and the FHA was empowered to insure such units for 25 years at 4% interest to the extent of \$1.3 billion over and above its general insurance authorization, provided that the maximum insured mortgage may not exceed \$13,500 per unit. The FNMA was authorized to purchase mortgages under this title to the extent of not more than \$200 million.

Also broadened were the college housing program (to include not only college housing, but also educational facilities such as cafeterias, student centers, etc.) and the farm housing program. In both instances the amount of funds available was increased, and in the college housing program, interest rates were reduced and the maximum term of loans increased from 40 to 50 years. Also, \$100 million from the U.S. Treasury was made available to the HHFA administrator for 40-year loans for public facilities in communities of less than 10,000 population, and additional funds were made available for the advance planning of public works under Section 702.

Federal Credit Policies.—A tightening of credit policies announced by the government in late July may have a more significant effect on the future volume of home-building than any measure enacted by Congress. The new rules were

put into effect in order to eliminate a possible cause of inflationary pressures in the national economy. Particularly worrisome to the government was the significant rise in mortgages insured by the VA (70% in the first six months of 1955 as against an increase of only 17% in FHA loans). Under the VA program, a qualified home buyer did not have to make any down payment.

Under the new rules, home buyers under the VA program would henceforth have to pay 2% of the purchase price of the dwelling, plus closing costs. FHA down payments were increased by 2% of the purchase price of the dwelling (which, in some instances, amounted to a doubling of the required down payment). Finally, maximum mortgage terms were reduced from 30 to 25 years for FHA-insured loans and to 25 years 32 days for VA loans. The full effect of these new credit restrictions was not fully felt by late 1955.

Activities Under the Housing Acts of 1949 and 1954.—As of November 1955, the Urban Renewal Program (which now includes the former Slum Clearance and Urban Redevelopment Program) had 108 projects under construction, as against 73 in July 1954. Of the \$700 million total capital grant authorization, over \$182 million in grants were under contract. The amount of loans committed (\$181,958,000) was almost equal to the amount of the capital grants.

As of Oct. 31, 1955, the HHFA administrator had certified the "workable programs" (locally developed long-range programs to eliminate and prevent slums and blight) of 70 communities in 23 states and Puerto Rico.

Under the Urban Planning Assistance Program (Section 701), which makes funds available on a matching basis to communities with less than 25,000 population and to state and metropolitan planning agencies for planning purposes, HHFA had awarded grants totaling about \$160,000 to six state and metropolitan planning agencies as of the end of fiscal year 1955. The total available for such grants is \$5 million.

During the same year, the PHA had placed under contract 29,509 low-rent housing units out of the total of 35,000 authorized in the Housing Act of 1954. In October the PHA announced that the 45,000 units authorized in 1955 will be allocated first to communities in need of such housing for relocation of families displaced by Title I projects and to communities desiring to correct any racial inequities in their existing housing programs.

U.S. Supreme Court Action.—In a far-reaching decision handed down in late 1954, the U.S. Supreme Court upheld the constitutionality of the District of Columbia Redevelopment Act of 1945 (*Berman v. Parker, et al.*). Perhaps the most important aspect of this decision lies in the statement of the purposes and extent of the application of the police power. Public safety, public health, morality, peace and quiet, law and order were described as being illustrative of, rather than delimiting, the scope of the power. The decision, written by Justice William O. Douglas, goes on to say: "... the concept of the public welfare is broad and inclusive ... The values it represents are spiritual as well as physical, aesthetic as well as monetary. It is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as carefully patrolled. ..."

This decision upheld the right of the redevelopment agency to condemn individual nonsub-

standard properties if their acquisition was required for the coordinated redevelopment of an essentially substandard area. As early as March 1955, at least one state court (Wisconsin) was influenced by this decision to the extent of reversing its previous attitude toward the application of the police power for purely aesthetic purposes.

State Court Action.—The challenge to the construction of public housing projects on vacant land, rather than on land cleared of slums, was dismissed in two decisions handed down by the Pennsylvania Supreme Court and by the Kentucky Court of Appeals.

The so-called Gwinn Amendment (under which occupancy of premises in federally aided housing projects is denied to persons who are members of organizations designed as subversive by the attorney general) was declared unenforceable by the Supreme Court of Illinois on the grounds that exclusion of otherwise qualified persons from such housing does not further the statutory purposes of the Illinois Housing Authorities Act, which purposes are slum eradication and the provision of housing for persons of low income. At the same time, a lower court in the state of Washington upheld the constitutionality of the amendment. In New York, New Jersey and California this issue was still being litigated. In October 1955, the U.S. Supreme Court refused to review a decision of the Wisconsin Supreme Court which held the Gwinn Amendment unconstitutional.

A suit charging discrimination in the sale of FHA-insured housing and seeking an injunction against the FHA and the VA to bar them from extending loan insurance to a Pennsylvania builder was dismissed by a United States district court on the grounds that neither the FHA nor the VA have been charged by Congress with the duty of preventing discrimination in the sale of housing financed with their aid.

State and Local Actions.—In Arkansas and in Massachusetts, bills which would have authorized the sale of publicly aided housing projects to private parties were defeated.

Georgia, Kansas, North Dakota, and Oklahoma passed redevelopment enabling legislation, thus bringing the total number of states with such legislation on the books to 36 (plus the District of Columbia, Puerto Rico, Hawaii, Alaska, and the Virgin Islands). The Kansas law is applicable only to communities of more than 75,000 people.

A series of significant housing steps was taken in 1955 by the New York State Legislature. It includes the following:

(1) The total amount the state may pay in subsidies in any one year to maintain low rents in state-aided public housing projects was increased from \$25 million to \$34 million by a constitutional amendment approved by the voters. This cleared the way for the construction of the additional public housing authorized by the voters in 1954.

(2) Cities were authorized to give 12-year tax exemptions on the increased value of properties brought up to standard, and a 9-year tax abatement on 8.3% of the cost of the alterations.

Families displaced from slum clearance areas, whose income would otherwise disqualify them from occupancy in public housing, may be relocated in such projects provided that their incomes do not exceed the maximum for continued occupancy. Such families are required to move out at the end of one year, unless the removal would occasion undue hardship.

(3) By a referendum vote, the state was authorized to use \$50 million of the \$200 million previously authorized for loans for public housing for the purpose of making loans to limited profit corporations for rental and cooperative housing developments. The legislature authorized cities to make loans to such corporations for the same purposes. Both city and state loans may cover 90% of the cost of construction and may be made for a period of 50 years at the rate of interest paid by the city and state to obtain the funds, plus a charge for administrative expenses. Cities are also authorized to exempt limited profit housing corporations from taxes up to 50% of the full value of the new developments, or up to the total difference between such full value and the assessed value of the land and buildings at the time they were acquired for the development, whichever is less.

(4) Discrimination because of race, creed or color was prohibited in the rental of multifamily housing in New York City and Buffalo financed after July 1, 1955, with the assistance of federally insured mortgages of the FHA types. The law also prohibits discrimination by any person who owns or controls the sale of ten or more single-family houses located on contiguous land and financed after July 1, 1955, with the aid of FHA or VA mortgages.

In Illinois, redevelopment agencies were authorized to borrow funds from private sources to be secured with pledges of federal loan contracts, for the purpose of achieving interest rates lower than the existing federal rate. The redevelopment of slum areas for other than residential purposes was also authorized. In Wisconsin, Gov. Walter J. Kohler vetoed two bills which would have permitted the sale of public housing projects and would have called for a local referendum on all future construction of such housing. Later he signed a bill which authorizes, among other things, a city council to liquidate a city housing authority and dispose of its assets to the highest bidder. It also authorizes a city council to take the same action with an urban renewal project being carried out under Wisconsin's Blighted Areas Law.

A constitutional amendment passed in Rhode Island specifically included urban renewal activities (including rehabilitation and improvement of blighted and substandard areas) among the activities of redevelopment agencies.

The Connecticut moderate rental housing program, inaugurated in 1947, was expanded by the appropriation of \$15 million. Construction funds will be allocated first for the purpose of rehousing families displaced by public improvement projects, including redevelopment.

New Jersey prohibited discrimination in the granting of mortgage loans. A local ordinance in Milwaukee, Wis., aims to prevent private construction on lands scheduled to be acquired by the city for public improvement programs. In Providence, R.I., the voters approved a \$2.5 million bond issue to be added to the city's \$2 million revolving fund for redevelopment purposes.

(See also ARCHITECTURE; CITY PLANNING; and references under the Index entry, *Housing*.)

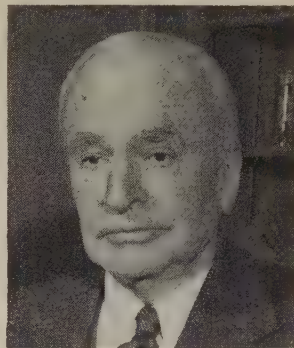
IRA S. ROBBINS,

*Executive Vice-President, Citizens' Housing and Planning Council of New York, Inc.;
Chairman of the Board, National Housing Conference.*

HOUSING AND HOME FINANCE AGENCY. See HOUSING.

HULL, Cordell, American statesman: b. Star Point, near Olympus village, Overton County, Tenn., now part of Pickett County, near Byrdstown, Oct. 2, 1871; d. Bethesda, Md., July 23, 1955. As United States secretary of state for over 11 years in the administration of President Franklin D. Roosevelt, he was instrumental in founding the reciprocal trade program of the United States, played a prominent role in the development of the Good Neighbor policy, and participated in the diplomatic meetings that gave birth to the concept of the United Nations.

The son of a backwoods lumberman, Cordell Hull received his education in the rural schools of Overton County, the National Normal University in Lebanon, Ohio (1889-90), and the Cumberland University Law School (1890-91) in Lebanon, Tenn. He was admitted to the Tennessee bar in 1891. An ardent Jeffersonian Demo-



Cordell Hull
(d. July 23, 1955)

WIDE WORLD

crat, he won his first political office in 1892 with his election to the state legislature.

After the Spanish-American War, in which he served as a captain of the 4th Tennessee Regiment in Cuba, Hull returned to Tennessee, where in 1902 he was elected judge of the 5th Circuit. He held that office until 1907, when he was sent to the U.S. House of Representatives by the 4th Tennessee District. With the exception of the years 1921-24, when he served as chairman of the Democratic National Committee after losing his congressional seat, he served in the House until 1931. As a member of Congress, he waged a constant battle for lower tariffs, and sponsored the federal income tax law of 1913, the revised tax law of 1916, and the federal inheritance tax law of 1916. In 1930 he was elected to the Senate, and on March 4, 1933, he was appointed secretary of state by the president-elect, Franklin D. Roosevelt.

Hull's appointment as secretary of state came at a critical period in world affairs. The depression was still in an acute stage, and the United States' political and economic relations with European and Latin American countries were at their lowest ebb. Hull believed that international tensions and economic pressures could be eased by the liberalization of trade. At the London Economic Conference, convened on June 12, 1933, he unsuccessfully endeavored to bring about agreement on his trade program. He finally won his battle on June 12, 1934, when Congress enacted the Trade Agreements Act, which gave recognition to the principle of reciprocal trade. By 1939, 21 reciprocal trade agreements had been negotiated.

Hull's efforts to develop more cordial relations with the countries of Latin America were no less dedicated. As head of the American delegation

at the Seventh International Conference of American States, convened at Montevideo on Dec. 3, 1933, he did much personally and diplomatically to give substance to the Good Neighbor policy of the United States. Subsequently he accompanied President Roosevelt in December 1936 to the Inter-American Conference for Peace in Buenos Aires; and led the United States delegation at the Eighth International Conference of American States at Lima (convened Dec. 10, 1938), and at the First Meeting of Foreign Ministers of the American Republics at Panama (convened Sept. 23, 1939), at which he sought with increasing success to bring the 21 countries of the Western Hemisphere into solid alignment against aggressor nations. He also attended the second and third meetings of American foreign ministers in Havana (convened July 21, 1940) and in Rio de Janeiro (convened Jan. 15, 1942), which succeeded in ironing out the hemisphere's war problems and in bringing about the severance of relations between the Axis powers and all the American republics except Chile and Argentina.

With the entry of the United States into World War II, the major role in diplomacy shifted from the secretary of state to the president. Hull played an important part, however, in the major conferences which developed the postwar program for international peace. Although suffering from poor health, he headed the United States delegation at the Moscow Conference (Oct. 19–31, 1943). There, with Anthony Eden and Vyacheslav Molotov, he assisted in writing the Moscow Declaration, which pledged the establishment of a new world organization for peace. On his return to the United States he reported the results of his mission to a joint session of Congress (Nov. 18, 1943), the first time in American history that a cabinet member had been invited to do so. Hull was also an important figure at the Dumbarton Oaks Conference (Aug. 21–Oct. 7, 1944), at which the first draft of the United Nations Charter was penned.

On Nov. 30, 1944, Hull was forced to resign as secretary of state because of ill health. Nevertheless, he was made a member and senior adviser of the American delegation, headed by the new secretary of state, Edward R. Stettinius, Jr., at the United Nations Conference on International Organization in San Francisco (April 25–June 26, 1945). Although his illness made it impossible for him to attend, he was in constant touch with the proceedings, and, when the conference ended, the United Nations Charter was flown to Washington, where, on June 29, Hull climaxed his long and distinguished career by signing the document for the United States. For his part in making the United Nations a reality, he was awarded the Nobel Peace Prize for 1945.

Cordell Hull spent almost all of his last years in the Naval Hospital at Bethesda, Md. During this time he wrote his memoirs, published in 1948. Mrs. Hull, the former Mrs. Rose Frances Witz Whitney, to whom he had been married on Nov. 24, 1917, died on March 26, 1954.

HUMAN RIGHTS. See Index entry.

HUMPHREY, George Magoffin, American public official: b. Cheboygan, Mich., March 8, 1890. A leading industrialist and banker, appointed chairman of the M. A. Hanna Company in May 1952, Humphrey took office as secretary of the Treasury on Jan. 21, 1953. Humphrey had previously served as chairman of the Business Advisory

Council of the Department of Commerce (1946) and as head of the Reparations Survey Committee of the Economic Cooperation Administration (1948–49).

In his first two years as secretary of the Treasury, Humphrey characterized the Eisenhower fiscal policy as seeking to reduce government spending to avoid inflation and eliminate "incentive-destroying taxation." In line with the administration's "hard money" policy, Humphrey in April 1953 defended the high interest rate on a Treasury bond flotation as an anti-inflationary measure necessary for economic stability. In early 1954, Humphrey termed the 1953–54 recession a "rolling readjustment" to a peacetime economy, and advocated tax reductions for business to encourage production. Humphrey led the United States delegation to the 21-nation Inter-American Economic Conference in Petrópolis, Brazil, Nov. 22–Dec. 2, 1954.

In 1955, Humphrey stressed balancing the budget before reducing taxes. On February 28, he told a congressional committee that the administration favored tax cuts only in conjunction with reduced spending and increased revenue, and opposed Democratic-sponsored tax-cut measures as "irresponsible" and politically motivated. On October 15 he denied allegations that he had sought cuts in defense spending as a means of balancing the budget, but reiterated his opposition to tax reduction before attainment of a balanced budget.

HUNGARY. A central European Communist-ruled people's democracy, Hungary is bounded on the south by Yugoslavia, on the west by Austria, on the north by Czechoslovakia, and on the east by Rumania and the Ukrainian SSR. It occupies an area of 35,912 square miles, and had an estimated population (June 1955) of 9,808,000, 40% of which is urban. Provisional birth and death rates for 1954 were 23 and 11 per thousand, respectively. The capital and principal city is Budapest, with a population of 1,780,000 at the beginning of 1955. Other important cities (1949 census) are: Szeged, 132,618; Debrecen, 119,635; Miskolc, 103,724; and Kecskemét, 88,374.

Government.—Hungary is a typical people's democracy with full Communist control. According to the constitution of Aug. 18, 1949, the state's highest organ is the unicameral National Assembly. When this body is not in session, it is represented by the 21-member Presidium of the National Assembly. The cabinet (Council of Ministers) appointed by, and theoretically responsible to, the National Assembly is, in practice, an agency of the central authorities of the Hungarian Workers (Communist) Party and merely rubber-stamps the decisions actually made by the top level of the party hierarchy.

The 1953 amendment of the electoral law abolished the national nomination list compiled by constituencies, and established representation on the basis of population rather than on the number of voters. The number of deputies was reduced from 402 to 298, with 154 alternates. The president of the Presidium (nominal chief of state) is István M. Dobi. The prime minister, or chairman of the Council of Ministers, is András Hegedüs. (See below, *Principal Events*, 1955.)

The Hungarian Workers (Communist) Party, which had 864,607 members in 1954, is recognized by the constitution as the guiding force in the country's entire political, economic, and social life. The Politburo, as elected by the Central Committee of the Party, consists of 9 full members: Mátyás Rákosi (first secretary), István Hidas, Ernő Gerő, András Hegedüs, Antal Apró, Lajos Acs, Béla Szalai, József Mekis, and István Kovacs. Most members of the Politburo occupy ministerial and other high governmental positions.

In May 1954 the Workers Party sponsored the organization of the Patriotic People's Front (PPF) to replace the Independent People's Front (IPF). At the PPF's first congress (Oct. 23–24, 1954) József Darvas, minister of popular culture, stated that the new group was not to serve as a mass political organization, but

merely as an assembly of the Communists, of the dissident groups from various traditional parties, and of individuals not identified with any organized political groups. It was also decided that the PPF should not have local organizations, but merely local committees which would represent their localities. The PPF thus became a Communist satellite without any delegated power.

The government is represented on the local level by people's councils whose deputies are either Communists or Communist collaborators. Although the constitution defines the local councils as the source of all power in Hungary, they are in actuality instrumentalities of the central government.

Education.—In 1946 the educational system was secularized and subordinated to full state control, and general school education (which combines 4 years of elementary and 4 years of secondary schooling) was made compulsory from the ages of 6 to 14. In 1952-53 there were 1,196,043 pupils enrolled in the general schools; 165,000 in 425 secondary schools; and 45,328 in 31 universities and other institutions of higher learning. In 1953 there were also 48 agricultural schools, 64 industrial technical schools, and 67 economic schools. The highest scientific institution is the Hungarian Academy of Sciences, which has been completely reorganized along the model of the Soviet Academy of Sciences. The academy, which places emphasis on applied science, has been assigned the task of training young scientists and has been authorized to grant Ph.D. degrees.

Religion.—The distribution of major religious groups is as follows: Roman Catholic, 65.7%; Reformed, 20.8%; Lutheran, 6%; Jewish, 4.3%; and Greek Catholic, 2.5%. Full separation of the state and church is constitutionally established. A special government agency, directly subordinated to the Council of Ministers, controls the work of religious organizations. Following the Soviet lead, during 1955 the Hungarian Communists sponsored intensive antireligious propaganda. The official propagandists, however, continued to claim that the church has been guaranteed full freedom. Bishop János Péter of the Reformed Church of Hungary, and a member of the National Assembly, stated that state subsidies to the church have been decreasing and that the church will eventually become self-supporting.

National Defense.—According to stipulations of the 1947 peace treaty, Hungary's army was to be limited to 65,000 men and its air force to 5,000. Foreign observers estimated the Hungarian armed forces in 1955 at 12 divisions with from 165,000 to 180,000 men. According to an official announcement of Sept. 7, 1955, Hungary planned to cut her armed forces by 20,000 men by Dec. 31, 1955.

Finance.—The budget for 1954 included revenues of 45,286,639,000 forints (11.74 forints = U.S.\$1) and expenditures of 43,980,136,000 forints. The estimated budget for 1955 included revenues of 47,011,362,000 forints and expenditures of 45,502,017,000 forints, 55.5% of which was allotted for development of the national economy; 22.9%, for social welfare and cultural purposes; 12.5% (an increase of 1.5% over the 1954 allotment), for military expense; 4.6%, for police; and 4.5%, for administrative purposes.

Agriculture.—After 1952 the collectivization of Hungarian agriculture, which had grown at a steady pace until then, became accelerated. The peak of collectivization was reached in mid-1953, by which time 240,000 peasant families had been embraced by 5,500 collective farms. By the end of 1953, however, the pace of collectivization had come to a standstill, and by the end of 1954 the number of collective farms had decreased to 4,500 and included about 300,000 peasants. These farms were serviced in 1954 by 364 machine and tractor stations, which had at their disposal 12,000 tractors (in terms of 15-hp. units) and 955 harvesters. Socialized agriculture in 1954 accounted for 33.3% of Hungary's arable land, 20.8% of which was in collective farms and 12.5% of which was in 469 state farms.

In mid-1955 the government began again to emphasize collectivization as a cure-all for agricultural deficiencies. Communist spokesmen promised that by 1960 over 50% of the total arable acreage would be socialized, and from June to September 1955 approximately 43,000 new peasants became collectivized on 220 additional farms.

Hungary's estimated 1954 production of basic crops, in millions of tons, was as follows: corn,

2.8; potatoes, 2.3; wheat, 2.4; and sugar beets, 2.5. In 1953 oat production totaled 200 metric tons; rye, 725; and barley, 700.

Industry.—In 1954 the first Five-Year Plan was completed, but the government decided not to begin the second Five-Year Plan until 1956. The delay will enable Hungary to synchronize its plans with those of the Soviet Union and Czechoslovakia, which are to begin in that year.

In 1953 the government stated that the emphasis in industrial production would be on consumer goods, rather than on heavy industry. In 1955, however, this stand was reversed, and Mátyás Rákosi said on Jan. 25, 1955, that, in view of the "war threat from the West and the rearmament of Germany," it would be necessary to revert to basic industrial production.

The government continued during 1954 to emphasize the development of the country's mining resources. New coal mines were under development in Komló, Balindabánya, Tata-bánya, and Petőfibánya. In 1953 an estimated 4.58 billion kw.-hr. of electric power were generated, and in 1954, Hungary produced (in thousands of tons): coal, 22,000; steel, 1,500; oil, 1,194; cement, 1,100; and aluminum, 28.4.

During the first six months of 1955 industrial production increased by 9.5% over 1954 production for the same period. The increase was credited to additional investments rather than to increased labor productivity per individual worker. Despite the over-all increase in industrial production, the targets for cast steel, pig iron, and aluminum had not been met in the second quarter of 1955.

Foreign Trade.—In 1955, 80% of Hungary's foreign trade continued to be oriented primarily toward the Soviet Union and the Soviet-dominated eastern European countries. In 1953 Hungary's total trade (exports and imports) with eastern Europe totaled \$740 million; its total trade with the West, including Yugoslavia, totaled \$230 million. There was, however, in 1955 an increased tendency to improve trade relations with the non-Communist world. In 1954, Hungary maintained trade relations of one kind or another with 90 countries outside the Soviet orbit. On Jan. 14, 1955, Hungary's first trade agreement with Yugoslavia was signed since the latter's break with the Cominform in 1948. The agreement called for an exchange of goods valued at £5 million. Approximately one third of Hungary's exports consisted of various kinds of machinery, such as sea and river craft, cranes, turbines, trucks, tractors, sewing machines, bicycles, and radio equipment.

Transportation and Communications.—In 1951, Hungary had 7,099 miles of railways and 15,983 miles of state and municipal highways. As of Jan. 1, 1949, the country had 47,200 motor vehicles of all types. Hungary has 687 miles of navigable rivers, and at the end of 1947 she had 514 Danube vessels, with a gross tonnage of 118,717. As of Jan. 1, 1954, Hungary had 122,000 telephones and nearly one million radio receivers.

Principal Events, 1955. Purges and Amnesties.—Throughout 1955 the Hungarian government continued to persecute individuals and groups accused of having ties with the West. On July 9, 1955, Mr. and Mrs. Andre Marton, Hungarian correspondents of two American news agencies, were charged with espionage. On April 13, 1955, five persons were sentenced to death on charges of conspiracy to overthrow the government, and six others received prison terms of from 9 to 14

years. On February 12, 18 individuals, including two Roman Catholic priests, were sentenced to prison for terms ranging from 2½ years to life for seeking to set up a capitalist state. In March, Peter Gabor, the former head of the State Security Service, and several of his deputies were sentenced to life imprisonment for "crimes against the people and the state."

On April 2, 1955, on the occasion of the tenth anniversary of liberation from Axis rule, the government issued a limited amnesty in individual cases for political prisoners and Hungarian citizens living abroad. On July 16, József Cardinal Mindszenty was conditionally released from life imprisonment, and on October 13, Archbishop József Groesz and four other priests were amnestied.

Government and Party Changes.—On April 14, 1955, the Central Committee of the Hungarian Workers (Communist) Party released Imre Nagy from his positions as premier and as a member of the Politburo.* He was succeeded as premier on April 18 by András Hegedüs, and as a member of the Politburo by István Kovacs. The Central Committee also dismissed Mihály Farkas from the Politburo because of his continuous support of Nagy's "wrong opinions." He was replaced in the Politburo by József Mekis, who was also made a deputy premier. Nagy's dismissal came as a result of the Central Committee's allegations that his policies thwarted the development of socialism. In particular, he was charged with: (1) emphasizing the political role of the PPF at the expense of party strength; (2) preventing speedy industrialization, particularly in the field of heavy industry; and (3) preventing the development of agricultural collectivization. It became clear that the government had reversed its basic policies of the past two years and embarked upon a more aggressive program of consolidating the unchallenged power of the Communist hierarchy; of concentrating on heavy industry (at the expense of consumer goods); and of relying on various coercive techniques as a method of collectivization.

On April 4, 1955, the government sponsored a mass celebration of the tenth anniversary of Hungary's liberation by the Soviet Army. Present at the celebration was a Soviet delegation headed by Kliment E. Voroshilov, president of the Presidium of the Supreme Soviet of the USSR.

Foreign Relations.—During 1955, Hungary

* On November 15, Nagy was removed from the National Assembly, thus depriving him of the last remnant of power he had held.

continued to follow subserviently the Soviet Union's international policies, and very little effort was made to improve diplomatic relations with the West. Hungary was one of the signatories of the treaty of friendship, cooperation, and mutual assistance concluded in Warsaw on May 14, 1955, by the Soviet Union and her European satellites. Hungary was also designated as one of the beneficiaries of the decision of the Soviet government to give various satellite countries necessary scientific, technical, and material assistance in the building of experimental bases for research in nuclear physics and in the industrial employment of atomic energy.

Following the signing of the Soviet-Yugoslav agreement in Belgrade on June 2, 1955, the Hungarian government quickly announced its determination to improve relations between itself and Yugoslavia. On July 27, however, Marshal Tito accused Hungary of continuing its policy of intrigue against Yugoslavia and of failing to admit its guilt in the previous persecution of individuals accused of Titoist tendencies. Negotiations with Yugoslavia regarding the settlement of Hungarian debts, including reparations, broke down on Sept. 24, 1955, when Hungary announced that Yugoslavia's claims were "too great" for Hungary's economy to sustain.

The relations between Hungary and the United States showed little improvement during 1955. On September 1, the United States requested the Hungarian legation in Washington to terminate all information and propaganda activities outside the legation building. At the same time, the United States government sent a note to Hungary protesting against the molesting and intimidation by the Hungarian police of individuals who called at the American legation in Budapest to receive American publications, as well as of Hungarians employed by the American legation. In October, however, the situation was somewhat improved when the U.S. Department of State announced that it would henceforth issue passports to its citizens who wished to travel to Hungary.

On December 14, Hungary, along with 15 other countries, was elected to membership in the United Nations.

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HYDROELECTRIC PROJECTS. See Index entry.

HYDROGEN BOMB. See ATOMIC ENERGY.

HYGIENE. See Index entries, *Industrial Health and Safety* and *Public Health*.



ICE HOCKEY. See SPORTS, GAMES, AND SHOWS.

ICE SKATING. See SPORTS, GAMES, AND SHOWS.

ICELAND. An island republic in the North Atlantic just below the Arctic Circle. Estimated area, 39,770 square miles; pop. (est. Dec. 31, 1954), 155,000. Reykjavik (pop. 1953, 60,024) is the capital.

Government.—Iceland's Althing has 52 members; the majority are popularly elected, the remainder are ap-

pointed according to set rules to render party seating more truly reflective of popular votes received. The Althing selects 17 from among its members to constitute the upper house; the remaining 35 form the lower house. The president is elected by popular vote for a four-year term. President Asgeir Asgeirsson took office on Aug. 1, 1952. Olafur Thors, Conservative, heads a Conservative-Progressive cabinet formed on Sept. 11, 1953. Under the United States-Iceland defense treaty of 1951, the United States has the use of an airbase near Keflavik and other facilities.

Education and Religion.—Illiteracy is virtually nonexistent. In 1950 there were 214 primary schools (16,218 pupils); 60 secondary schools (5,490); 50 technical schools (3,999); 4 teacher-training schools (152); and

a university at Reykjavik (620). The state-supported Evangelical Lutheran Church is predominant.

Finance.—Revenue in 1953 totaled 510 million krónur; expenditure, 507.5 million (data include transactions of state enterprises). The króna equals 6.14 cents in United States currency at the official exchange rate.

Production.—Iceland's fish catch—chiefly herring and cod—is the mainstay of her economy. Fish landings in the first 9 months of 1955 totaled 343,500 metric tons. Small farms in the coastal regions yield hay, potatoes, and other vegetables. Sheep raising and dairying are important. The number of sheep at the end of 1953 was 544,000, and has been increasing rapidly in recent years. Chief manufactures are processed fish products, woolen cloth, blankets, shoes, fishing equipment, glass products, and other small items. Output of electric power has risen considerably since 1952 with the construction of new hydroelectric power plants. Installed capacity increased from 45,000 kw. in 1952, to 102,000 at the end of 1954. A \$7 million fertilizer plant began operations in 1954.

Foreign Trade.—Exports in 1954 totaled a record 845,912,000 krónur; imports, 1,130,397,000. Fish and fish products comprise the bulk of exports. Imports are mainly fuels, foodstuffs, and a variety of manufactured goods. The United States, Iceland's chief trading partner, took 17% of Iceland's 1954 exports and provided 20.2% of imports. Soviet Russia and Great Britain ranked next in order.

Transportation and Communications.—Iceland has about 4,350 miles of roads (1954); 12,107 registered motor vehicles, including 7,133 passenger cars (1955); 25,457 telephones (1955); 36,000 licensed radio receivers (1952); and 5 daily newspapers with a total circulation of 65,000 (1952). Keflavik Airport is used by international airlines.

Principal Events, 1955.—Iceland's long-standing fishing dispute with Britain was placed in the hands of a commission of the Organization for European Economic Cooperation in early 1955. The conflict, which arose out of Iceland's extension of her exclusive fishing limits, resulted in a British boycott of Iceland's trawlers and a consequent diversion of much of Iceland's trade to the USSR since 1953. A six-week general strike of 7,000 workers was settled on April 29 with a pay rise of 10-15% and a state-subsidized unemployment fund. Inflation once again became a threat in 1955, as the cost of living rose over 9% during the year.

IDAHO. Northwestern state, United States; admitted to the Union, July 3, 1890. The "Gem of the Mountains State" ranks 12th in area and 43d in population (1955) among the 48 states.

Area and Population.—Area: 83,557 square miles (land, 82,769; inland water, 788), divided into 44 counties. Population: (1950) 588,637; (est. July 1, 1955) 606,000. Urban places with 1950 populations above 7,500 are: Boise City, the capital, 34,393; Caldwell, 10,487; Coeur d'Alene, 12,198; Franklin-Whitney Airport, unincorporated, 7,809; Idaho Falls, 19,218; Lewiston, 12,985; Moscow, 10,593; Nampa, 16,185; Pocatello, 26,131; and Twin Falls, 17,600.

Executive.—Chief state officers in 1955:

Governor: Robert E. Smylie (Republican)
Lieutenant Governor: J. Berkeley Larsen
Secretary of State: Ira H. Masters
Treasurer: Ruth G. Moon
Attorney General: Graydon W. Smith
Supt. of Public Instruction: Alton B. Jones

Constitution and Judiciary.—The present constitution went into effect in 1890. The Supreme Court comprises five justices; chief justice in 1955 was C. J. Taylor.

Legislature.—The Idaho Legislature (Senate, 44 members; House of Representatives, 59) meets in odd-numbered years commencing the first Monday after January 1.

In its 1955 session, the Legislature made the budget director the director of administration; established a Governor's Advisory Council; shifted civil defense activities to the adjutant general's office; and created a Legislative Budget Committee, a Department of Commerce and Development, a Turnpike Commission, and a Board of Health. The state's share in the minimum education program was increased from \$12 million to \$15 million and bonding limits of school districts were almost doubled. Restrictions against aliens owning real property in the state were removed and Indians were permitted to purchase liquor.

Extensive tax legislation included the adoption of 7½% surcharges on state income and liquor taxes; repeal of a 1953 reduction of 15% on the income tax; doubling of corporation license fees; an increase of one cent per pack on cigarettes; an increase of motor truck registration fees from \$55 to \$100 and of auto license fees from \$5 to a sliding scale of \$7.50-\$17.50; and re-instatement of the ton-mile tax.

Finances.—State treasury receipts (1954-55 fiscal year), \$98,305,475.12; expenditures, \$104,868,902.77; treasury balance, \$19,235,924.76; long-term indebtedness, \$2,000,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$39,046,635.93, including \$7,634,017.79 from licensing; \$5,384,579.61 from individual income taxes; \$2,678,483.25 from corporate income taxes; and \$2,199,194.28 from property taxes. The state has no general sales tax or poll tax.

Banking.—As of June 30, 1955, the state's 11 national banks had \$413,886,000 in assets, \$259,484,000 in demand deposits, and \$128,857,000 in time deposits; the state's 25 other banks had \$127,691,436.10 in assets, \$81,439,727.93 in demand deposits, and \$37,813,040.93 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$27,089,529.22 (\$220.40 per pupil) for public elementary and secondary education in the 1953-54 school fiscal year comprised \$19,182,990.06 from local school districts, \$7,063,365.14 from the state, and \$843,174.02 from the federal government. Expenditures for construction and improvements totaled \$7,452,780.54. Teachers' salaries averaged \$3,-

IDAHO SCHOOL STATISTICS, 1953-54

Type of School	No.	Teachers	Students
Public elementary (grades 1-6) . . .	497	2,908	101,613
Public junior high (grades 7-9) . . .	28	306	...
Public senior high (grades 10-12) . . .	132	1,328	34,763
State junior colleges . . .	2	...	1,481
State colleges and universities . . .	2	...	4,112

* Enrollment is included in elementary and senior high figures.

359.95. (High school teachers, \$3,657.40; elementary school teachers, \$3,161.10.)

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) for the biennium ending June 30, 1954, totaled \$17,157,683, including \$11,645,667 for old-age assistance, \$5,245,244 for dependent children, and \$266,772 for the needy blind; a monthly average of 11,094 persons received public assistance during the 12 months ending June 30, 1954. Appropriations of \$6,860,711 were made for the 1955-57 biennium for the operation of health and welfare institutions and \$2,080,835 for the operation of correctional and penal institutions.

IDAHO WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic . . .	1	879 ¹
Hospitals for the mentally ill . . .	2	1,225 ¹
Sanatoriums for the tubercular . . .	1	75 ¹
Schools for the blind and deaf . . .	1	112 ²
Training schools for delinquent boys . . .	1	103 ³
Training schools for delinquent girls . . .	1	49 ³
Soldiers and sailors homes . . .	1	95 ⁴
Reformatories for males . . .	1	105 ⁵
Reformatories for females . . .	1	27 ⁵
Prisons . . .	1	507 ⁵
Prison farms . . .	1	13 ⁵

¹ Aug. 30, 1955. ² Oct. 31, 1955. ³ Oct. 28, 1955. ⁴ Jan. 1, 1955. ⁵ Nov. 4, 1954.

Labor Force.—On July 31, 1955, the state's labor force numbered 245,800, including 73,800 agricultural workers. Nonagricultural employment was 137,100 and for the full year 1954 averaged 132,317. There were 6,000 unemployed workers in July 1955, and \$4,560,120.37 in unemployment compensation was paid during the year ending July 1955.

Manufacturing.—In 1954 there were 1,138 manufacturing establishments with 23,932 employees who received \$95,344,639 in wages. Investment in new plant and equipment was \$16,818,000 in 1953. Earnings of production workers in manufacturing averaged \$78.28 for an average work week of 41.2 hours in 1954, and \$86.96 for 43.7 hours in the first six months of 1955.

Leading manufactures in 1954 included lumber and timber products, with 12,892 employees earning \$53,990,676; food products, 6,438 (\$22,223,257); primary metal products, 1,147 (\$5,214,121); printing and publishing, 1,053 (\$4,108,266); chemicals and allied products, 779 (\$3,614,231); machinery and equipment, 634 (\$2,665,349); cement and allied manufactures, 385 (\$1,409,787); and other manufactures, 604 (\$1,938,952). A total value of \$175,000,000 was added by manufacture.

Mining.—Idaho ranked first in 1953 among the states in its output of cobalt and silver, and second in lead and zinc. Idaho stood 29th in total output value (0.47% of national total). Employment in the mineral industry averaged 4,500 in 1954.

IDAHO MINERAL PRODUCTION, 1954

(In short tons, except as noted)

Mineral	Quantity	Value
Copper.....	4,828	\$ 2,848,520
Gold (ounces).....	13,245	463,575
Lead.....	69,302	18,988,748
Phosphate rock (long tons).....	1,092,817	5,686,609
Sand and gravel.....	6,508,859	4,428,540
Silver (ounces).....	15,867,414	14,360,811
Stone*.....	2,116,463	2,740,857
Zinc.....	61,528	13,290,048
Other minerals.....	.....	6,292,877

* Except limestone for cement and lime.

Agriculture.—Cash farm income in the first half of 1955 totaled \$134,321,000, and for the full year 1954 comprised \$139,617,000 from livestock and livestock products, \$184,885,000 from crops, and \$5,865,000 from government payments. Receipts from principal crops and livestock in 1954 included wheat, \$68,902,000; cattle, \$52,357,000; dairy products, \$44,573,000; potatoes, \$26,994,000; and sheep, \$17,419,000.

IDAHO CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	1,655	1,130	1,670
Barley (1,000 bu.).....	11,600	18,005	18,432
Beans, dry edible (1,000 bags).....	2,155	2,511	2,441
Cherries (tons).....	3,377	3,800	5,200
Corn (1,000 bu.).....	1,654	3,233	3,690
Hay (1,000 tons).....	2,411	2,763	2,890
Hops (1,000 lb.).....	1,478	3,312	3,360
Oats (1,000 bu.).....	7,839	10,560	10,032
Peas, dry field (1,000 bags).....	1,302	1,032	922
Potatoes (1,000 bu.).....	41,758	40,800	51,550
Prunes (tons).....	23,410	11,900	21,500
Sugar beets (1,000 short tons).....	1,201	1,569	1,465
Wheat (1,000 bu.).....	37,657	36,198	37,388

(Source: U.S. Dept. of Agriculture.)

The state's 38,735 farms (14,164,739 acres; harvested cropland, 3,727,452) averaged 365.7

acres and \$31,685 in value of land and buildings per farm in 1954. Farms with electricity numbered 37,311; with telephones, 26,133. Livestock on farms on Jan. 1, 1955, included 1,328,000 cattle, 1,105,000 sheep, and 1,795,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 86,784 family and hired workers engaged in farming.

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$17,524,046, and newly completed construction and reconstruction aggregated 389.9 miles.

Highways and roads on Dec. 31, 1954, totaled 39,707.1 miles (21,603.8 surfaced). Registered motor vehicles numbered 351,068, including 224,143 passenger cars. There were 9 railroads operating 3,019.388 line miles, and (1955) 3 regularly scheduled airlines and 192 airports and airfields (83 commercial and municipal, 1 military, 42 private, and 66 other).

Communications media included (1955) 24 AM and 3 FM radio stations and 5 VHF operating television outlets; 14 daily newspapers (circulation, 132,819) and 79 other newspapers (circulation, 107,478); and (Jan. 1, 1955) 45,646 business and 118,316 residential telephones.

Principal Events, 1955.—Water and gas mixed in Idaho news during 1955. Two multimillion dollar dams were dedicated a day apart: Lucky Peak on the Boise River on June 23, and Albeni Falls on the Pend Oreille River on June 24. Controversy continued between proponents of federal and private power over the Hell's Canyon project, and a U.S. Senate subcommittee held hearings on the question on April 4 in Boise and Lewiston. On August 4 the Federal Power Commission granted a 50-year license to the Idaho Power Company which, on November 9, signed a construction contract with the Morrison-Knudsen Company. Equipment started moving the next day to the site for the Brownlee Dam. (See also DAMS.)

Issuance of a franchise for the distribution of natural gas in southern Idaho caused a legal controversy in 1955. In February the state Public Utilities Commission granted exclusive rights to the Idaho Natural Gas Company, but in October the Idaho Supreme Court ordered either a rehearing of applications or the giving of the franchise to the Intermountain Gas Company. The same court also reversed a lower court decision which had granted a petition of the Mountain States Telephone and Telegraph Company for a sizable rate increase, thus causing the company to refund over \$2 million to subscribers.

On July 17 the town of Arco became the first in the United States to be lighted exclusively (on a noncommercial basis for one hour) by electricity produced from nuclear energy.

The 150th anniversary of the Lewis and Clark Expedition was celebrated at Lewiston during the three-day period of October 7-9.

Principal Events by: FAITH TURNER,
Newswriter and Past President,
Idaho Writers' League.

ILLINOIS. North Central state, United States; admitted to the Union, Dec. 3, 1818. The "Prairie State" ranks 23d in area and 4th in population (1955) among the 48 states.

Area and Population.—Area: 56,400 square miles (land, 55,935; inland water, 465), divided into 102 counties. Population: (1950) 8,712,176; (est., July 1, 1955) 9,297,000. Urban places with populations (1950 census, unless otherwise indicated) above 15,000 are as follows:

Alton	32,550	Joliet	51,601
Aurora	50,576	Kankakee	25,856
Belleville	32,721	Kewanee	16,821
Berwyn	51,280	Mattoon	17,979 ³
Bloomington	34,163	Maywood	27,473
Blue Island	17,622	Melrose Park	16,014 ³
Brookfield	17,580 ¹	Moline	37,397
Calumet City	19,066 ²	Mount Vernon	15,600
Champaign	39,563	North Chicago	16,881 ³
Chicago	3,620,962	Oak Park	63,529
Chicago Heights	24,551	Ottawa	16,957
Cicero	67,989 ²	Park Forest	23,715 ³
Danville	37,864	Park Ridge	21,879 ²
Decatur	66,269	Pekin	21,858
Des Plaines	20,663 ¹	Peoria	111,856
Downers Grove	17,060 ³	Quincy	41,450
East St. Louis	82,295	Rantoul	21,789 ²
Elgin	44,223	Rock Island	48,710
Elmhurst	28,342 ²	Rockford	105,438 ⁴
Elmwood Park	21,544 ²	Skokie	33,405 ³
Evanston	74,959 ³	Springfield (capital)	81,628
Evergreen Park	15,746 ³	Streator	16,469
Freeport	22,467	Urbana	22,834
Galesburg	31,425	Waukegan	46,698 ³
Granite City	34,189 ³	Waukegan Park	
Harvey	23,714 ³	District	46,348 ³
Highland Park	20,480 ²	Wheaton	16,001 ¹
Jacksonville	20,387	Wilmette	18,162

¹ Special census, 1953. ² Special census, 1954. ³ Special census, 1955. ⁴ Special census, 1952.

Executive.—Chief state officers in 1955:

Governor: William G. Stratton (Republican)
Lieutenant Governor: John W. Chapman
Secretary of State: Charles F. Carpenter
Treasurer: Warren E. Wright
Supt. of Public Instruction: Vernon L. Nickell

Constitution and Judiciary.—The present constitution went into effect in 1870. The Supreme Court comprises seven justices; chief justice in 1955 was Harry B. Hershey.

Legislature.—The General Assembly convenes in odd-numbered years commencing the first Wednesday after the first Monday in January. A major enactment of the 1955 legislative session was the reapportionment of the state into 58 senatorial districts (24 in Cook County and 34 in the remaining 101 counties) and into 59 representative districts (30 in Cook County and 29 in the remaining counties). Reapportionment increased the House of Representatives by 24 members and the Senate by 7. Appropriations were made for the enlargement of the House chambers to accommodate the increased membership and for renovation of the state capitol.

Other enactments included creation of an interim commission to draft a constitutional amendment providing for annual legislative sessions; revision of the Bank and Banking Act and of the Building and Loan Act; new laws governing adoption and divorce; and approval of "Land of Lincoln" as the official state slogan. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$1,251,144,776; expenditures, \$1,350,301,413; treasury balance, \$724,186,733; long-term indebtedness, \$280,071,800.

Taxation.—State tax revenue (1954-55 fiscal year): \$551,823,000, including \$447,137,000 from the general sales tax and selective sales and gross receipts taxes and \$89,058,000 from licensing. The state has no individual or corporate income tax or poll tax.

Banking.—As of June 30, 1955, the state's 389 national banks had \$11,287,762,000 in assets, \$7,804,-539,000 in demand deposits, and \$2,612,772,000 in time deposits; the state's 525 other banks had \$4,488,-219,727.88 in assets, \$2,794,379,373.30 in demand deposits, and \$1,395,567,373.02 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for public elementary and secondary education in the 1953-54 school fiscal year totaled \$396,492,681 (\$288.81 per pupil). Expenditures for construction and improvements totaled \$125,635,730.68. Teachers' salaries averaged \$4,000.83 (elementary school teachers, \$3,368.44; high school teachers, \$4,429.75).

ILLINOIS SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-8)	1,923	14,434	393,803
Public senior high (9-12)	298	5,848	120,066
Public elementary and senior high (1-12)	325	31,145	880,834
Private and parochial elementary and secondary	1,098	9,496	385,474
State teachers colleges (1954-55)	4	715	8,771

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$109,272,000, including \$68,841,000 for old-age assistance, \$32,100,000 for dependent children, \$2,762,000 for the needy blind, and \$5,872,000 for the disabled; a monthly average of 187,268 persons received public assistance. Operating expenditures for welfare institutions were \$52,585,-492.11; for correctional and penal institutions, \$3,161,088.

ILLINOIS WELFARE INSTITUTIONS (As of June 30, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic	2	10,199
Hospitals for the mentally ill	11	37,888
Sanatoriums for the tubercular	2	350 ¹
Schools for the blind	1	179
Schools for the deaf	1	396
Homes for the industrial blind	1	60
Schools for crippled children	1	277
Homes for dependent children	2	1,081
Soldiers and sailors homes	1	82
Homes for veterans' widows	1	524 ²
Training schools for delinquent boys	1	322 ²
Industrial schools for boys	1	308 ²
Training schools for delinquent girls	1	251 ²
Reformatories for females	3	7,870 ³
Prisons	1	1,026 ³
Prison farms	1	

¹ As of Oct. 26, 1955. ² As of Sept. 25, 1955. ³ July 1955 average.

Labor Force.—On July 15, 1955, the labor force numbered 4,203,200, including 320,000 agricultural workers. Nonagricultural employment totaled 3,314,200, and for the 12 months ending July 1955 averaged 3,289,200. There were 166,000 unemployed workers on July 15, 1955, and \$133,369,000 in unemployment compensation claims was paid to workers during 1954.

Manufacturing.—Establishments covered by the state's unemployment insurance program in 1954 numbered 12,786 and had 1,199,229 employees who received \$5,386,238,256 in wages. Investment in new plant and equipment (1953) totaled \$602,058,000. Earnings of production workers in manufacturing averaged \$76.34 for an average work week of 40 hours in 1954, and \$81.99 for 41.4 hours in the first six months of 1955.

MAJOR ILLINOIS MANUFACTURES, 1953

Product or industry	No. of employ-ees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
All manufactures	1,316,089	\$5,668,441	\$10,111,624
Nonelectrical machinery	218,242	1,005,168	1,726,156
Food and kindred products	137,158	554,695	1,276,711
Electrical machinery	161,243	654,238	1,146,879
Fabricated metal products	130,825	562,196	964,487
Primary metal industries	111,857	530,230	945,776
Printing and publishing	90,026	429,819	713,386
Chemicals and allied products	51,096	233,066	654,975
Transportation equipment	64,918	314,114	528,637
Stone, clay, glass products	34,490	145,546	289,988
Instruments & related products	35,666	146,212	256,794
Paper and allied products	34,176	139,576	251,034
Apparel and related products	52,279	160,764	249,247
Petroleum and coal products	17,444	83,668	225,605
Furniture and fixtures	29,406	120,022	184,621
Leather and leather products	23,430	69,214	122,464

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—In 1953 Illinois stood first among the states as a producer of fluorspar and tripoli; third

in crushed stone; and fourth in bituminous coal and lime. The state ranked 8th in the value of its mineral products, with 3.21% of the United States total. The value of mineral production in 1954 was \$507,697,000. Average monthly employment in 1954 in mining, quarrying, and petroleum production stood at 31,777, and wages totaled \$139,230,354.

ILLINOIS MINERAL PRODUCTION, 1953
(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.)	8,651,385	\$ 21,961,761
Clays	2,305,202	3,925,141
Coal	46,009,891 ¹	181,597,998 ¹
Coke ²	3,513,142	59,549,629
Fluorspar	163,303	8,567,026
Iron, pig ²	6,513,893	325,582,535
Lead	3,391	888,442
Lime	519,992	6,986,560
Natural gas (1,000 cu. ft.)	9,282,000	1,559,000
Petroleum (bbl.)	59,026,000 ³	170,590,000 ³
Sand and gravel	21,521,806	20,540,549
Sandstone, ground	276,215	2,461,767
Stone	22,938,732	29,736,966
Sulphuric acid ²	120,028	2,148,050
Zinc	14,556	3,347,880
Other minerals	...	9,632,040
Total	...	\$461,795,130

¹ Estimated production for 1954: 41,775,800 tons (\$162,-925,400). ² Values for processed materials are not included in the total. ³ 1954 estimate: 66,940,000 bbl. (\$200,820,000). (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$817,487,000, and for the full year 1954 comprised \$1,129,086,000 from livestock and livestock products, \$784,958,000 from crops, and \$7,682,000 from government payments.

Receipts from principal crops and livestock in 1954 included: hogs, \$474,461,000; cattle, \$368,-870,000; corn, \$338,024,000; soybeans, \$235,-322,000; dairy products, \$159,949,000; eggs, \$75,049,000; and wheat, \$86,626,000. Greenhouse and nursery products yielded \$39,771,000.

The state's 175,542 farms (30,398,517 acres; harvested cropland, 20,549,929) had 173.2 acres and \$40,871 in value of land and buildings per farm in 1954. There were 129,400 farms with telephones and 169,161 with electricity. Livestock on farms (Jan. 1, 1955) included 3,846,000 cattle, 717,000 sheep, 6,778,000 hogs, and 21,-398,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 290,954 family and hired workers engaged in farming.

ILLINOIS CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	3,082	2,260	1,500
Broomcorn (tons)	1,860	1,400	1,600
Corn (1,000 bu.)	462,296	458,568	523,992
Hay (1,000 tons)	4,111	4,577	4,636
Oats (1,000 bu.)	138,432	137,172	177,408
Peaches (1,000 bu.)	1,684	1,210	90
Popcorn (1,000 lb.)	41,072	39,600	27,000
Rye (1,000 bu.)	631	1,890	1,785
Soybeans (1,000 bu.)	81,614	89,074	100,510
Wheat (1,000 bu.)	34,004	46,964	51,220

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads in 1954 totaled \$132,875,000, and newly completed construction and reconstruction aggregated 742 miles.

Highways and roads on Dec. 31, 1954, totaled 102,-258 miles (90,653 surfaced). Registered *motor vehicles* numbered 3,188,849, including 2,688,944 passenger cars. There were (1955) 56 *railroads* operating (1953) 11,-404 road miles, and (1955) 15 regularly scheduled *airlines* and 656 *airports and airfields* (123 commercial and municipal, 3 military, and 530 private).

Communications media included (1955) 89 AM and 28 FM *radio stations* and 17 operating *television outlets*; 96 daily *newspapers* (circulation, 3,680,792) and 668 other newspapers; and (Jan. 1, 1955) 1,097,-110 business and 2,391,405 residential *telephones*.

Principal Events, 1955.—When the Illinois General Assembly adjourned its biennial session on June 30, the lawmakers concluded one of the most hectic sessions in history. Probably the main underlying reason for the general confusion was legislative reapportionment, a task last done in 1901. A 1954 constitutional amendment had set up a new plan for legislative districts, and the lawmakers had to draw new districts (which they did) or have a nonlegislative body do it for them. (See also above, *Legislature*.)

The legislature enacted several significant financial measures, and the biennial state budget reached a record high of \$1,750 million. To help provide the funds, the state sales tax was increased from 2 to 2½ cents. At the same time, the financial plight of the cities was eased by the deletion of the referendum requirement before a city could impose a state-administered ½ cent tax. By the end of 1955, about 150 cities had taken advantage of the new provision. Cities were also given permission to impose a consumers utility tax.

The voters will have another opportunity to overhaul the state's revenue system in 1956. A new revenue article for the state constitution was the only amendment passed by the legislature. A similar revenue article was defeated at the 1952 general election.

Other important new legislation established a state Department of Personnel. The Broyles loyalty oath for state and certain other public employees was adopted, but its constitutionality was being tested in the courts at the end of 1955.

In September the University of Illinois welcomed a new president, David Dodds Henry. The university's educational television station commenced operations late in the summer, although litigation to prohibit its operations was in progress. The Festival of Contemporary Arts was re-instituted after a year's interruption, and brought great artists and art works to the campus.

The state's Toll Highway Commission, after weathering numerous attacks and personnel difficulties, was ready to start building roads in northern Illinois at the end of 1955. The program, authorized by the 1953 legislature, was subject to several court suits and during the legislative session, a full-fledged investigation was undertaken. The toll road bonds were offered for sale on the open market late in the year, although the litigation had not been completely resolved.

The little central Illinois town of Bement (pop., 1,500) conducted a centennial which received nationwide notice. During the summer a number of distinguished Americans participated in its lecture series on the subject "Can the World Survive—Half Slave and Half Free?" The participants, holding widely diversified views, included Norman Thomas, Everett Dirksen, James Farley, and Carl Sandburg.

Principal Events by: SAMUEL K. GOVE,
Research Assistant Professor, Institute of
Government and Public Affairs, Uni-
versity of Illinois.

ILLITERACY. See Index entry.

ILLUMINATION. See ELECTRICAL DEVELOPMENTS.

IMMIGRATION, EMIGRATION, AND NATURALIZATION. *Immigration and Emigration.*—Total arrivals in the United States had leveled off at 118 million

in the year ended June 30, 1954; but in 1955 the upward trend picked up again, and the figure rose to over 123 million. As has been true in the past, 97% of these were border crossings made by aliens and citizens across the Canadian and Mexican borders. The remainder included immigrants, crewmen, and other nonimmigrants admitted for temporary visits, and citizens arriving from countries other than Canada and Mexico.

More than 237,000 immigrants were admitted to the United States for permanent residence during the year ended June 30, 1955, an increase of 14% over the preceding year. The 237,790 immigrants admitted in 1955 include 29,002 refugees admitted under the provisions of the Refugee Relief Act of 1953. (See also REFUGEES AND DISPLACED PERSONS.) This fact, and the continued rise in Western Hemisphere immigration were chiefly responsible for the increase noted above. Table 1 shows the major countries of birth of the immigrants admitted.

TABLE 1—IMMIGRANT ALIENS ADMITTED TO THE UNITED STATES

(By country or region of birth; years ended June 30, 1954 and 1955)

Country or region of birth	Immigrants admitted	
	1955	1954
All countries.....	237,790	208,177
Europe.....	127,492	111,227
France.....	3,411	3,277
Germany.....	29,603	32,935
Greece.....	6,311	2,127
Hungary.....	904	1,163
Ireland.....	5,975	5,232
Italy.....	31,925	15,201
Netherlands.....	3,732	3,769
Poland.....	4,697	5,663
United Kingdom.....	17,849	19,309
USSR.....	1,694	1,985
Yugoslavia.....	2,567	1,432
Other Europe.....	18,824	19,134
North America.....	90,732	77,772
Canada.....	23,091	27,055
Mexico.....	50,772	37,456
West Indies.....	12,499	8,999
Central America.....	3,683	3,488
Other North America.....	687	774
South America.....	5,599	5,523
Asia.....	12,131	11,751
Africa.....	1,186	1,187
Australia and New Zealand.....	474	605
Other countries.....	176	112

(Source: U.S. Department of Justice, Immigration and Naturalization Service.)

The upward trend in quota immigration noted in 1954 was broken in 1955, when 82,232 quota immigrants were admitted. This 13% reduction in quota immigration may be explained in part by the fact that a number of immigrants who would have entered under the quota were admitted as nonquota immigrants under the provisions of the Refugee Relief Act of 1953.

With the exception of Great Britain, Ireland, and Sweden, countries of northern and western Europe almost filled their quotas in the past year. Quota immigration from a number of southern and eastern European countries, however, was low because the quotas of these countries have been mortgaged under the provisions of the Displaced Persons Act; for example, quota immigration from Lithuania, Yugoslavia, Poland, and the USSR equaled about one half of their annual quotas.

Not since 1927 have so many nonquota immigrants been admitted to the United States—155,558 in the year ended June 30, 1955. Principal groups in this category are spouses and children of United States citizens, of whom 30,882 were

admitted; natives of independent countries of the Western Hemisphere, and their spouses and children, with 94,274 admitted; and persons admitted under the provisions of the Refugee Relief Act of 1953, 29,002 admitted.

A 17% increase in nonquota immigration from the Western Hemisphere is due primarily to a rise in immigration from Mexico and the West Indies. Immigration from Mexico during the past five years has increased from 6,372 in 1951 to 50,772 in 1955.

TABLE 2—REFUGEES, DISPLACED PERSONS, AND OTHER IMMIGRANT ALIENS ADMITTED TO THE UNITED STATES

(By country or region of birth; year ended June 30, 1955)

Country or region of birth	Total immigrants	Refugees ¹	Displaced persons ²	Other immigrants
All countries.....	237,790	29,002	1,522	207,266
Europe.....	127,492	28,000	700	98,792
France.....	3,411	24	...	3,387
Germany.....	29,603	598	3	29,002
Ireland.....	5,975	7	2	5,966
Italy.....	31,925	18,382	2	13,541
Netherlands.....	3,732	484	2	3,246
United Kingdom.....	17,849	18	...	17,831
Other Europe.....	34,997	8,487	691	25,819
North America.....	90,732	95	2	90,635
Canada.....	23,091	1	...	23,090
Mexico.....	50,772	...	1	50,771
West Indies.....	12,499	2	1	12,496
Central America.....	3,683	...	...	3,683
Other North America.....	687	92	...	595
South America.....	5,599	1	...	5,598
Asia.....	12,131	866	810	10,455
Africa.....	1,186	29	10	1,147
Australia and New Zealand.....	474	2	...	472
Other countries.....	176	9	...	167

¹ Admitted under Refugee Relief Act of 1953. ² Admitted under Displaced Persons Act of 1948, as amended. (Source: U.S. Department of Justice, Immigration and Naturalization Service.)

Nonimmigrants are aliens who enter the United States for temporary periods, or resident aliens returning from temporary stays abroad. Nonimmigrant admissions have tripled since the end of World War II, and in the year ended June 30, 1955, reached a new high of 620,946, a 10% rise over the preceding year. Over half of the nonimmigrants admitted were temporary visitors for pleasure, of whom approximately 40,000 more visited the United States in 1955 than during 1954. This increase is due in no small part to the steps undertaken by the Immigration and Naturalization Service, the Departments of State and Commerce, other agencies, and foreign governments to facilitate international travel.

The principal countries or regions of birth of the nonimmigrants admitted during 1955 were: the West Indies (103,339); Mexico (76,155); England, Scotland, and Wales (67,266); South America (51,750); Asia (40,718); and Germany (33,226).

During 1955, 665,800 aliens departed from the United States. Included were 50,012 resident aliens who departed for temporary visits abroad; 584,543 tourists, transits, government officials, and others departing after temporary visits in the United States; and 31,245 emigrants departing after residences in the United States exceeding one year, with the intention of remaining abroad.

The admissions of aliens, exclusive of border crossers, crewmen, and agricultural laborers, are summarized in Table 3.

Apprehensions and Expulsions of Aliens.—In

TABLE 3—NONQUOTA IMMIGRANTS ADMITTED TO THE UNITED STATES

(By class of admission, years ended June 30, 1954, and 1955)

	1955	1954
Total nonquota immigrants admitted.	155,558	114,079
Husbands of U.S. citizens.	6,716	7,725
Wives and children of U.S. citizens.	24,166	22,964
Natives of nonquota countries, their spouses and children.	94,274	80,526
Ministers, their spouses and children.	307	385
Other nonquota immigrants.	30,095	2,479

(Source: U.S. Department of Justice, Immigration and Naturalization Service.)

June 1954 was begun a concentrated drive to apprehend and expel Mexicans illegally in the United States. As a result, for the first time in more than a decade, illegal crossing over the Mexican border was brought under control. The control of the border has been maintained throughout 1955, and was a major factor in the reduction in the number of expulsions. In the year ended June 30, 1954, over 1 million aliens were expelled from the United States, but during 1955 the number was down to 247,797. Of these, 232,769 were voluntary departures, of which 221,381 took place at the Mexican border; and 15,028 were deportations under orders of deportation. Included among the aliens deported were 47 of the subversive class and 666 racketeers and other criminals. (See also LAW.)

Naturalizations.—Naturalizations granted during the year ended June 30, 1955, numbered 209,526, an increase of 78% over 1954. Efforts on the part of the Immigration and Naturalization Service to complete the naturalization of as many persons as possible culminated in special ceremonies throughout the country on Veterans' Day, Nov. 11, 1954, when over 55,000 persons were granted citizenship.

Table 4 shows the principal former nationalities of persons naturalized during the year ended June 30, 1955.

TABLE 4—PRINCIPAL COUNTRIES OF FORMER ALLEGIANCE OF PERSONS NATURALIZED IN THE UNITED STATES
(Years ended June 30, 1951 to 1955)

Country of former allegiance	1955	1954	1953	1952	1951
All countries.	209,526	117,831	91,075	88,655	54,716
British.	22,974	16,565	13,215	14,993	10,867
Canadian.	18,151	13,062	10,073	10,004	5,872
German.	17,842	11,679	12,923	13,538	5,439
Italian.	16,128	10,926	9,675	9,720	5,975
Polish.	27,777	8,542	6,912	5,858	3,100
Japanese.	7,593	6,750	674	40	18
Irish.	9,116	5,324	2,817	2,180	1,308
USSR.	8,627	3,832	2,644	2,851	1,830
Mexican.	10,166	3,710	2,713	2,496	1,969
Other.	71,152	37,441	29,429	26,975	18,338

(Source: U.S. Department of Justice, Immigration and Naturalization Service.)

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IMMUNIZATION. See Index entry, *Vaccines*.

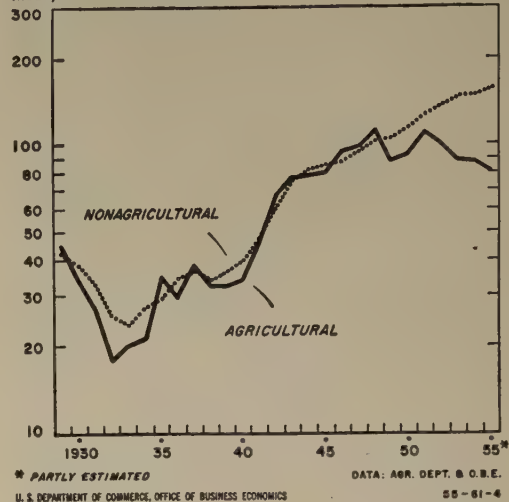
IMPORTS. See INTERNATIONAL TRADE, and the section on foreign trade in articles on the individual countries.

INCOME. U.S. National Income and Product*.—National economic activity in the United States registered expansion to a new record high in

* National income is the sum of the net earnings of labor and property which arise from the current production of goods and services by the nation's economy. It

Personal Income From Farm and Nonfarm Sources

INDEX, 1947-49 = 100 (ratio scale)



1955. This marked a strong recovery from the 1953-54 business readjustment. For the first three quarters of 1955, national income was at an annual rate (seasonally adjusted) of \$319.6 billion, and the gross national product amounted to an annual rate of \$384 billion. Both of these comprehensive measures of national output were 7% above the 1954 calendar-year totals.

(The annual rate data represent the average of estimates for the first three quarters which have been adjusted for seasonal influences and multiplied by four to facilitate comparison with previous annual totals.)

Higher prices accounted for only a small part of the 1954-55 rise in national income and product; the bulk of it represented increased physical volume. The quantity of goods and services produced in the United States in the first nine months of 1955 was at a rate larger than in any other year. It was one third higher than in 1946, the first full postwar year, and, as compared with 1929, was more than twice as high in the aggregate and three fifths greater on a per capita basis.

In the first nine months of 1955, personal income was at an annual rate of \$300 billion, and disposable income—personal income less personal taxes—totaled almost \$267 billion. (See Table 1.) Both of these aggregates were about 4½% higher than in the calendar year 1954. Real disposable income per capita—which makes allowance for changes in consumer prices and in measures, therefore, the total factor cost of the goods and services produced by the economy. Earnings are measured in the forms in which they accrue to residents of the nation, before deduction of taxes on those earnings.

Personal income is the current income received by persons from all sources, including transfers from government and business but excluding transfers among persons. It differs from national income by the inclusion of transfers (such as relief, veterans pensions, and unemployment compensation) which are not in return for current productive services, and by the exclusion of earnings (such as social insurance contributions and undistributed corporate income) which are not actually received by persons in the current period.

Gross national product or expenditure measures the market value of the output of goods and services produced by the nation's economy, before deduction of depreciation charges and other allowances for durable capital goods used up in the productive process. Other business products used by business in the accounting period are excluded.

population—advanced 3% over the period, attaining an all-time high.

TABLE 1—PERSONAL INCOME AND DISPOSITION OF INCOME IN THE U.S., 1952-55

(Billions of dollars) ¹				
Item	1952	1953	1954	1955 ²
Personal Income.....	271.1	286.2	287.6	300.0
Wage and salary disbursements.....	185.2	198.6	196.2	206.5
Other labor income.....	5.3	6.0	6.6	6.9
Proprietors' and rental income.....	49.9	48.4	48.4	48.7
Dividends.....	9.0	9.3	10.0	10.6
Personal interest income.....	12.3	13.8	14.7	15.3
Transfer payments.....	13.2	14.0	16.2	17.1
Less: Personal contributions for social insurance.....	3.8	3.9	4.5	5.1
Less: Personal tax and nontax payments.....	34.4	35.8	32.8	33.3
Federal.....	31.2	32.4	29.1	29.5
State and local.....	3.2	3.4	3.7	3.9
Equals: Disposable personal income.....	236.7	250.4	254.8	266.7
Less: Personal consumption expenditures.....	218.3	230.6	236.5	250.9
Equals: Personal saving.....	18.4	19.8	18.3	15.8

¹ Detail will not necessarily add to totals because of rounding. ² Data cover first three quarters and represent averages of seasonally adjusted quarterly totals expressed at annual rates. (Source: U.S. Department of Commerce, except 1955 data.)

Pattern of Economic Recovery.—After showing a continued uptrend in the first half of 1953, national income and product moved downward until the spring of 1954, changed little through the summer, and then advanced strongly over the course of the next year. In terms of the gross national product measure, the business decline was from \$369 billion (annual rate) in the second quarter of 1953 to a level of about \$358 billion in the second and third quarters of 1954; and the subsequent upswing, one of the most vigorous on record, carried to the unprecedented magnitude of \$392 billion by the third quarter of 1955. Early in the fourth quarter, it was evident that the economic momentum was still upward, and that the United States was on the threshold of a \$400 billion economy.

The 1953-54 decline in national output primarily reflected a downturn in purchases by the federal government for national security purposes and a shift by business from inventory accumulation to liquidation. In the subsequent recovery, reversal of the shift in inventory investment proved a factor of significance, but national security purchases stabilized at their reduced level. The upsurge in "final purchases" (gross national product less change in business inventories) was wholly civilian in character. It reflected a diversified rise in consumer spending, private construction and equipment outlays, and state and local government expenditures.

Gross National Product.—Personal consumption expenditures rose to an all-time high of \$251 billion in the first three quarters of 1955—a rate \$14 billion, or 6%, above the 1954 total. (See Table 2.) Outlays for nearly all types of consumer goods and services increased. Extensive use was made of consumer credit, with the 1954-55 rise in personal spending outstripping that in disposable personal income.

Gross private domestic investment—comprising the change in business inventories and "fixed" investment in new construction and producers' durable equipment—was at an annual rate of \$58.3 billion in the first three quarters of 1955. This record level compared with \$51.4 billion in 1953 and \$47.2 billion in 1954. In the latter year, there was a sizable inventory liquidation by business so as to adjust stocks more

TABLE 2—U.S. GROSS NATIONAL PRODUCT OR EXPENDITURE, 1952-55

(Billions of dollars)¹

Item	1952	1953	1954	1955 ²
Gross national product.....	345.2	364.5	360.5	384.0
Personal consumption expenditures.....	218.3	230.6	236.5	250.9
Durable goods.....	26.6	29.8	29.3	35.7
Nondurable goods.....	116.0	118.9	120.9	125.1
Services.....	75.7	81.8	86.4	90.2
Gross private domestic investment.....	49.6	51.4	47.2	58.3
New construction.....	23.7	25.8	27.8	31.9
Producers' durable equipment.....	23.1	24.4	22.3	23.5
Change in business inventories.....	2.8	1.2	-2.9	2.9
Net foreign investment.....	-2	-2.0	-3	-6
Government purchases of goods and services.....	77.5	84.5	77.0	75.4
Federal.....	54.3	59.5	49.2	45.7
State and local.....	23.2	25.0	27.8	29.7

¹ Detail will not necessarily add to totals because of rounding. ² Data cover first three quarters and represent averages of seasonally adjusted quarterly totals expressed at annual rates. (Source: U.S. Department of Commerce, except 1955 data.)

closely to current sales levels. In the 1955 period, the business system resumed accumulation of inventories, and private outlays for producers' equipment and for industrial, commercial, and nonfarm residential construction expanded markedly. Residential building leveled off in the spring quarter, whereas the other types of "fixed" investment showed continued gains.

Government purchases of goods and services declined from \$77 billion in 1954 to approximately \$75½ billion (annual rate) in the first three quarters of 1955. The decrease was wholly in the federal segment, as state and local government purchases showed a further advance of \$2 billion.

Outlays for purposes of national security, accounting for nine tenths of total federal purchases, reached a postwar peak rate of \$53 billion in the second quarter of 1953, dropped by one fourth over the next year and a half, and were relatively stable at a rate of about \$41 billion in the first three quarters of 1955. Such outlays absorbed 10% of the gross national product in the third quarter of 1955, as compared with 14% in the second quarter of 1953 and 6% in the second quarter of 1950, just prior to the Korean War.

National Income.—By industry, the largest gain in national income in 1955 occurred in manufacturing, which, together with the related mining and transportation industries, had been most affected by the 1953-54 business downturn. However, all other industrial divisions of the economy contributed to the expansion except agriculture, where income was moderately lower than in 1954 because of general stability of costs and a further down-drift in farm prices.

Shifts among industries were principally responsible for the changes in national income by distributive shares, or types of earnings, from 1953 to 1955. As a major example, the economic readjustment and recovery of this period primarily affected the profits of corporate, rather than noncorporate, enterprises because corporations account for a very large bulk of all business in the manufacturing, mining, and transportation industries. As shown in Table 3, corporate earnings fell sharply from 1953 to 1954—although profits after taxes were stable—and then rebounded strongly in 1955. The changes in employee compensation were much less volatile.

On the other hand, the contraction of agri-

cultural income in 1955 had its principal impact on the income of unincorporated businesses, which account for almost all income originating in farming. While noncorporate business income in the aggregate changed little from 1954 to 1955, this overall stability reflected an appreciable drop in the net income of farm operators which was approximately offset in the total by an

TABLE 3—U.S. NATIONAL INCOME BY DISTRIBUTIVE SHARES, 1952-55
(Billions of dollars)¹

Item	1952	1953	1954	1955 ²
National income.....	289.5	303.6	299.7	319.6
Compensation of employees.....	195.3	209.2	207.9	219.0
Wages and salaries.....	185.1	198.5	196.2	206.4
Private.....	152.2	164.7	162.4	171.3
Government.....	32.9	33.7	33.8	35.1
Supplements to wages and salaries.....	10.2	10.8	11.7	12.5
Income of unincorporated enterprises and inventory valuation adjustment.....	40.0	38.2	37.9	38.1
Business and professional.....	25.7	25.9	25.9	27.1
Farm.....	14.3	12.3	12.0	11.0
Rental income of persons.....	9.9	10.3	10.5	10.7
Corporate profits and inventory valuation adjustment.....	36.9	37.2	33.8	41.6
Corporate profits before tax.....	35.9	38.3	34.0	43.2
Corporate profits tax liability.....	19.8	21.3	17.1	21.7
Corporate profits after tax.....	16.1	17.0	17.0	21.5
Inventory valuation adjustment.....	1.0	-1.1	-2	-1.6
Net interest.....	7.4	8.8	9.5	10.3

¹ Detail will not necessarily add to totals because of rounding. ² Data cover first three quarters and represent averages of seasonally adjusted quarterly totals expressed at annual rates. (Source: U.S. Department of Commerce, except 1955 data.)

upturn in the income of business and professional proprietors.

Personal Income by States.—The flow of income to individuals was relatively stable throughout the nation in 1954, the latest year for which official estimates were available in 1955.

By regions, aggregate income in 1954 was about the same or slightly higher as compared with the previous record year 1953. (See Table 4.) In 34 states and the District of Columbia personal income in 1954 was within 2% of the 1953 total. In most of the remaining states the income change was 4% or less.

As compared with the national average of \$1,770, per capita personal income in 1954 ranged from \$2,414 in Nevada to \$873 in Mississippi. Others in the top rank—all with per capita incomes of \$2,000 or more in 1954—included Delaware, Connecticut, the District of Columbia, New Jersey, New York, California, Illinois, and Michigan.

Although per capita incomes varied widely by states in 1954, the relative differences were considerably smaller than those which existed a quarter of a century ago. The percentage by which per capita income exceeded the national average dropped in the Middle East from 34 in 1929 to 13 in 1954, and in New England from 25 to 9. The margin of per capita incomes in the Far West above the national average also was reduced appreciably, from 29% to 18%. On the other hand, the three regions with comparatively low income levels—the Southeast, Southwest, and Northwest—showed substantial relative improvement over the period.

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TABLE 4—PERSONAL INCOME, BY STATES AND REGIONS, 1953 AND 1954*

State and region	Total personal income (millions of dollars) 1953	1954	Per capita amount 1954 (dollars)	% of national per capita income 1954
Continental United States.....	283,388	285,368	1,770	100
New England.....	18,716	18,893	1,935	109
Connecticut.....	5,145	5,159	2,361	133
Maine.....	1,316	1,328	1,492	84
Massachusetts.....	9,335	9,466	1,922	109
New Hampshire.....	850	883	1,605	91
Rhode Island.....	1,538	1,526	1,823	103
Vermont.....	532	531	1,408	80
Middle East.....	75,311	75,863	2,000	113
Delaware.....	869	880	2,372	134
District of Columbia.....	1,896	1,885	2,220	125
Maryland.....	5,008	5,045	1,940	110
New Jersey.....	11,585	11,769	2,219	125
New York.....	33,325	34,228	2,163	122
Pennsylvania.....	20,066	19,604	1,785	101
West Virginia.....	2,562	2,452	1,232	70
Southeast.....	40,839	40,819	1,233	70
Alabama.....	3,381	3,274	1,091	62
Arkansas.....	1,792	1,760	979	55
Florida.....	5,035	5,313	1,610	91
Georgia.....	4,528	4,460	1,237	70
Kentucky.....	3,656	3,620	1,216	69
Louisiana.....	3,741	3,751	1,302	74
Mississippi.....	1,894	1,856	873	49
North Carolina.....	4,955	5,028	1,190	67
South Carolina.....	2,527	2,414	1,063	60
Tennessee.....	4,072	4,074	1,212	68
Virginia.....	5,258	5,269	1,480	84
Southwest.....	18,722	19,084	1,544	87
Arizona.....	1,428	1,468	1,582	89
New Mexico.....	1,058	1,079	1,387	78
Oklahoma.....	3,165	3,187	1,466	83
Texas.....	13,071	13,350	1,574	89
Central.....	81,844	81,947	1,920	108
Illinois.....	19,595	19,812	2,155	122
Indiana.....	8,081	7,769	1,834	104
Iowa.....	4,099	4,443	1,667	94
Michigan.....	14,497	14,172	2,017	114
Minnesota.....	4,992	5,148	1,644	93
Missouri.....	7,038	7,122	1,747	99
Ohio.....	17,346	17,293	1,983	112
Wisconsin.....	6,196	6,188	1,706	96
Northwest.....	13,129	13,414	1,583	89
Colorado.....	2,515	2,528	1,686	95
Idaho.....	876	857	1,433	81
Kansas.....	3,275	3,417	1,689	95
Montana.....	1,084	1,070	1,729	98
Nebraska.....	2,103	2,234	1,635	92
North Dakota.....	742	753	1,186	67
South Dakota.....	868	895	1,332	75
Utah.....	1,126	1,130	1,483	84
Wyoming.....	540	530	1,779	101
Far West.....	34,827	35,348	2,094	118
California.....	26,592	27,026	2,162	122
Nevada.....	466	507	2,414	136
Oregon.....	2,906	2,881	1,757	99
Washington.....	4,863	4,934	1,949	110
Territory of Hawaii.....	889	886	1,704	96

* The estimates of "state personal income" shown in this table differ in definition in one respect from the personal income data in Table 1. This pertains to the exclusion from the state estimates of income disbursed by the Federal Government to its civilian and military personnel stationed outside the Continental United States. (Source: U.S. Department of Commerce.)

INCOME TAX. For income tax legislation and collections, see **TAXATION**.

INDIA, French. See **FRENCH INDIA**.

INDIA, Portuguese. See **PORTUGUESE TERRITORIES**.

INDIA, Republic of. This sovereign democratic Asian republic (constituted Jan. 26, 1950) remains by earlier agreement a full member of the Commonwealth of Nations, occupying an area of 1,176,860 square miles, with a population estimated on June 30, 1954, at 376,750,000, the world's largest next to China. In 1955 the Indian Union comprised 26 states (excluding Jammu and Kashmir, which remains in dispute between India and Pakistan), plus the territory of Andaman and Nicobar Islands, and the protectorate

of Sikkim (the latter constituted a protectorate on Dec. 5, 1950, and administered as a Part D territory). (See also KASHMIR.) In addition, it was announced on Jan. 6, 1955, that the former French settlements of Pondichéry, Karikal, Yanaon, and Mahé (area, 193 square miles; 1952 est. pop., 318,400) would in the future constitute a single state under the name of Pondichéry State. (See also below, *Government*.) Components of India, their areas, populations (1951 census figures), and capitals are shown in the accompanying table.

REPUBLIC OF INDIA

Component	Area (sq. mi.)	Population (1951 census)	Capital
<i>Part A: states under a governor:</i>			
Madras ¹	60,790	35,734,002	Madras
Andhra ¹	67,000	21,282,000	Kurnool
Bombay.....	111,434	35,956,150	Bombay
West Bengal.....	30,775	24,810,308	Calcutta
Uttar Pradesh.....	113,409	63,215,742	Lucknow
Punjab.....	37,378	12,641,205	Chandigarh
Bihar.....	70,330	40,225,947	Patna
Madhya Pradesh.....	130,272	21,247,533	Nagpur
Assam ²	85,012	9,043,707	Shillong
Orissa.....	60,136	14,645,946	Cuttack
Total.....	766,536	278,802,540	
<i>Part B: states under a rajpramukh³:</i>			
Saurashtra.....	21,451	4,137,359	Rajkot
Madhya Bharat.....	46,478	7,954,154	Gwalior and Indore
Patiala and East Punjab States Union.....	10,078	3,493,685	Patiala
Rajasthan.....	130,207	15,290,797	Jaipur
Travancore-Cochin.....	9,144	9,280,425	Trivandrum
Hyderabad.....	82,168	18,655,108	Hyderabad
Mysore ⁴	29,489	9,074,972	Bangalore
Total.....	329,015	67,886,500	
<i>Part C: states under a chief commissioner:</i>			
Himachal Pradesh ⁵	10,904	1,109,466	Simla
Kutch.....	16,724	567,606	Bhuji
Bhopal.....	6,878	836,474	Bhopal
Tripura.....	4,032	639,029	Agartala
Manipur.....	8,628	577,635	Imphal
Delhi.....	578	1,744,072	Delhi
Ajmer.....	2,417	693,372	Ajmer
Coorg.....	1,686	229,405	Coorg
Vindhya Pradesh.....	23,603	3,574,690	Rewa
Total.....	75,350	9,971,749	
<i>Part D: territories:</i>			
Andaman and Nicobar Islands ⁶	3,215	30,971	Port Blair
Sikkim ⁷	2,744	137,725	Gangtok
Total.....	5,959	168,696	
Republic of India total ⁸	1,176,860	356,829,485	

¹ Figures after partition. ² Exclusive of Part B tribal areas. ³ Excluding Jammu and Kashmir (see KASHMIR), in dispute between India and Pakistan. ⁴ Exclusive of a portion of the Bellary District transferred from Madras in the forming of Andhra State. ⁵ Includes Bilaspur, merged with Himachal Pradesh in 1954. ⁶ Under a chief commissioner. ⁷ Under a nominated Dewan. ⁸ Excluding the former French dependencies of Pondichéry, Karikal, Yanaon, and Mahé (193 sq. mi.; est. pop., 318,400).

The capital and seat of government is New Delhi (1951 pop., 276,314; Old Delhi, 914,790). Major seaports (with 1951 pop.) are: Calcutta (2,548,677), Bombay (2,839,270), and Madras (1,416,056). Other cities with populations (1951) above 475,000 are Ahmedabad (788,333), Bangalore (778,977), Hyderabad (1,085,722), Kanpur (705,383), Lucknow (496,861), and Poona (480,982).

The People.—From early times India has been an agricultural country; some 70% of the population currently depend for their living on agricultural pursuits. Nearly 300 million, or more than 83% of the people, live in villages. Of the 64.4 million houses occupied in 1954, 54.1 million were in rural areas; only 10.3 million houses

were in India's 3,018 towns. The average density of population is 313 persons per square mile.

Some 303,186,986 persons, or about 85% of the population, are of the Hindu faith. In 1951 there were also 35,400,117 Moslems, 8,157,765 Christians, and large numbers of Buddhists, Jains, and Sikhs. The latest census enumerated a total of 845 languages or dialects, including 63 non-Indian languages. The official language specified by the constitution is Hindi. English is to remain the language in official use for a period of not more than 15 years from the beginning of independence, and is being replaced as the medium of instruction in universities and secondary schools.

Government.—India's system of government is constitutional and parliamentary. The executive power, including supreme command of defense forces, is vested in an elected president (Dr. Rajendra Prasad, sworn in May 13, 1953).

The legislature consists of the president and two houses: a 250-member Council of States (238 elected indirectly); and a House of the People, consisting in 1955 of 499 members (492 elected). The Indian National Congress Party (363 seats) continued to outweigh by far all others (Praja Socialist Party, 26 seats; Communist Party, 17; independents, 41).

A Council of Ministers, headed by an appointed prime minister (Jawaharlal Nehru, who assumed office May 13, 1952, and who also serves as minister for external affairs), is composed of a 15-member cabinet, 24 ministers of cabinet rank, and 9 parliamentary secretaries. The states have their own elected legislatures (bicameral in Bihar, Bombay, Madras, Punjab, Uttar Pradesh, West Bengal, and Mysore), and each has its own high court. A chief justice, B. K. Mukherjee (appointed Dec. 23, 1954), and 7 other justices compose India's Supreme Court.

Reorganization of States.—A plan made public in October 1955 and based on the recommendations of a 3-man commission and supported by the Congress Party, proposed a reorganization of the Indian states within a year. While taking into account the demands of various groups for the creation of new states on the basis of language, the commission nevertheless proposed a reduction in India's component areas, which would number 16 states instead of 29 as at present (exclusive in both cases of disputed Jammu and Kashmir). The plan grew out of the need for greater economic and administrative efficiency, and is related to national security factors. Under the plan the central government would administer three principal territories, together with the Andaman Islands. Delhi (including the capital) would lose its statehood and be turned into a federal district.

On Nov. 9, 1955, the Congress Working Committee, the executive body of the Congress Party, approved the following additional changes in the organization of the Indian states: (1) the state of Bombay is to be divided into three states—Gujarat, Maharashtra, and the city of Bombay—instead of into two states as recommended in October by the commission; and (2) Hyderabad will be merged with Andhra.

Finance.—The 1955-56 budget, presented to parliament on Feb. 28, 1955, was the largest in India's history, and indicated an aggregate deficit on current and capital account of Rs.3,400 million, which would be reduced by Rs.217 million from increased taxation (1 rupee = U.S.\$0.21). On current account, revenue in 1955-56 at existing taxation rates was estimated at Rs.4,687,600,000; expenditure at Rs.4,989,300,000. Of the total expenditure, defense accounted for Rs.2,026,800,000, and civil expenditure for Rs.2,962,500,000.

Capital expenditure by the central government was estimated at Rs.2,233 million for 1955-56, including defense (Rs.223.8 million) and civil works (Rs. 320.0 million). In addition, capital estimates included Rs.3,550 million for loans to the state governments, mostly for development purposes.

The government anticipated foreign aid in 1955-56 amounting to Rs.740 million from the United States and Commonwealth countries, but there would still remain a gap of about Rs.3,400 million in available resources to balance the budget. The external payments situation was satisfactory, and India's sterling balances had risen by Rs.40 million during 1954-55. Per capita income in 1953-54 was Rs.283.9.

In July 1955 the government took over the 34-year-old Imperial Bank of India, undertaking to pay the shareholders about \$42 million in compensation. Payment of \$46.72 million to the International Monetary Fund was scheduled, representing the completion of liquidation of loans amounting to \$99.98 million, which the fund had advanced to India since 1948.

The United States had allotted \$274,090,000 in aid to India between the inception of the various foreign aid programs in 1948 until March 31, 1955. For the fiscal year 1956, the U.S. Congress had authorized \$50 million in development assistance to India, although the International Cooperation Administration decided in mid-November 1955 to hold back \$10 million of this amount for a newly created emergency reserve fund.

Education.—There were 60 million literate persons in India, according to 1955 educational statistics. The country's educational facilities in 1953 included 221,082 primary schools (19,296,840 students); 18,497 secondary schools; 7,062 high schools (an increase of about 77% over 1948); 11,435 middle schools (5,906,666 students in 1955); 30 universities; and 679 colleges (269,918 students). Technical and professional institutions had 98,567 students in 1953. Under the Five-Year Plan, Rs.1,610 million was made available for the expansion of educational facilities.

Defense.—About four rupees in every 10 of India's current expenditure went to the army, navy, or air force. The process of Indianization of the army continued in 1955 under its commander in chief, Lieut. Gen. S. M. Shrinagesh (succeeded Gen. Maharaj Rajendrasinhji, Jan. 27, 1955). The naval forces, consisting of two cruisers and other units of the former Royal Indian Navy, with personnel comprising about 700 officers and 7,000 ratings, are to continue for two years more under a British admiral (Vice Admiral S. H. Carlill, succeeded Vice Admiral Sir Mark Pizey, July 1955).

The air force is now entirely staffed by Indian officers. Thirty-four military camps, giving basic training to volunteers between the ages of 18 and 40 years, were opened on May 1, 1955, as the first step toward the training of a citizens' army of 500,000 within five years to augment India's small Regular Army. Permanent new buildings of the National Defense Academy and Joint Services Wing, built to accommodate 500 cadets a year and occupying 6,500 acres at Khadakvasla, near Poona, were opened on Jan. 16, 1955.

Second Five-Year Plan.—India's second Five-Year Plan was scheduled to begin in April 1956. A draft framework of the plan, prepared jointly by the Ministry of Finance and the Planning Commission and made public in July 1955, disclosed two chief objectives: (1) an increase in national income of 5% per year beyond the 15% gain in real terms registered between 1948-49 and 1953-54; (2) to meet increasing unemployment, especially in urban areas, by the creation of new jobs for 11 million persons over the plan period.*

Taking account of India's growth of population at the rate of 4.5 million per year, and the fact that the level of living remains extremely low (with 185 million persons spending less than Rs.13 per month on consumer goods), the plan listed as principal goals the further development of basic heavy industries; acceleration of factory production of consumer goods; increased productivity in agriculture through more equitable distribution of land to peasant cultivators; and expansion of household and hand industries and construction work. Better housing and health

services, and wider educational opportunities, especially for the poor, were also planned. Hydro-electric projects begun under the first Five-Year Plan were to be continued on an increasing scale. Planned net investment covering both public and private sectors totaled Rs.56 billion for the period of the plan (compared with Rs.32 billion appropriated to the first Five-Year Plan). Proposed investment outlays were visualized as follows:

	Millions of rupees	Percentage of total
Agriculture and community development.....	9,500	17.1
Power projects.....	5,000	8.9
Transportation and communications.....	9,000	16.1
Industries and mining (including small-scale).....	14,000	25.0
Construction (housing, schools, hospitals).....	13,500	24.0
Stocks and miscellaneous.....	5,000	8.9
Total.....	56,000	100.0

Agriculture.—For India as a whole, agricultural production has risen by over 18% since the inauguration (1950-51) of the Five-Year Plan. In the year ending June 30, 1955, production of cereals (55.3 million tons from 209 million acres) exceeded planning targets, but fell short of the 1953-54 record of 57.9 million tons from 215 million acres. Wheat production reached a new high of 8.5 million tons; millets and other minor cereals (22.6 million tons) also exceeded their quotas. Rice production at 24.2 million tons fell 3.4 million tons below the 1953-54 figure. Other crops include tea, which in 1954 reached a high of 636.5 million pounds; peanuts (4,282,000 short tons, unshelled, from 12,647,000 acres, in 1954-55); and sesame seed (est. 635,000 tons, from 5,861,000 acres, in 1954-55). Cattle were estimated in 1955 at 220 million; water buffaloes, 50 million; and sheep and goats, 50 and 60 million, respectively.

Mining.—Production of all minerals in 1954 was valued at Rs.830 million (\$174 million), compared with Rs.828 million in 1953, according to provisional data released by the chief inspector of mines late in 1955. Output of certain principal minerals in 1954, with comparative figures for 1953 in parentheses, was as follows: coal, 36.82 million tons (35.98 million); iron ore, 4.24 million tons (3.78 million); gold, 239,000 fine ounces (222,000); copper ore, 342,000 tons (238,000); manganese ore, 1.38 million tons (1.86 million); dressed mica, 103,000 cwt. (128,000).

Industrial Production.—All of India's major private industries recorded increases of production in 1954, when the general index of industrial production rose to 146.4 from 135.3 in 1953. These gains included cloth manufacture, totaling 4,950 million yards (4,880 million yards in 1953); yarn, 1,520 million pounds (1,505); hand-loom products, 1,450 million yards (1,300); jute, 950,000 tons (910,000); diesel engines, 8,100 (3,716); plywood, 12.5 million square feet (11.5); finished steel, 1.23 million tons (1.02); pig iron, 1.9 million tons (1.77); and aluminum, 4,731 tons (3,758).

India's program for industrial development under government auspices involves the expenditure of Rs.1,730 million, including Rs.1,400 million on large-scale industries and transport. A steel production target of 6 million tons (installed capacity) has been set for the end of the second Five-Year Plan in 1961. In 1955 India signed agreements with the Soviet Union for the construction of a 1 million-ton steel plant in Madhya Pradesh; and with the German combine, Krupp-

* Gulzarilal Nanda, minister of planning, conceded in New Delhi on Sept. 1, 1955, that these expectations had been placed too high and would have to be revised.

Demag, for a 500,000-ton steel plant at Rourkela in eastern Orissa. India also accepted proposals by a British steel mission to build a 750,000-ton steel plant, at an estimated cost of \$231 million.

External Trade.—The government announced in April 1955 that India's adverse balance of trade had been reduced in 1954 to Rs.290 million from Rs.330 million in 1953. Exports amounted to Rs.5,570 million (Rs.5,320 million in 1953), including tea, Rs.1,310 million; jute, Rs.1,210 million; and cotton manufactures, Rs.720 million. Imports, aggregating Rs.5,860 million, including mineral oils, Rs.870 million; machinery, Rs.800 million; and raw cotton, Rs.580 million, were reduced by Rs.210 million from the 1953 figure.

Communications.—Total route mileage of India's railways, the country's principal means of transport, was 34,500 in 1954. More than half of the allocations of Rs.4,970 million for communications development under the Five-Year Plan goes to the railways, including Rs.20 million for the construction in 1954-55 of the Ganga Bridge, linking northern and southern Bihar, and Rs.120 million for the new west coast port being built at Kandla to offset the loss of Karachi, now the capital of Pakistan. Gross earnings of national railways totaled Rs.2,723,100,000 in 1953, against working expenses of Rs.2,199,300,000. Some 1,018,700,000 passengers and 98,360,000 tons of goods were carried. There are 248,914 miles of roads outside cities, 118,000 miles of which are all-weather roads, and there are approximately 5,500 miles of navigable waterways. The Indian government operates internal and international air services and maintains 78 airfields.

DONOVAN ROWSE,
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THE YEAR 1955 IN INDIA

In internal affairs, continued progress was made in 1955 against the most difficult problems facing the country. Economically, it was a good year in spite of disastrous floods which hit the Punjab and western Uttar Pradesh in mid-October. Production was up, sterling balances were almost stable, and international trade was rising and becoming increasingly more favorable to India. Most of the targets in the public sector of the First Five-Year Plan had been met. The Second Five-Year Plan, to run 1956-61, contemplated an outlay of Rs.63,000 million (\$13,230 million) to spur an anticipated 25% increase in national income. In contrast to the first plan, the second will emphasize public spending on industrialization—30% of the total investment, compared with the earlier 9%. To meet the needs of credit in the countryside, a new state bank took over the functions of the old Imperial Bank of India and planned to open 400 branches to serve rural and semirural areas.

At its Avadi session in January 1955, the Indian National Congress resolved that India should strive for a "socialistic pattern of society," although there was considerable disagreement concerning the precise meaning of the term. However, major changes are under way toward alteration in the basic economic structure. On May 2, a joint select committee presented a report to the Indian Parliament recommending the abolition of the pyramiding corporation system, in which a few managing agencies control and administer a vast number and variety of individual firms. Under the proposed law, which showed all likelihood of passing through the legislature, all current managing agents would cease to



SOV FOTO

Prime Minister Nehru, with Soviet Premier Bulganin (1.) salutes honor guard on his visit to Moscow in June 1955.

hold office on April 15, 1960, unless they are re-appointed with the consent of the central government. Even then, the share of profits and the number of holdings available to any one agency would be sharply limited.

The pace of government acquisition and control of landholdings increased. In a number of states, confiscation of large properties reached the final stages, including the abolition on April 15 of the much-maligned, 162-year-old zamindari system in Bengal, which involved some 25,000 estates and 1,300,000 intermediary interests in the land.*

In internal politics, the party in power scored a surprising landslide victory in the newly formed state of Andhra (March 9). The United Congress Front won 146 seats in the state legislature, the Communists 15, and the Praja Socialists 13. Although the Communists won almost a third of the popular vote, the election was hailed as a triumph for the Congress in one of the areas of greatest Communist strength.

On October 10, the report of the Commission on the Reorganization of the Indian States was released, recommending the reduction of the number of states from 27 to 16 and the creation of three new states in southern India: Kerala, Karnataka, and Vidarbha. Of the existing states only Uttar Pradesh, Orissa, and Jammu and Kashmir remain unaffected. All 9 of the Part C states disappear, as do 5 of the Part B states. On

* Inevitable court contests were cut short by the passage of the Fourth Amendment to the Constitution on April 12 in the Lok Sabha (House of the People). It removed from juridical review all questions concerning compensation for state-acquired property, and directed that the amount of such compensation be set by state legislatures.

Rioting breaks out in Bombay, India, following "peaceful resistance" march into Portuguese Gao, Aug. 15, 1955.

UNITED PRESS



November 9, the Congress Working Committee acceded to the demands from the Marathi-speaking section of Bombay to separate, leaving Gujerat in the north, Maharashtra to the south, and an enclave of metropolitan Bombay as a separate state. The announcement of the plan was followed by a wave of agitation, unrest, and rioting most marked in Bombay city, Vindhya Pradesh, and in the Sikh center of Amritsar.

In social developments, the Untouchability (Offences) Act, in force from June, provided a fine of Rs.500 and/or imprisonment of six months for enforcing disabilities associated with untouchability. On May 5, long-debated changes in the Hindu family law easily passed in Parliament. The most important provisions were the grant of permanent inheritance rights to women and the extension of civil divorce.

On the world scene, India solidified its position. V. K. Krishna Menon's role as a mediator with Chou En-lai in the release of American airmen (see CHINA) was widely hailed in Asia. India took a leading role in setting up the Asian-African Conference (q.v.) at Bandung, Indonesia, on April 18-24. A preliminary caucus in Rangoon was attended by Nehru, Chou En-lai of the Chinese People's Republic, Premier Nu of Burma, and Premier Nasser of Egypt. Although many Western observers reported a loss of leadership for India at the conference itself, at home both the conference and India's role in it were widely praised.

In late May, Nehru toured the satellite countries of eastern Europe, followed by a two-week visit to Moscow (from June 7). Throughout the tour, Nehru was greeted with ovations and elaborate ceremonies of welcome. The state visit was returned by Soviet Premier Bulganin and Communist Party Secretary Nikita Khrushchev, who arrived in New Delhi on November 18 for a goodwill tour (November 18-30 and, following a visit to Burma, December 7-12). The Soviet leaders spoke of the "common cause of peace" shared by the two countries and attacked the policies of the Western powers in speeches on several occasions, including addresses before an informal meeting of the Indian Parliament. Their conduct was described by Sir Winston Churchill on December 5 as a "surprising spectacle."

The outstanding foreign policy issue in 1955 was the quarrel with Portugal over the tiny enclave of Goa, midway up the western coast of India (see PORTUGUESE TERRITORIES). Portugal refused to negotiate with India over the transfer of the colonial outpost to India, and on August 15 troops fired upon invading demonstrators crossing the border from India. Protest meetings flared up all over India, ending in large-scale violence in clashes with police in Bombay. Diplomatic relations were severed with Portugal on August 8, and all rail traffic from India to Goa was stopped. The Indian government announced in September that it would use only nonviolent means to resolve the conflict.

On December 2, U.S. Secretary of State John Foster Dulles and Dr. Paulo Cunha, the Portuguese foreign minister, issued a joint statement in Washington to answer the charges against Western policies made by the touring Russian leaders, including their violent attack on Portuguese rule of Goa. The Western diplomats asserted that the Russians' speeches were stirring up discord between East and West. Their reference to Goa, however, as a Portuguese province, caused widespread indignation in India.

In the long-standing problems with neighbor-

ing Pakistan (q.v.) some progress was made, but many issues were still stalemated. A prime ministers conference in May found no solution for the Kashmir dispute, and the quarrel over the distribution of the canal water from the rivers of the Punjab was postponed under *ad hoc* arrangements mediated by the International Bank for Reconstruction and Development. On August 1, the rail link between Amritsar and Lahore, a distance of 25 miles, crossing the border between the two nations, was reopened for the first time since the partition of the subcontinent. It was again possible to travel from Calcutta to the North-West Frontier without a rail gap.

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INDIANA. North Central state, United States; admitted to the Union, Dec. 11, 1816. The "Hoosier State" ranks 37th in area and 10th in population (1955) among the 48 states.

Area and Population.—Area: 36,291 square miles (land, 36,205; inland water, 86), divided into 92 counties. Population: (1950) 3,934,224; (est., July 1, 1955) 4,325,000. Urban places (with 1950 populations unless otherwise indicated) above 10,000 are as follows:

Anderson.....	46,820	Lafayette.....	35,568
Bedford.....	12,562	Logansport.....	21,031
Bloomington.....	28,163	Madison.....	10,405 ²
Columbus.....	18,370	Marion.....	30,081
Connersville.....	15,550	Michigan City.....	28,395
Crawfordsville.....	12,851	Mishawaka.....	32,913
East Chicago.....	54,263	Muncie.....	58,479
Elkhart.....	35,646	New Albany.....	29,346
Elwood.....	11,362	New Castle.....	18,271
Evansville.....	128,636	Peru.....	13,308
Fort Wayne.....	133,607	Richmond.....	39,539
Frankfort.....	15,028	Seymour.....	11,683 ⁴
Gary.....	133,911	Shelbyville.....	11,734
Goshen.....	13,003	South Bend.....	115,911
Hammond.....	87,594	Terre Haute.....	64,214
Hobart.....	10,244	Valparaiso.....	12,028
Huntington.....	15,079	Vincennes.....	18,831
Indianapolis ¹	427,173	Wabash.....	10,621
Jeffersonville ²	18,191	Washington.....	10,987
Kokomo.....	38,672	West Lafayette.....	11,873
La Porte.....	20,414 ³		

¹ Capital. ² Special census, 1954. ³ Special census, 1951. ⁴ Special census, 1955.

Executive.—Chief state officers in 1955:

Governor: George N. Craig (Republican)
Lieutenant Governor: Harold W. Handley
Secretary of State: Crawford F. Parker

Treasurer: John Peters

Attorney General: Edwin K. Steers

Supt. of Public Instruction: Wilbur Young

Constitution and Judiciary.—The present constitution went into effect in 1851. The Supreme Court comprises five justices; chief justice in 1955 was James A. Emmert.

Legislature.—The General Assembly (Senate, 50 members; House of Representatives, 100) meets in odd-numbered years commencing the first Thursday after the first Monday in January.

The 1955 session appropriated \$673,700,000 for the 1955-57 biennium. Other legislation extended the option of social security coverage to state employees; raised legislative salaries from \$1,200 to \$1,800 and those of Supreme Court and appellate court judges from \$13,500 to \$15,000; increased minimum teachers' salaries by \$252 and extended the non-degree teachers' salary range by \$278; and increased the state's contribution to the Teachers' Retirement Fund. Additional laws amended the Motor Vehicle Regulation Act and the narcotic control law; recodified part of the Traffic Code; adopted measures to improve physical and nursing facilities for mental patients; created commissions to study juvenile delinquency, expand Legislative Bureau assistance to the legislature, and to study laws on water rights and water management; increased unemployment compensation payments from \$27 to \$30 a week; authorized a bonus for Korean War veterans; and tightened laws concerning abandoned iceboxes.

Finances.—State treasury receipts (1954-55 fiscal year), \$1,016,620,748.11; expenditures, \$821,436,316.13; treasury balance, \$195,184,431.98. The state has no long-term indebtedness.

Taxation.—State tax revenue (1954-55 fiscal year): \$253,905,034, including \$192,122,232 from selective sales taxes; \$41,662,246 from licensing; and \$14,979,854

from property taxes. The state has no sales or individual or corporate income taxes.

Banking.—As of June 30, 1955, the state's 123 national banks had \$2,558,136,000 in assets, \$1,752,098,000 in demand deposits, and \$630,086,000 in time deposits; the state's 354 other banks had \$1,755,470,000 in assets, \$1,061,814,000 in demand deposits, and \$564,123,000 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$189,563,855 (\$270 per pupil) for public elementary and secondary education in the 1954-55 school year comprised (including funds from 1953-54) \$112,200,000 from local school districts, \$74,500,000 from the state, and \$700,000 from the federal government. Expenditures for construction and improvements totaled \$35,572,391. Teachers' salaries averaged \$3,950 (elementary school teachers, \$3,750; high school teachers, \$4,250).

There were 1,516 public elementary schools (grades 1-8) with 16,700 teachers and 609,641 pupils; 213 public senior high schools (grades 9-12) with 9,900 teachers and 194,011 pupils; and 624 public schools (grades 1-12) with 890,000 pupils.

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$31,679,570.69, including \$21,434,631.53 for old-age assistance, \$9,028,923.75 for dependent children, and \$1,216,015.41 for the needy blind; a monthly average of 60,929 persons received public assistance. Operating expenditures for health and welfare institutions in the 1953-54 fiscal year totaled \$17,948,960. In the 1954-55 fiscal year, \$5,848,544.21 was spent for the operation and limited improvements of correctional and penal institutions.

INDIANA WELFARE INSTITUTIONS

(As of June 30, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.	3	4,437
Hospitals for the mentally ill.	7	10,831
Hospitals for the criminally insane.	1	289
Sanatoriums for the tubercular.	2	257
Children's pediatric and polio hospitals.	1	49
Schools for the blind.	1	144 ¹
Schools for the deaf.	1	390 ²
Soldiers and sailors homes.	1	494 ³
Soldiers and sailors children's homes.	1	370 ³
Training schools for delinquent boys.	1	472
Training schools for delinquent girls.	1	239
Reformatories for males.	1	2,151
Women's prisons.	1	150 ⁴
Prisons.	1	2,265
Prison farms.	1	1,386
Prison camps.	5	283

¹ As of Sept. 12, 1955. ² In the 1954-55 school year. ³ As of Sept. 8, 1955. ⁴ Houses separately female felons and misdemeanants; felons average 93.

Labor Force.—Nonagricultural employment in December 1954 was 1,343,200, and for the full year 1954 averaged 1,318,800. There were 58,000 registered unemployed workers in December 1954, and \$60,645,339 in unemployment compensation was paid to workers during 1954.

Manufacturing.—Establishments in 1953 paid \$2,903,853,000 in wages to an average of 686,736 employees. Value added by manufacture totaled \$5,205,348,000, and investment in new plant and equipment was \$426,047,000. Earnings of production workers in manufacturing averaged \$76.27 for an average work week of 39.6 hours in 1954 and \$81.80 for 40.9 hours during the first six months of 1955.

Mining.—Indiana stands first among the states in production of limestone used for building purposes. The state ranked 20th in value of its min-

MAJOR INDIANA MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ²
Transportation equipment.	126,041	\$578,728	\$960,930
Primary metal industries.	94,935	467,727	881,924
Electrical machinery.	83,120	319,667	612,480
Nonelectrical machinery.	69,732	323,865	522,726
Food and kindred products.	40,649	160,446	361,483
Fabricated metal products.	47,202	200,264	338,127
Chemicals and allied products.	28,679	128,019	335,662
Petroleum and coal products.	17,597	89,702	208,400
Miscellaneous manufactures ³	34,481	133,626	191,318
Stone, clay, glass products.	23,292	83,751	165,252
Printing and publishing.	16,884 ⁴	61,131 ⁴	108,968 ⁴
Rubber products.	15,520	63,443	104,218
Furniture and fixtures.	21,644 ⁴	67,980 ⁴	101,880 ⁴

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. ³ Includes privately-owned and/or operated establishments manufacturing ordnance equipment and accessories, but excludes government-owned and operated ordnance establishments. ⁴ 1952 figures. (Source: *Annual Survey of Manufactures, 1953*.)

eral output in 1953, with 1.18% of the United States total. During 1954 there were 19,836 persons employed in the state's mineral industries.

INDIANA MINERAL PRODUCTION, 1954

(In short tons, except as noted)

Mineral	Quantity	Value
Calcareous marl.	28,536	\$ 18,515
Clay and shale.	1,699,227	2,711,966
Coal.	13,010,000	51,295,400
Petroleum (bbl.).	10,923,000	31,676,700
Crushed limestone.	8,686,845	11,156,408
Dimension limestone and sandstone.	599,315	13,023,719
Natural gas (1,000 cu. ft.).	629,000	43,967
Peat.	10,700	82,000
Sand and gravel.	12,399,520	11,081,000
Other minerals*.	...	35,332,010
Total*.	...	156,421,685

* Not including coke and pig iron. (Source: Indiana Department of Conservation Geological Survey.)

In 1953, production of coke totaled 8,886,502 short tons valued at \$159,966,820; of pig iron, 8,372,193 short tons (\$412,683,336).

Agriculture.—Cash farm income in the first half of 1955 totaled \$460,038,000, and for the full year 1954 comprised \$767,220,000 from livestock and livestock products, \$385,092,000 from crops, and \$6,120,000 from government payments. Receipts from principal crops and livestock included hogs, \$355,635,000; cattle, \$149,171,000; corn, \$124,404,000; dairy products, \$122,270,000; soybeans, \$113,328,000; and wheat, \$70,199,000.

The state's 153,593 farms (19,232,774 acres; harvested cropland, 11,333,161) averaged 125.2 acres and \$25,292 in value of land and buildings per farm in 1954. There were 110,756 farms with telephones and 148,392 with electricity. Livestock on farms (Jan. 1, 1955) included

INDIANA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).	1,374	1,204	760
Corn (1,000 bu.).	226,523	258,619	276,136
Hay (1,000 bu.).	2,491	2,568	2,451
Oats (1,000 bu.).	47,404	57,860	68,380
Popcorn (1,000 lb.).	40,913	58,500	58,900
Potatoes (1,000 bu.).	1,075	360	440
Soybeans (1,000 bu.).	32,689	46,128	43,602
Strawberries (1,000 crates).	180*	105	200
Tobacco (1,000 lb.).	13,470	16,137	12,160
Wheat (1,000 bu.).	34,092	39,711	33,988

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

2,054,000 cattle, 466,000 sheep, 4,556,000 hogs, and 19,097,000 chickens (not including commercial broilers). During the week of October 24-30, 1954, there were 244,537 family and hired workers engaged in farming.

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$59,348,691, and newly completed construction and reconstruction aggregated 97,798 miles.

Highways and roads on Feb. 1, 1955, totaled 86,861.41 miles (76,521.81 surfaced). Registered motor vehicles numbered 1,854,544 in 1954, including 1,390,970 passenger cars. There were 31 railroads (1955) operating 12,770 line miles, and 9 regularly scheduled airlines and 189 airports and airfields (110 commercial and municipal, 5 military, and 70 private, and 1 seaplane base and 3 heliports).

Communications media included (1955) 51 AM and 17 FM radio stations and 11 operating television outlets; 88 daily newspapers (circulation, 1,547,793) and 248 other newspapers (circulation, 416,410); and (Jan. 1, 1955) 346,943 business and 1,006,499 residential telephones.

Principal Events, 1955.—The regular biennial session of the legislature convened in 1955. Like the 1953 session, it was, at least nominally, controlled by Republican Gov. George N. Craig, but the majority party was badly split. The governor's faction barely elected the speaker of the House, but Senate offices were held by persons unfriendly to the governor. Nevertheless, the chief executive was able to get through some significant legislation, notably on toll roads, mental illness, highway safety, and narcotics and gambling control (see above, *Legislature*).

One Indianapolis daily newspaper wrote editorially that among deplorable failures of the session were the killing of the (municipal) home rule amendment, failure to provide for construction of a state office building, and failure to act on legislative redistricting.

The state had a rash of strikes throughout 1955 involving nationally known corporations. Most were of short duration and were settled without much difficulty, usually with small wage increases and other benefits. The strike, however, which began on July 25 at the Perfect Circle plants in Hagerstown, New Castle, and Richmond, was prolonged, bitter, and, at times, violent. The hiring of nonunion employees; mass picketing; the wholesale arrest of pickets; the massing of an estimated 5,000 sympathizers at New Castle on October 5, where firing from within and the return of fire from outside the Perfect Circle foundry wounded eight persons; the calling out of national guardsmen by Governor Craig; and the placing of all or part of each of the three cities under martial law were only some of the events of the long drawn-out strike.

On October 26-28 a conference called by the governor, and held on the Bloomington campus of Indiana University, served as a "Report to the People" by the executive and administrative departments of the state government. State and local officials, students and educators, and the general public were invited to attend.

The quadrennial elections in cities and towns were held November 8. The trend in these elections was perceptibly in favor of the Democrats. In 1951 the Republicans had elected mayors in 70 cities; the Democrats in 30. In 1955 almost the exact reverse was true, the Democrats having elected 72 and the Republicans 30 mayors.

Principal Events by: P. S. SIKES,
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INDIANS, American. In recent years the Bureau of Indian Affairs, in accordance with broad

departmental and congressional policies, has been successfully reducing its responsibilities to more manageable proportions and, concomitantly, encouraging the American Indian to take an increasingly active and positive interest in his affairs. In the fiscal year 1955 these policies were broadened and advanced in several important areas.

Indian Participation.—Of prime importance was the principle of partnership with Indian owners themselves in the management, conservation, and development of the 54 million acres of Indian land in federal trusteeship.* Owing to the combined efforts of many agencies and Indian groups, the bureau's 20-year soil and moisture conservation plan has progressed markedly in recent years. By 1955 approximately 53% of Indian lands had been incorporated in local soil conservation districts, 70% of which was covered by formal operating agreements. Substantial acreages under Indian irrigation projects had been made usable by land classification, leveling, and other corrective measures. In addition, Indians of several reservations continued to work closely with bureau technicians in making arrangements for improving forests and ranges with the view to increasing the income of Indian owners; consultations along these lines were also under way with other tribes.

Reduction of Bureau Responsibility.—By July 1, 1955, transfer of the entire Indian health program to the U.S. Public Health Service as authorized by Public Law 568 (passed on Aug. 5, 1954) had been completed. Representing the biggest reduction of program responsibilities in the history of the bureau, it included 3,600 employees and a real property inventory valued at \$40 million.

Bureau responsibility was further reduced by the enactment in 1954 of six laws providing for the gradual termination of federal trusteeship and special services in specific tribal jurisdictions comprising the Menominee Tribe in Wisconsin, two jurisdictions in Oregon (Klamath and western Oregon), two in Utah (four small Paiute bands and the mixed-blood population of the Uintah and Ouray Reservation), and one in Texas (the Alabama-Coushattas). All of the termination laws, except the one covering the Alabama-Coushattas (which provided for transfer of trust responsibilities to the state of Texas), authorized the initiation of special educational and training programs for tribal members to prepare them for the responsibilities they would assume after termination. Arrangements were made during 1955 with the state departments of education in Wisconsin and Oregon, and with the University of Utah for carrying on such programs at all five of the affected tribal jurisdictions.

Substantial progress was also made during 1955 in transferring to the states the responsibilities for agricultural extension and home demonstration work among the Indian peoples. In the field of education, contracts providing for about 36,000 Indian children were negotiated in 20 states and in the Territory of Alaska in 1955.

Indian Education.—One of the most important developments of 1955 was a major broadening of educational opportunities for Indian children. Under the Navajo Emergency Education Program, which moved into full swing in the fall of

* These lands are scattered on more than 300 reservations in 21 states, and include a substantial number of "off-reservation" allotments on the public domain.

1954, the total enrollment of Navajo children in federal, public, and mission schools, both on and off the reservation, increased from 16,215 at the close of the fiscal year 1954 to 23,679 at the end of 1955. The total school-age population was 27,106.

The Indian population of the United States and Alaska in 1950 was 455,500, of whom 66,900 were in Arizona, 54,000 in Oklahoma, 43,000 in New Mexico, and 33,900 in Alaska.

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INDOCHINA. A territory of the Southeast Asia Peninsula, comprising Cambodia, Laos, and Viet-Nam. Prior to World War II, the Indochinese states constituted a French colonial possession. In 1949, during the Indochinese war of 1946-54 between French Union forces and the Communist-led Vietminh, treaties were concluded granting Cambodia, Laos, and Viet-Nam the status of autonomous states within the French Union. In December 1950, a series of conventions were concluded at Pau, France, under which matters of common interest to the four states (principally communications, inland transport, customs, finance, and foreign trade) were assigned to quadripartite commissions. The Indochinese states then became known as the Associated States of Indochina. On Dec. 29, 1954, representatives of the three states and France signed agreements in Paris abrogating the 1950 conventions and providing for the replacement (beginning on Jan. 1, 1955) of the quadripartite agencies by bilateral arrangements as between independent states.

Meanwhile, the armistice agreements signed at Geneva, Switzerland, on July 21, 1954, had temporarily divided Viet-Nam approximately along the 17th parallel, assigning control of the north to the Communist-led People's Army of Viet-Nam, and that of the south to the forces of the French Union.

VIET-NAM

Viet-Nam, comprising the Communist-led Democratic Republic of Viet-Nam in the north and the State of Viet-Nam in the south, is bordered by China on the north and Laos and Cambodia on the west. The area of Viet-Nam is about 127,260 square miles; the population (mid-1954) is estimated at 26,000,000. The military demarcation line established by the Geneva armistice agreement of 1954 divides Viet-Nam roughly in half, with the north having somewhat the larger population. (No census has been taken since before World War II.) The Annamese constitute the predominant ethnic group. Chinese and French, chiefly in Saigon and other large cities, are the principal minority groups. Thai and other primitive tribes inhabit the north-west mountainous areas and the central highlands. Hanoi (est. 1953, 297,900) is the capital of the Democratic Republic of Viet-Nam, and Haiphong (188,600) is the chief port. Saigon is the capital of the State of Viet-Nam, the population of the Saigon-Cholon conurbation totaling about 1,614,200 in 1953; Hué (96,400) and Tourane (57,400) are coastal towns of some importance.

Government.—The State of Viet-Nam was created by the French in 1949, with Bao Dai, former emperor of Annam, as chief of state. Treaties of independence and association were initiated by the respective French and Vietnamese premiers on June 4, 1954. However, a definitive relationship between South Viet-Nam and France, including the position of South Viet-Nam within the French Union, had not been established by 1955.

Legislation until October 1955 had been by decree of the premier, who was appointed by the chief of state. Ngo Dinh Diem was named premier by Bao Dai in July 1954. On Oct. 18, 1955, Bao Dai (residing in France) ordered the dismissal of Premier Ngo Dinh Diem. The premier rejected the dismissal order and conducted a referendum on October 23 in which the voters of South Viet-Nam decided on the ouster of Bao Dai as chief of state. On October 26, Ngo Dinh Diem proclaimed South Viet-Nam a republic, with himself as first president and premier.

The Democratic Republic of Viet-Nam is based on a constitution formulated by a National Assembly elected in 1946. Legislative power is vested in the National Assembly. The president of the republic since its inception has been Ho Chi Minh, leader of the revolutionary movement against the French. On Sept. 20, 1955, the Na-



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INDOCHINA

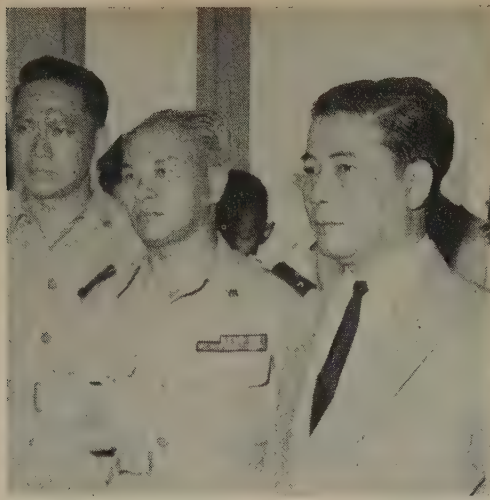
Shaded area (diagonal markings) represents South Viet-Nam, which was proclaimed a republic on Oct. 26, 1955.

tional Assembly elected Pham Van Dong as premier, heading a 20-member cabinet. The Lien Viet, or National Union Front, is the dominant political force in North Viet-Nam. It embraces various nationalist parties and mass organizations and is controlled by the Communist Lao Dong (Workers' Party).

Education.—Viet-Nam in 1952 had 797,467 primary school pupils, 112 secondary schools with 38,763 pupils, 68 technical schools with 5,403 pupils, and one university with 1,728 students. Illiteracy has been estimated at over 50% of the population.

Religion.—The Annamite religion is a fusion of Taoism, Buddhism, and nature worship. The religious-political sect of Hoa Hao, a reform Buddhist movement of less than a million followers, holds sway in the area southwest of Saigon. The Cao Dai sect, which fuses Christianity and the chief Oriental religions, includes some three million persons in the area northeast of Saigon. Roman Catholics number over two million, concentrated mainly south of the Red River Delta.

Finance.—In the national budget of the State of Viet-Nam, revenue for 1954 was estimated at 5,323 million piastres; civil expenditure, 6,300 million; defense expenditure (first 8 months of 1954), 5,323 million. In late 1955 the Indochinese piastre was replaced by a national Vietnamese piastre of equal value (10 francs,



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Premier Diem (r.) with two of his National Army generals.

or about 2.9 cents in U.S. currency). Data on North Vietnamese finances were not available in 1955.

Production.—Rice cultivation is of prime importance in the north as well as in the south. The north, however, is a rice-deficit area, while the south is a major rice exporter. Production of rough rice in South Viet-Nam in 1954-55 (prelim.) totaled 4,600 million pounds. Output in the north approximates 1.4 million metric tons annually, as against consumption requirements of about 1.7 million. Corn and fresh-water fish are other important food staples. Minor crops include vegetables, sugarcane, groundnuts, cotton, tobacco, tea, coffee, quinine, cinnamon, pepper, jute, copra, kapok, and sesame. Rubber output in South Viet-Nam, produced mainly on French-owned plantations, approximated 55,000 metric tons in 1954.

The north exceeds the south in both mineral resources and industrial development. At Hanoi, Haiphong, and Nam Dinh, the industrial centers of the north, manufactures include textiles, cement, engineering products, chemicals, alcohol, bicycles, tobacco products, silk, and refined sugar. Coal output in 1954 totaled 996,000 metric tons. Minerals exploited on a lesser scale include iron ore, manganese ore, bauxite, tin, and zinc. Industries in the south, concentrated in the Saigon area, include rice and sugar milling, chemicals, tobacco products, soap, matches, and other light items.

Foreign Trade.—South Vietnamese exports averaged an estimated \$5.2 million monthly in 1954; imports, about \$22.2 million. Exports were mainly rice and rubber; imports: cotton textiles, petroleum products, metal goods, sugar and other foodstuffs, and other manufactures. France provided 72% of 1954 imports. North Vietnamese trade is largely with Communist China, although France continues to maintain commercial ties with North Viet-Nam. North Vietnamese exports are mainly coal, agricultural and forest products, and handicraft items; imports: chiefly machinery, manufactured goods, and foodstuffs.

Transportation and Communications.—Roads total some 16,000 miles, divided about equally between the north and the south. About 60% of the prewar railway system was destroyed during the Indochinese war of 1946-54. At the end of 1954, South Viet-Nam had about 561 miles of railroads in working order; North Viet-Nam, about 70 miles. In the summer of 1955, Haiphong was linked to southern China by the completion of a railway line running through Hanoi to the Chinese border. International airports are at Saigon, Hanoi, and Haiphong. Telephones in use in Viet-Nam totaled 14,832 in 1955.

Principal Events, 1955.—By May 16, 1955, within the deadline date set by the Geneva armistice agreement of 1954, all French Union forces had been withdrawn south of the military demarcation line and the Communist-led Vietminh forces had been transferred north of the line. In addition, some 800,000 North Vietnamese civilians removed to South Viet-Nam and a few thousand transferred from the south to the north. Transport of the northern refugees was accomplished by French air and sea craft and by the

U.S. Navy. The northern regime was charged by the International Supervisory Commission (India, Canada, and Poland) with having hindered the movement of refugees in certain instances.

The Geneva agreement had also called for talks between the northern and southern regimes to be held after July 20, 1955, on arrangements for national elections to be held in 1956. A request for such talks was issued by North Vietnamese Foreign Minister Pham Van Dong in a note to South Vietnamese Premier Ngo Dinh Diem on July 19, 1955. Ngo Dinh Diem rejected the request on August 10, declaring that free elections were impossible under the northern regime. The South Vietnamese government also emphasized on various occasions that it was not a signatory to the Geneva agreement and sponsored demonstrations opposing the presence of the International Supervisory Commission.

South Viet-Nam.—The principal development in South Viet-Nam in 1955 was the consolidation of power by the Saigon government under the leadership of Premier Ngo Dinh Diem. The premier, strongly anti-French as well as anti-Communist, was supported almost solely by the United States, which regarded him as the only mainstay against communism in South Viet-Nam. Diem made his first move against the divisive internal factions early in the year by closing Saigon vice houses and cutting off the revenue of the Binh Xuyen, a river pirate gang which formed the Saigon police force. After a number of minor clashes in Saigon between units of Diem's Vietnamese National Army and the Binh Xuyen, Diem on April 26 ordered the Binh Xuyen stripped of its police powers. The order precipitated large-scale fighting in Saigon on April 28, and within a few days the 8,000-man Binh Xuyen had been swept out of the city. Some 500 persons, including 200 civilians, were reported killed in the fighting.

Diem's campaign against the Binh Xuyen had been opposed by the French as well as by Chief of State Bao Dai, residing in France. During the fighting, Gen. Nguyen Van Vy, an emissary of Bao Dai, sought to take over control of the national army from the premier but was forced to flee the capital on May 1 by pro-Diem forces. On May 5 a People's National Revolutionary Committee comprising some 4,000 Diem supporters met in Saigon, demanding the ouster of Bao Dai and the convocation of a national assembly. At the same time some 50 provincial and municipal councillors met in the premier's palace and demanded that Bao Dai give up his powers in favor of the premier. The premier bided his time on the Bao Dai ouster, although on May 15 he abolished the chief of state's Imperial Guard and incorporated it within the national army.

Encouraged by his success against the Binh Xuyen, Premier Diem moved against the Hoa Hao, one of the military-religious sects which had sought to preserve its special position in the face of Diem's consolidation effort. On June 5 the national army began a large-scale offensive against the forces of Generals Bacut and Tran Van Soai southwest of Saigon. Within a month the premier reported that the Seven Mountains region along the Cambodian border had been brought under government control. Meanwhile the influence of the Saigon government was being increased by the incorporation within the national army of elements of the defeated Binh Xuyen, as well as of the Hoa Hao. In early Octo-

ber, Pham Cong Tac, pope of the Cao Dai (another military-religious sect) was stripped of his temporal powers by Cao Dai military leaders whose forces were also being integrated within the national army.

By early fall, Premier Diem felt himself strong enough to act against Chief of State Bao Dai, and announced that a referendum would be held to choose between the chief of state and his own continuance as premier. Bao Dai denounced the referendum as illegal and decreed the dismissal of Diem on October 18. Ignoring the dismissal order, Diem proceeded to hold the referendum on October 23. The result was a victory for the premier, who reportedly obtained 98% of the votes. The United States, France, and Britain quickly announced their recognition of the results of the referendum, and on October 26, Diem proclaimed South Viet-Nam a republic, with himself as first president, premier, and minister of defense.

A major factor in Premier Diem's success was the transfer of control to the Saigon government of United States aid hitherto channeled through the French authorities. Diem's control over the assistance funds, beginning on Jan. 5, 1955, afforded him a means of building up his own strength and securing the loyalty of the Vietnamese National Army. Diem also had the support of Gen. J. Lawton Collins, who served as a special envoy of President Eisenhower in South Viet-Nam for six months ending on May 14, 1955. In the fiscal year 1955, United States aid to South Viet-Nam totaled about \$320 million, of which 73% was for military purposes and the remainder for refugee aid and technical assistance. The military aid was largely in connection with the joint Franco-American program for the reorganization and training of the 220,000-man Vietnamese National Army. Lieut. Gen. John W. O'Daniel, who took charge of the program on February 12, was succeeded in November by Lieut. Gen. Samuel T. Williams as head of the U.S. Military Assistance Advisory Group in South Viet-Nam. The United States aid program for the fiscal year 1956 was estimated at \$195 million.

While the prestige and influence of the United States in South Viet-Nam mounted in 1955, that of France receded. The French Expeditionary Forces in Viet-Nam, which totaled about 150,000 men at the end of the Indochinese war in 1954, stood at some 30,000 by November 1955. Although the Vietnamese National Army was still nominally under the command of the French commander in chief, it actually operated under its own command in 1955. Gen. Paul Ely, French commander in chief in Viet-Nam, left Saigon on June 1 and was replaced by Gen. Emile Jacquot. Ely, however, had also served as French high commissioner, and the Diem government demanded that France henceforth be represented by an ambassador. Henri Hoppenot was subsequently sent to Saigon in the capacity of French ambassador-high commissioner.

North Viet-Nam.—The Communist-led Democratic Republic of Viet-Nam in 1955 was occupied in consolidating its political power in the areas newly gained from the French, in developing the institutions of civil rule, and in rebuilding its war-devastated economy. In late 1954 and early 1955 a congress of the Lien Viet, comprising 161 delegates of the front's political parties, was held in Hanoi, and a session of the republic's National Assembly was reported to have taken place in Hanoi from March 20-26, at which President Ho Chi Minh issued a call for the



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Indochinese civilians flee fighting in Saigon, during civil war which broke out in Viet-Nam on April 28, 1955.

unification of Viet-Nam. At a meeting of the National Assembly on September 20, Pham Van Dong, vice premier and foreign minister, was elected premier, succeeding Ho Chi Minh. Ho continued as president of the republic.

President Ho headed a North Vietnamese delegation to Peking, June 25-July 8, and concluded an agreement with the Chinese Communist leaders providing for about \$338 million in Chinese aid toward the rebuilding and expansion of North Vietnamese transport and production facilities. Both parties reiterated their demand for elections in Viet-Nam and accused the United States of using South Vietnamese Premier Ngo Dinh Diem to obstruct the Geneva provision for national elections. Ho then visited Moscow, July 12-18, and obtained a Soviet grant of 400 million rubles (about \$100 million at the official rate).

CAMBODIA

The Kingdom of Cambodia is situated on the southeast part of the Indochinese Peninsula facing the Gulf of Siam. Estimated area, 53,670 square miles; pop. (est. 1954), 4,100,000. The majority of the people are Khmers (Cambodians). Chief minorities are the Chinese (about 300,000), Vietnamese, and French. The national language is Khmer (Cambodian), although French is widely spoken among the educated groups. Phnom Penh (pop. 1946, 110,639) is the capital and chief city.

Government.—King Norodom Sihanouk proclaimed a constitution in 1947 providing for an elected National Assembly and a Council of Ministers responsible to the assembly. In June 1952 the king suspended parliamentary government and took over personal control through his own cabinet. On March 2, 1955, he relinquished the

Indochinese refugees arrive in Saigon from Haiphong, before Communist occupation of the city on May 15, 1955.

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throne to his father, Norodom Suramarit. The former king then founded the Popular Socialist Community, which, in the elections of Sept. 11, 1955, won all 91 seats in the National Assembly. Norodom Sihanouk was named premier by the assembly on September 25. The newly elected assembly removed from the constitution all mention of association within the French Union.

Education and Religion.—In the 1953-54 school year there were 982 public elementary schools (173,421 pupils) and over 1,400 religious schools (75,000); 8 secondary schools (2,942); 19 teacher-training schools (800); and 204 private schools (17,117). The principal institution of higher education is the National Judicial, Political, and Economic Institute (165 students in 1952). Buddhism is the predominant religion. Roman Catholics number about 120,000.

Finance.—The 1954 budget totaled 1,670 million piastres (29% over 1953), of which 835 million represented defense expenditure. In October 1955 the Indochinese piastre was replaced by the Cambodian riel as the national currency. The riel equals 10 francs (about U.S.\$0.029).

Production.—The Cambodian economy is mainly agricultural, with rice and rubber the chief crops. Peasant smallholders comprise some 90% of cultivators. About 85% of cultivated land is devoted to rice. Output of rough rice in 1954-55 (prelim.) totaled 2,400 million pounds (3,086.4 million in 1953-54). Rubber production in 1954 amounted to 24,500 metric tons, a rise of about 45% over the pre-World War II level. Other crops are corn, sugarcane, pepper, kapok, coffee, cinnamon, aniseed, essential oils, and tobacco. Livestock raising is important. Forest products include softwood timber, bamboo, and hardwoods. Coastal and inland fisheries yield about 100,000 metric tons annually.

Industries are on a small scale and include distilleries, rubber plants, oil and rice mills, tanneries, lacquer plants, and pharmaceutical factories. Other industrial products are lumber, tile, brick, woven goods, rope, baskets, pottery, and jewelry.

Foreign Trade.—Exports in 1954 (prelim.) were estimated at \$60.5 million; imports, \$58.8 million. Chief exports are rice (295,700 metric tons in 1954), rubber (17,881), pepper, kapok, and other agricultural and forest products. Imports are mainly textiles and yarn, machinery and instruments, mineral products, and foodstuffs. Chief trading partners in 1954 were France and South Viet-Nam.

Transportation and Communications.—All-weather roads total about 2,000 miles; other roads are passable during the dry season. The only railroad, from Pnom Penh to the Thailand border, has a route length of 242 miles. Pnom Penh is linked to Saigon and Bangkok by international airlines. Telephones numbered 1,148 in 1954. In 1952 there were 5 daily newspapers with a total circulation of 7,000.

Principal Events, 1955.—Nearly three years after he had suspended parliamentary government in order to wrest leadership of the Cambodian nationalist movement from the Democratic Party, King Norodom Sihanouk sponsored a national referendum on Feb. 7-9, 1955, on the question: "Have I kept my promise to give you total independence?" The referendum returned a 99% affirmative vote for the young monarch, although voting was not secret and the government had taken steps to suppress the opposition. On March 2 the king surprised the world by relinquishing the throne to his father, Norodom Suramarit. The alleged reason for the abdication was the refusal of the International Supervisory Commission to accept the king's electoral law, which would have debarred his opponents from participation in the elections called for under the Geneva agreement of 1954.

Following his abdication, Norodom Sihanouk assumed a leading role in the election campaign, founding and heading the Popular Socialist Community. A major issue in the campaign was Cambodian relations with the United States. On Feb. 28, 1955, U.S. Secretary of State John Foster Dulles had conferred with Norodom Sihanouk in Pnom Penh, and on May 16 a United States-Cambodian agreement had been concluded in Pnom Penh, providing for United States military assistance and looking toward the establishment of an American military advisory group in Cambodia. The Democratic Party charged that Cambodia was becoming a satellite of the United

States. Norodom Sihanouk denied the charge, declaring that Cambodia would remain neutral and grant no military base to the United States.

The election of September 11 resulted in a strong victory for the former king, whose Popular Socialist Community obtained all 91 seats in the National Assembly. Only about half the electorate voted. At its first meeting on September 25, the assembly named Norodom Sihanouk as premier and altered the constitution to delete all references to Cambodia as an associated state within the French Union.

In early December, Premier Prince Norodom Sihanouk visited Japan, concluding a Japanese-Cambodian treaty of friendship and economic and cultural cooperation on December 9. Cambodia, along with 15 other nations, was elected to membership in the United Nations on Dec. 14, 1955.

LAOS

The land-locked Kingdom of Laos is bordered by Thailand and Burma on the west, China on the north, Viet-Nam on the east, and Cambodia on the south. Estimated area, 91,430 square miles; pop. (est. 1954), 1,360,000. Lao comprise about half the population; the remainder are chiefly mountain tribesmen of Chinese or Indonesian origin. Lao language and culture is related to that of Thailand. Lao is the official language, although French is widely used in commerce and government. Vientiane (est. 1953, 20,000) is the administrative capital. Luang Prabang (15,000) is the royal residence.

Government.—King Sisavong Vong proclaimed a constitution in 1947. The National Assembly is elected indirectly for a 4-year term. Premier Katay Sasorith has headed the Council of Ministers since November 1954. A treaty of friendship and association with France was signed on Aug. 22, 1953. France maintains a military base in Laos.

Education and Religion.—Less than half the population is literate. In 1953-54 there were 557 primary schools (33,357 pupils); a high school (226), 4 colleges (500), a teachers school (75), a French lycée (341), and a French primary school (220). Buddhism is the chief religion.

Finance.—Expenditure in 1954 was estimated at 632 million piastres; revenue, 358.1 million. Beginning in October 1955 the kip replaced the Indochinese piastre as the currency of Laos. The kip equals about 2.29 cents in United States currency.

Production.—About 95% of the population is agricultural and most nonagricultural goods are produced in the household. Output of rice, the chief crop, approximated 1,150 million pounds in 1953-54, but was reduced to about 775 million in 1954-55 (prelim.) by drought and insect damage. Corn is the second largest crop. Coffee, tobacco, tea, cotton, ramie, beans, potatoes, peanuts, pimento, and tung are produced in small quantities. The vast forests yield teak (5,890 cubic meters in 1951), lumber (16,782 in 1953), bamboo, sticklac, resins, and other products. Tin concentrates totaling 280 metric tons (metal content) was produced by the tin mine at Phontio in 1953. The few industries are mainly sawmills, rice mills, woodworking shops, and charcoal ovens. Handicraft products include silk cloth, leather and silver goods, and pottery.

Foreign Trade.—Imports in 1952 totaled 358 million piastres; exports, 76 million. Chief exports are forest products, livestock, tin, and tobacco; imports: textiles, foodstuffs, petroleum, metal products and other manufactures. Viet-Nam, Cambodia, and Thailand are Laos' principal trading partners.

Transportation and Communications.—Laos has no railroads. The road network in 1952 totaled 2,174 miles, including 1,192 of all-weather roads. Air Laos and Veba-Akat (a Franco-Lao company formed in 1955) provide internal and external air services. Passenger cars and trucks numbered 1,871 in 1955; telephones, 535.

Principal Events, 1955.—Talks between representatives of the Royal Laotian government and the Communist-led Pathet Lao regime (which controlled the northern provinces of Sam Neua and Phong Saly) failed to produce agreement on the extension of Laotian government control to

the two northern provinces and the holding of national elections as provided under the Geneva agreement of 1954. Such talks took place in northern Laos, January 18-19; at Rangoon, Burma, where Laotian Premier Katay Sasorith and Prince Souvanou Vong of the Pathet Lao group reportedly agreed on the principles of a cease-fire on October 11; and in Vientiane in November. Despite the lack of agreement, the Vientiane government conducted elections for the 39-member National Assembly on Dec. 25, 1955, in which the pro-Western coalition of National Progressives and Independents under Premier Sasorith was maintained in power. The elections were boycotted by the Pathet Lao and did not take place in the areas held by the Communist-led regime. Fighting between Royal Laotian forces and Pathet Lao troops took place in January, July, August, and December, mainly in the areas south of the towns of Sam Neua and Muong Peun.

At the Asian-African Conference (q.v.) at Bandung, Indonesia, in late April, Laos and North Viet-Nam signed a pact pledging non-interference in each other's internal affairs. Laos subsequently charged, however, that the Pathet Lao forces were being aided and built up by the Communist-led regime of North Viet-Nam.

Closer ties between Laos and Thailand were established following Premier Katay Sasorith's visit to Bangkok, February 19-22, and Laos commenced construction of road and river connections to the Thai border, where a Thai railroad was being built which would afford Laos an outlet to the sea via Bangkok. The Thai railroad, as well as the projects in Laos, were being carried on with United States aid. United States aid to Laos in the fiscal year 1956 was estimated at \$47 million, to consist of \$35 million in military aid and \$12 million in economic assistance. In September and October 1955, 1,000 tons of rice provided by the U.S. International Cooperation Administration was airdropped to famine-stricken mountain villages in northern Laos.

Laos, along with 15 other nations, was elected to membership in the United Nations on Dec. 14, 1955.

M. J. G.

INDONESIA, Republic of. The Republic of Indonesia occupies the island archipelago formerly known as the Netherlands East Indies, stretching 3,000 miles from east to west along the equator between the Indian and Pacific oceans. The western island of Sumatra is less than 50 miles across the Malacca Strait from Malaya; Kalimantan (Borneo) is separated by the Sulu Sea from the Philippine Republic; and the islands continue eastward to Netherlands New Guinea or West Irian (claimed by both Indonesia and the Netherlands), north of Australia. The hundreds of islands in the archipelago have a land area of 583,600 square miles (excluding West Irian), but four principal islands represent about 85% of this total: Sumatra (164,000 square miles), Java (51,000), Kalimantan (208,000—exclusive of British territory), and Sulawesi or Celebes (73,000).

Population.—A total population estimated at 81,100,000 (U.N. est., July 1, 1954) is divided approximately as follows: Java and Madura, 52,500,000; Sumatra, 11,800,000; Celebes, 6,000,000; Kalimantan, 3,700,000; and other islands, 7,100,000.

The growth of Indonesian cities has been rapid since World War II. Major urban centers are Djakarta (formerly Batavia), the capital (2,800,000), Surabaya (950,000), Bandung (775,000), Djogjakarta (500,000), Surakarta (350,000), Malang (420,000), and Semarang

(340,000), all on Java; Medan (520,000), on Sumatra; and Makassar (270,000), on Celebes. The island of Java, with about 1,000 persons per square mile, is one of the most densely populated areas in the world.

The vast majority of the Indonesian people share a common Malayan stock. Despite cultural diversity (the principal groups are the Javanese, Sundanese, Madurese, Buginese, and Minangkabau), the people are being increasingly united by the spreading use of the Indonesian language and by the sense of national identity consequent to achievement of independence. The principal alien minority groups are the Chinese (more than 2.5 million), Eurasians (150,000), Arabs (70,000), and Indians and Pakistanis (30,000).

Government.—Indonesian independence from the Dutch was proclaimed on Aug. 17, 1945, in the wake of the surrender of occupying Japanese forces, by Sukarno and Mohammed Hatta, who have served as president and vice president, respectively, since that time. Independence was confirmed Dec. 27, 1949, by the Round Table Agreements with the Netherlands. The present provisional constitution, adopted Aug. 17, 1950, replaced the original confederation with a unitary state. Executive authority is exercised by a cabinet responsible to a provisional Parliament, whose members are appointed by the president to represent major political parties and groups. In mid-1955, prior to the first national elections held in September, the parliamentary representation of the leading parties was: Indonesian Nationalist Party (PNI), 42 seats; Masjumi (Moslem Council), 40; Greater Indonesian Party (PIR), 22; Communist Party (PKI), 17; and Socialist Party (PSI), 15. Fourteen other groups and 15 nonparty members completed the roster of 231. (See below, *Principal Events*, 1955.)

The provisional constitution is to be replaced by an instrument establishing the final form of the Indonesian state following election of a constituent assembly on Dec. 15, 1955.

Education.—The Indonesian government estimates that 55% of the adult population is literate. Despite persistent governmental efforts, educational institutions accommodate little more than half the estimated 12 million children of elementary school age. The government maintains 26,000 elementary schools, and there are some 6,000 private schools. Higher education is provided primarily by the University of Indonesia (6,972 students in 1953) and Gadjah Mada University (5,370 students). More than 40,000 students are now enrolled in teachers colleges.

Religion.—More than 90% of the Indonesian population is Moslem. The constitution, however, guarantees freedom of religious practice. There are some 2.5 million Christians (about 1.5 million Protestants and 1 million Catholics) and from 1 to 2 million adherents of a modified form of Hinduism on the islands of Bali and Lombok.

Finance.—The Indonesian unit of currency is the rupiah, officially valued at U.S.\$0.088 and selling (June 30, 1955) at a black market rate of \$0.022. The original 1955 government budget anticipated expenditures of 14 billion rupiah and revenues totaling 11.5 billion. Continuing deficits (3.6 billion rupiah in 1954 and an anticipated 3.5 billion in 1955) perpetuated inflationary pressures. In mid-1955 treasury borrowings from the central bank totaled 5.7 billion rupiah against a currently authorized ceiling of 7.1 billion.

Economic Conditions.—Banknotes in circulation increased from 5,938 million rupiah in June 1954 to 8,184 million in June 1955. Retail food prices (1948 = 100) rose from 223 in January 1954 to 254 in January 1955, with indications that continuing inflation stimulated further increases through the year.

Indonesian exports reached a postwar high in 1954, providing an export trade balance, of 2,565 million rupiah. Gold and foreign exchange holdings increased in the wake of larger exports, rising from 2,474 million rupiah in September 1954 to a high of 3,136 million at the end of March 1955.

Both exports and imports are subject to complex regulations, designed to curtail unnecessary imports and to stimulate exports while deriving the maximum possible revenue from trade. In August 1955 the government completely overhauled the import system, establishing a new Foreign Trade Exchange Bureau to issue exchange and import permits, under control of the Foreign Exchange Institute. The government, however, faced the continuing dilemma that restriction of imports contributes to inflationary pressures, and relaxation of such restrictions im-

mediately revives the earlier international payments problem. In the net, the domestic economic situation deteriorated in the first half of 1955, characterized by the persisting budgetary deficit, commodity shortages, and declining exports.

Production and Foreign Trade.—But for the occurrence of severe floods in parts of central Java, Indonesia would have achieved its goal of self-sufficiency in rice during 1955. Imports were unlikely to total more than 175,000 tons, as compared with 250,000 in 1954. Total rice production was 7.4 million tons in 1954, as compared with 6.8 million in 1953, and increased slightly in 1955. Production of secondary food crops and the annual fish catch also indicated increases.

Rubber production increased approximately 8%, from 703,000 metric tons in 1953 to 757,000 in 1954. Production of other commercial crops included tea, 46,474 tons; coffee, 13,749; cinchona bark, 1,662; cocoa, 1,131; sugar, 713,571; palm oil, 168,325; palm nuts, 43,287; and hard fiber, 29,958.

Crude oil production reached an all-time high of 10,814,000 tons in 1954, a 5% increase over 1953. Tin production increased by 6%, to 35,862 tons; coal remained stable at 894,000 tons; and bauxite increased by 10%, to 166,000 tons.

Rubber remained the principal source of export earnings in 1954 (31.1%), followed by petroleum products (26.4%), tobacco (7.6%), tin (7.1%), copra (6%), coffee (4.7%), palm and vegetable oils (3.2%), and sugar (2.7%). Total exports were valued at 9,777 million rupiah. Principal customers were Singapore (26.3%), the Netherlands (18.3%), and the United States (16.8%).

In the face of additional Indonesian restrictions on "non-essential" imports, the United States lost its position as Indonesia's leading supplier in 1954, providing 14.4% of all imports, as against 17.9% in 1953. Major categories of imports were textiles (29.1%), machinery and vehicles (19.4%), and foodstuffs, beverages, and tobacco (16%).

Indonesia continued efforts to diversify its economy and to increase industrial production. Economic development is retarded by shortages of technicians, by limited foreign exchange and

credit, and by pressure for national control over economic activity.

Transportation and Communication.—Indonesia's railroads have been operated by the government since the termination of World War II. In 1954 there were two lines in operation: the State Railway (DKA), with 3,814 miles of track, and the Deli Railway in Sumatra, with 338 miles. In 1953 there were 46,601 miles of roads serving 164,327 motor vehicles. The bulk of Indonesia's shipments are by sea, but air service is becoming increasingly important. In 1954 there were two domestic airlines in operation: Garuda Indonesian Airlines and the Pioneer Aviation Company.

Principal Events, 1955. Domestic Affairs.—Developments within Indonesia in 1955 were dominated by preparations for national elections. The government of Ali Sastroamidjojo, of the Nationalist Party (PNI), fell in July in the midst of the campaign. It was overturned by criticism of economic conditions and by a recrudescence of the long-standing dispute over the degree of civilian control over the armed forces.

Difficulties within the army stemmed from the "October 17 (1952) affair" when certain army leaders had been accused of instigating a popular demonstration against alleged parliamentary interference with the armed forces. Since that time, suspicions remained within the army that some political leaders were desirous of using a settlement of the affair to establish direct political control over the armed forces. In February 1955, regional army commanders signed a charter of unity, stating their readiness to accept a governmental solution of the October 17 affair (thus hoping to avoid a settlement through court action). The government did not resolve the basic issue, and on May 12 the chief of staff, Maj. Gen. Sugeng, resigned over differences with Defense Minister Iwa Kusumasumantri. Regional commanders supported the acting chief of staff, Col. Zulkifli Lubis, in his refusal to acknowledge President Sukarno's appointment of Col. Bambang Utojo as new chief of staff. Iwa resigned on July 14, and on July 24, Ali's cabinet fell, thus confirming the position of the army as a powerful political factor in the country. (Col. Abdul Haris Nasution, a leader of the "October" army group, was appointed chief of staff in October.)

A new coalition government, headed by Burhanuddin Harahap of the anti-Communist Masjumi (Moslem) Party, took office on August 12. It represented 12 parties, excluding not only the Nationalists but also the Communists, who, although without representation in the former cabinet, had generally given parliamentary support to Ali.

The national elections of September 29 represented the first Indonesian experiment in mass participation in democratic government. Three fourths of the electorate—more than 35 million voters—cast ballots. Because of obstructionism by insurgent bands and difficult inland communications, the final results were delayed until the end of the year. Unofficial returns indicated that four major parties had emerged—the Nationalist, Masjumi, Nahdatul Ulama or Moslem Scholars, and the Communists—and that the new government would be a coalition based on two or more of these four parties.

International Relations.—The Asian-African Conference (q.v.), which met in the mountain city of Bandung in Java from April 18–24 was an event of world significance and the highlight of Indonesia's foreign relations in 1955. Bringing together governmental delegations from 29 coun-

Newly franchised Indonesian women vote in the country's first general election, which began on Sept. 29, 1955.



tries, the meetings signalized the desire of the Asian and African nations to assert themselves more effectively in world affairs. Despite basic disagreements between anti-Communist representatives and the Communist delegations, the conferees were able, in a large measure of harmony, to evolve a broad statement of principles expressing their desire for peace and independence, economic progress, and greater cultural contact.

The Bandung Conference brought other important developments in its train. During the sessions, Peking and Djakarta announced an agreement on the long-standing problem of dual nationality of overseas Chinese. It provided that within two years Chinese residents must choose between citizenship of Communist China and Indonesia. The agreement was the first in modern history in which a Chinese government abandoned claims to citizenship of all overseas Chinese by application of the principle of *jus sanguinis*. In the face of opposition from some Indonesian elements and from segments of the Chinese community loyal to the Republic of China on Formosa, the agreement was not submitted to Parliament for ratification. After the conference, Chou En-lai paid an official visit to Djakarta, where, on April 28, he and Ali signed a joint declaration pledging adherence to the five "principles of coexistence," first enunciated in the Indian-Chinese Communist agreement on Tibet in 1954. In May, Prime Minister Ali returned Chou's visit by going to Peking.

Indonesian relations with the Netherlands remained strained. The dispute concerning sovereignty over West Irian continues and, at the initiative of a group of Asian and Arab states, was inscribed on the agenda of the U.N. General Assembly for the second straight year. Debate on the protocol dissolving the Dutch-Indonesian Union, negotiated in 1954, continued in the Indonesian Parliament intermittently from February until June. On July 5, opposition groups boycotted a scheduled vote on ratification, which failed for lack of a quorum. Relations were further exacerbated by Dutch resentment over Indonesian handling of several Dutch citizens arrested in December 1953 and charged with conspiracy against the Indonesian state. Dutch charges (issued in a white paper in June) of illegal detention of prisoners and of other violations of civil rights of Dutch subjects were matched by Indonesian resentment of alleged Dutch interference in Indonesian internal affairs.

WILLIAM C. HAMILTON,
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INDUSTRIAL DESIGN. For the past quarter century the importance of industrial design in the American economy has rapidly risen to the point where it is now considered essential by industry in today's highly competitive market. With the coming of automation, the profession must meet the provocative challenge of accurately predicting consumer reaction to their specific products.

Most industrial designers are now seeking to learn more about motivation—why people buy and prefer certain products in lieu of other similar items. Consumer research must by necessity be concerned with the future—not just tomorrow, but a decade hence. It has now become self-evident that the one person with experience in correlating people with products is the industrial designer. Realizing that the demand for proficient industrial designers is steadily and rapidly increasing, many of America's institutions of

learning have either added or enlarged industrial design departments. Typical of this expansion is the functional modern building, completed in 1955, which houses the Illinois Institute of Technology's design school under the direction of Jay Doblin.

The demand for talented designers seems to be universal. In Germany, the Hochschule fur Gestaltung, a new school of design, was completed and opened its doors in October 1955. The school, which considers itself a continuation of the Bauhaus, founded in 1919 by Walter Gropius, intends to go further than its predecessor in conformity with postwar requirements.

The United States government launched an intensive program in 1955 to assist many underdeveloped countries by exporting American design techniques to provide technical assistance in product design and marketing. A function of the International Cooperation Administration, the program will assist countries rich in such crafts as rug making, weaving, pottery, leather working, wood and metal crafts. By late 1955 the agency had signed contracts with five United States industrial design firms, all members of the American Society of Industrial Designers (ASID), to assist in the program.

Also under the auspices of the International Cooperation Administration, 26 members of the Inter-European Industrial Design Study Group visited the United States to obtain a better understanding of American industry's use and application of design in all fields. Indicative of the universal interest in United States design was the number of exhibits held both in that country and abroad. The ASID exhibit, representing the work of 18 of its members, and arranged at the request of the Department of Commerce, was enthusiastically received at the Liège (Belgium) Fair. This display alone attracted more than 60,000 interested visitors. Later, most of the products were displayed in Paris ("Main Street U.S.A.") and in Barcelona's Samples Fair.

In the United States, industrial designers were elated over the rising level of consumer taste and the more enlightened role that the designer takes in company leadership. Certain design trends in 1955 may be influential in determining future product development. The increased popularity of frozen foods has stimulated sales of home freezers and refrigerator-freezer combinations (notable among the latter is Amana Refrigeration's combination unit).

The kitchen often is the deciding factor in home purchases, and sales of built-in major appliances continue to rise. While sales doubled in 1954, the industry anticipated an even greater increase in 1955. There is a definite trend, however, toward "wall-hung" major appliances and a consolidation of units into one package. Worth noting is the General Electric "Kitchen Center." Taking up only a few feet of space, the single unit contains a washer-dryer combination, a food waste disposer, automatic dishwasher, and electric range, all mounted together under a stainless steel counter top.

The new Frigidaire Holiday Kitchen is a complete kitchen—a package in which every basic unit is included, designed and engineered to grow as considerations require. Each unit is related to the others in complete harmony of styling, as well as being linked in usage. As units are added, they will have both plumbing and wiring sections provided, which require only interconnecting as they are erected. One of the many features to be noted is the built-in Pano-



(UPPER LEFT) FRIGIDAIRE (UPPER RIGHT) REINECKE AND ASSOCIATES; (LOWER LEFT AND RIGHT) INDUSTRIAL DESIGN MAGAZINE

(Upper left) Frigidaire's 1955 Kitchen of Tomorrow; (upper right) Amana Refrigeration's home freezer and refrigerator, combined into a single unit; (lower left) General Electric's Model 660 "Convertible" clock-radio; (lower right) teak cabinet, designed by Paul McCobb for Bell and Howell's high-fidelity radio-phonograph-tape recorder combination.

ramic refrigerator with a freezer drawer mounted directly below.

The consumer demand for color in appliances has risen from 5% in 1946 to 50% in 1954, and its popularity has not diminished. Manufacturers of machine tools, scientific instruments, and other industrial equipment have increasingly recognized the importance of design to their carefully engineered products and now turn to the industrial designer for professional advice.

Again in 1955, recreational products provided a field day for the designer. Radios, television sets, high-fidelity equipment, cameras and projectors, portable phonographs, pianos, toys, and a profusion of barbecue grills must now be highly styled and color-treated if they are to sell and maintain their position in today's market.

J. O. REINECKE,

Industrial Designer, Reinecke and Associates.

INDUSTRIAL HEALTH AND SAFETY. Emphasis on engineering control has resulted in a marked decrease in injurious exposures in industry. As the more obvious and easily diagnosed occupational diseases have been eliminated, more attention has been directed to the obscure and delayed effects which require specific and refined diagnostic procedures.

This is exemplified by investigations of silicosis and allied dust diseases. Although marked progress has been made in the control of silicosis, it has become more and more evident that our knowledge of the fundamental action of dust is

inadequate. Hence, emphasis is now being placed on basic laboratory investigations. Recent studies have shown the importance of particle size in regard to retention of dust in the various portions of the respiratory tract. Radioactive particles were used to study clearance mechanism and rate of removal of dust from the lungs. Increase in surface area of dust was found to parallel increase in physiological effects within certain limits. The effects of various crystalline and amorphous forms of silica were found to vary significantly.

Concurrent with increase in knowledge of the behavior of dust in the respiratory tracts, progress was made in developing better and more sensitive procedures for measuring physiological responses to dust. With earlier and more precise diagnosis, control measures can be defined with greater accuracy.

Industrial Cancer.—Marked increase in lung cancer in recent years has kept the industrial hygienist alert to guard against exposures in industry that might be associated with the development of cancer. The normal incidence of cancer, and the possible influence of air pollution and cigarette smoking make it difficult to evaluate the carcinogenic hazard of a particular substance. Animal screening tests are continually being conducted. While the results are not applicable to man without restrictions, because of species specificity, nevertheless they provide a warning of possible adverse effects. Animal data coupled with epidemiological studies provide more mean-

ingful information than either alone. Even though cancer has not occurred, evidence of potential carcinogenicity has resulted in improved control measures and stricter medical examinations to reduce to a minimum the possibility of cancer's occurring. (See also CANCER.)

Off-the-Job Safety.—As frequency and severity accident rates continue to decrease in industry, lost time owing to off-the-job accidents becomes more and more important. Companies have hesitated to undertake a program of off-the-job safety because of possible resentment of employees on the grounds that it was an invasion of their private lives and paternalistic, as well as because of the technical difficulties involved. However, companies which pioneered in this field have had encouraging results.

One company recorded a 20% improvement in one year in off-the-job performance, and found that its efforts were well received by the employees. Encouraged by these results, the Manufacturing Chemists' Association is planning an industrywide program to apply job safety know-how to off-the-job safety problems. The program will consist of a system of defining and reporting lost-time injuries, and off-the-job safety activities can be incorporated with the in-plant program.

Insecticides.—The widespread application of insecticides brings them in potential contact, either directly or through residues on foodstuffs, with almost everyone. Hence, there is a continuing stream of reports on the toxicity of these substances. The toxicity and mechanism of action of Dipterex and Systox, phosphorus-containing insecticides, were reported. Another report presented the results of a toxicity study of a series of organophosphorus compounds.

The Council on Pharmacy and Chemistry of the American Medical Association published several reports outlining available information on a number of fungicides and health hazards of electric vaporizing devices for insecticides. A study of drifting of parathion dust clouds from a mechanical duster showed airborne concentrations exceeding the threshold limit value at a distance 260 feet downwind from the machine. A report on mist spraying with parathion in apple orchards indicates that poisoning was not likely to occur if precautions were taken. Cases of poisoning which occurred occasionally were attributed to negligence. Labeling of pesticides to protect the public is required by law, and toxicity criteria used in judging the labeling of pesticides have been published.

Noise.—Emphasis, which in recent years was on the legal and compensation aspects of noise, has shifted to the technical and control problems. An outstanding milestone was the publication of a new journal, *Noise Control*, beginning in January 1955. The March issue was devoted to papers presented at the Fifth National Noise Abatement Symposium, which was concerned with reduction of noise in machinery. The First West Coast Noise Symposium was held in 1955, and covered physical properties of noise, measurement of noise, effects of noise on man, sources of noise in industry, and procedures for controlling noise. A number of standards relating to the noise problem were published by the American Standards Association.

Radioisotopes.—The rapid expansion of the industrial application of radioisotopes is exemplified by the more than 47,000 shipments of radioisotopes in the eight years of the Atomic Energy Commission's Isotopes Distribution Program.

These shipments went to 3,200 institutions, including 1,200 industrial companies. Use in process control—for example, in inspection of pipes and welds, and as thickness gages—may be expected to increase rapidly, requiring strict control measures to protect the users and the public. In 1955 the AEC approved proposed regulations establishing standards for protection of personnel and the public against radiation hazards. (See also ACCIDENTS; MINING.)

H. H. SCHRENK,
Research Director, Industrial Hygiene Foundation of America, Inc.

INDUSTRIAL PRODUCTION. The marked recovery in industrial production in the second half of 1954 continued during 1955. By the end of 1955, broad expansion in consumer and business demands resulted in a new record level of about 145% of the 1947-49 average for the monthly seasonally adjusted Federal Reserve index of industrial production. This compares with a previous high of 137 during the summer of 1953 and the mild recession low of 123 reached one year later.

During the year 1955 the Federal Reserve index rose from 132 in January to 145 (estimated) in December. For the year 1955 as a whole, the index has been estimated at 139—up 11% from the reduced level of the full year 1954. Output of all major types of consumer and business goods contributed to the advance. Military goods production remained a moderate proportion of the total, and in all likelihood changed little during the year.

Initially, recovery in industrial output during the latter part of 1954 stemmed from cessation of inventory liquidation as consumer buying remained generally stable and factory pipelines become unduly narrowed. Moreover, reductions in production of military goods by that time was becoming substantially less of a factor in business planning, and the decline in output of capital goods was leveling off.

By the end of 1954 consumer expenditures had begun a marked upsurge that continued through the year 1955 and stimulated expanded industrial output. Sharply advanced sales and output of autos were outstanding developments in the midst of generally advancing sales and activity. Production of household goods and of most nondurable goods rose rapidly.

Output of producers equipment turned at the end of 1954, and during 1955 showed steady increase. Expansion in orders for producers goods was at a moderate rate early in the year, and at exceptionally high rates in the second half. Order backlogs on equipment builders' books loomed large in the closing months of the year. In some cases (for example, railroad rolling stock) outstanding orders had accumulated to markedly high levels.

The broadly based nature of the expansion in industrial activity is shown in the accompanying table. The broadest divisions of the Federal Reserve index showed strikingly similar gains from 1954—estimated at 11% for durable manufactures, 9% for nondurable manufactures, and 10% for minerals. There was, as usual, considerable diversity in rates of increase among various industry groups, however, as is also shown in the table.

In part, this diversity reflects such special influences peculiar to the year 1955 as the upsurge in auto output; in part it reflects the particular impact of developments in 1954 on certain lines—for example, primary metals, where inventory

INFANT MORTALITY — INLAND WATERWAYS

induced curtailments had been especially sharp and the rebound correspondingly greater.

The very high levels of output reached in a number of lines by late 1955 approached capac-

U.S. INDUSTRIAL PRODUCTION INDEX

(1947-49 = 100)

	1955	Per cent change	
		1953 to 1954	1954 to 1955
Total.....	139	-7	+11
Manufactures.....	141	-7	+11
<i>Durable manufactures.....</i>	<i>155</i>	<i>-10</i>	<i>+13</i>
Primary metals.....	140	-18	+30
Fabricated metal products.....	135	-10	+10
Nonelectrical machinery.....	136	-13	+9
Electrical machinery.....	195	-9	+10
Transportation equipment.....	201	-7	+15
Instruments and related products.....	149	-10	+6
Stone, clay and glass products.....	149	-2	+14
Lumber and products.....	129	-3	+12
Furniture and fixtures.....	119	-9	+12
Miscellaneous manufactures.....	141	-6	+8
<i>Nondurable manufactures.....</i>	<i>126</i>	<i>-2</i>	<i>+9</i>
Textile mill products.....	107	-9	+13
Apparel and allied products.....	113	-5	+8
Rubber products.....	144	-10	+25
Leather and products.....	104	+4	+9
Paper and allied products.....	153	+2	+14
Printing and publishing.....	127	-1	+6
Chemicals and allied products.....	167	+1	+13
Petroleum and coal products.....	135	-4	+8
Food and beverage manufactures.....	109	-1	+3
Tobacco manufactures.....	104	-5	+1
<i>Minerals.....</i>	<i>122</i>	<i>-4</i>	<i>+10</i>
Coal.....	79	-14	+18
Crude oil and natural gas.....	142	+1	+6
Metal mining.....	113	-20	+26
Stone and earth minerals.....	130	-1	+6

Note: Based on indexes published by the Board of Governors of the Federal Reserve System. Annual figures for 1955 estimated from seasonally adjusted preliminary data for first 11 months of the year.

ity limitations. In the steel industry, included in primary metals in the table, activity at the year's end was at 99% of rated capacity, according to the American Iron and Steel Institute. (See IRON and STEEL.) In a number of other key lines capacity operations were virtually in effect.

With demands rising during the year, wholesale prices of industrial commodities advanced considerably. In the latter part of 1955, with further increases in output limited in the short run by supply considerations, prices advanced more rapidly than earlier, and increases spread from raw materials to various finished articles. These effects reacted in turn on activity and accounted in part for the sharply advanced new records reached by the Federal Reserve output index at the end of 1955.

The 30% increase in production of primary metals in 1955 relative to 1954 was the sharpest among durable goods industry groups, which usually fluctuate more sharply, by and large, than nondurable groups. Liquidation of steel product inventories by metal-consuming industries had been one of the features of the earlier reduction in industrial output and was largely responsible for the 18% production drop shown for primary metals from 1953 to 1954. The need initially to restore steel inventories and then to support the increasing finished metal goods production resulted in a dramatic upturn in steel output.

Metal fabricating industries generally showed gains in 1955. The most marked rise came in the transportation equipment group as auto output soared to new records (see AUTOMOBILES). It may be noted in the table that the transporta-

tion equipment group index for 1955 was 201% of the 1947-49 average—well above the 1953 average.

Declines in the building materials area had been very modest in 1954—2% for the stone, clay, and glass products group; 3% for lumber and products. So incessant were demands during 1955, however, that gains of 14% and 12%, respectively, were shown by these groups, bringing them to unusually advanced rates of output.

Having been considerably less influenced by the changes in military production that were a feature of the economic situation after mid-1953, nondurable goods manufacturing as a whole showed little change from 1953 to 1954. The 9% rise that occurred in 1955, therefore, brought this major division to a new record level, 126% of the 1947-49 average.

The sharpest increases in 1955 were in the textile, apparel, rubber products, and paper groups. In the case of paper, and also of chemicals, significant increases during 1955 were not from reduced levels during 1954, as the table shows. Indeed, in both these large industry groups, 1955 levels were new record levels by substantial margins, reflecting both (1) the development of new products and new uses for other products, and (2) generally sustained and pervasive business demands for intermediate processing into finished goods.

Notably in the case of the rubber products industry group, a large gain in output in 1955 was associated with much greater than average decline during 1954. To an important extent, however, the influences of developments in the auto industry were dominant, production for the 1955 model autos placing unusual demands on the industry for new equipment tires.

The marked amplitude shown by textile mill products output changes is consistent with the historical pattern. The decline in 1954 and the recovery in 1955 were both sharper than in the case of the apparel industries, which consume most textiles output. These differences reflect the inventory influences common to material-finished products industries.

Among minerals industries, which account for about 10% of industrial production, developments were largely associated with events in manufacturing. The sharp fluctuation in metal mining may be traced to production developments in the primary metals group where mined metal ores are converted to metals. The fluctuations in coal output had similar origins, together with an independent inventory course at consuming industries generally. Overall strength in the stone and earth minerals group reflects the continued strong demand for construction materials. Generally rising demand and output in the crude oil industry during 1955 represents not only strengthening industrial demands in that year, but also additional new users along the long-term rapid upward trend of this industry.

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INFANT MORTALITY. See Index entry.

INFANTILE PARALYSIS. See POLIOMYELITIS.

INFLUENZA. See RESPIRATORY DISEASES.

INFORMATION AGENCY, U.S. See UNITED STATES INFORMATION AGENCY.

INLAND WATERWAYS. Freight movement on the 28,996 miles of inland waterways in the United States recorded considerable gains during the first six months of 1955. The total 1954 traf-

fic was estimated at 380 million tons or 80 billion ton-miles.

A spot check of water traffic in mid-1955 showed the following rates of growth:

Channel	Total 1954 tonnage	Percentage gain 1st half of 1955
New York State Barge Canal System.....	3,859,335	27
Tennessee River.....	8,400,000	14
Mississippi River.....	82,404,001	3
Illinois Waterway (Grafton to Lockport).....	15,354,052	..
Gulf Intracoastal Waterway.....	36,982,000	..
Atlantic Intracoastal Waterway.....	6,564,852	20
Ohio River.....	55,076,677	..
Cumberland River.....	2,232,000	10
Missouri River.....	289,000	500
Warrior-Tombigbee Waterway.....	3,010,000	10
Chicago Waterways.....	22,963,824	..

Some 1,732 companies, including railroads now operate freighting equipment on the inland waterways. They own and operate 20,000 tow-boats, tugboats, barges, scows, cargo boats, and lighters. Principal commodities carried by barge include petroleum, coal, sand and gravel, grain, steel and iron products, chemicals, machinery and machinery parts, automobiles, and trucks.

Each of 46 rivers and canals carried more than one million tons of barged freight in 1954. Inland waterway or shallow draft (under 14 feet) vessels carried more than 50% of the total waterborne commerce in 37 of the 74 ports having more than one million tons of inland waterway traffic in 1953. The navigable rivers and canals now carry about 7% of the nation's total freight load. The Great Lakes carry an additional 11%.

New type barges may have a capacity of up to one million gallons of liquid cargo or 3,000 tons of dry cargo. A multiple-barge tow may deliver 10 million gallons or 35,000 tons of crude oil or petroleum products in a single shipment. Tows operating on the Mississippi and Ohio rivers are usually longer than the largest ocean luxury liner, largest Great Lakes ship, or ocean tanker or freighter.

Innovations introduced by the barge and towing industry during 1955 included an integrated tow for moving molten sulfur long distances; through barge service between Florida and the North Central states; addition of another foot to the channel depth of the Missouri River; and completion of many new ports, harbors, and terminals on the inland waterways.

Inland waterways most recently added to the national system are the Pearl River, Harlingen (Texas) Barge Canal, Port Mansfield Channel, Port Palacios Channel, and the Guadalupe River. (See also CANALS.)

CHESTER C. THOMPSON,

President, The American Waterways Operators, Inc.

INNER MONGOLIA. A region of northern China, separated by the Gobi Desert from Outer Mongolia (Mongolian People's Republic) to the north. The Inner Mongolian Autonomous Region had a population of 6,100,104, according to the 1953 census. The Mongol population is largely nomadic, raising sheep, camels, cattle, and horses. Crops, cultivated mainly by the Chinese, include wheat, rye, and potatoes. Paotow is being expanded as a new industrial and railroad center, featuring an iron and steel combine and other heavy machinery plants. On May 3, 1955, it was reported that Ulanfu (Yun Tse), a Mongol Communist leader and a deputy premier of the Peking government, had been re-elected chairman of the

regional government. Peking radio reported on September 5 that a new phonetic version of the Mongolian language, based on the Cyrillic alphabet, would be introduced in the region.

INNITZER, Theodor, Austrian cardinal: b. Vejperty, Bohemia, Dec. 25, 1875; d. Vienna, Austria, Oct. 9, 1955. Primate of the Roman Catholic Church in Austria during the Nazi and Soviet occupations of his country, he attracted worldwide attention at the time of the German seizure of Austria in 1938 by his unsuccessful attempt to appease the new Nazi regime.

After his ordination in 1902, he continued his studies at the University of Vienna, from which he received a doctorate in theology in 1906. For many years he taught at the university, where he was successively professor of New Testament exegesis, dean of the theology faculty for several terms, and, in 1929-30, rector. In the latter two years he was minister of social welfare in the cabinet of Johann Schober. Named archbishop of Vienna in 1932, he was elevated to the cardinalate on March 13, 1933.

A strong conservative and nationalist, Cardinal Innitzer gave active support in the 1930's to the governments of chancellors Engelbert Dollfuss and Kurt Schuschnigg, whose primary aim was to maintain the independence of their country against Nazi pressure to incorporate Austria in the German Reich. After the Nazi-inspired murder of Dollfuss in 1934, Innitzer incurred the permanent hatred of the Nazis by refusing to intercede for the chancellor's murderers.

When the German Army occupied Austria in March 1938, Cardinal Innitzer, in an apparent reversal of his position, urged his fellow countrymen to obey their new masters. The cardinal's support of Nazi rule was made even more direct several weeks later. In a letter to a Nazi leader, which accompanied a declaration of the Austrian bishops favoring an affirmative vote in the plebiscite to ratify German absorption of Austria, Innitzer added to his signature, "Heil Hitler." Pope Pius XI then called the cardinal to Rome and asked him to issue a second declaration, which in substance withdrew support of the plebiscite. Nazi attacks on the church soon followed. Later in 1938 the cardinal's residence was sacked by a Nazi mob, and on several occasions he was subjected to Nazi abuse during public appearances.

INSANITY. See PSYCHIATRY.

INSECTS AND INSECTICIDES. See Index entry.

INSTALLMENT BUYING. See CONSUMER CREDIT.

INSURANCE. See Index entry.

INTER-AMERICAN AFFAIRS. Hemispheric Solidarity.—The "Geneva spirit" of 1955 called upon the inter-American community to replace with new objectives those formerly relating to the threat of Russian aggression. Appreciation of America's enormous military responsibilities in Europe and Asia did not alleviate the Latin American feeling of neglect, even though, as U.S. Secretary of State John Foster Dulles had noted in his 1955 Pan American Day address on April 14, the entire continent was being protected thereby.

In an effort to revive enthusiasm in and give purpose to the inter-American system, Vice President Richard M. Nixon departed on Feb. 6, 1955, for a 29-day goodwill mission to the Caribbean and Central America. He used the occasion to dramatize the need for completing the Inter-American Highway, while at home the Eisenhower administration was successful in securing



U.S. Secretary of State Dulles addresses the Organization of American States on Pan American Day, April 14, 1955.

WIDE WORLD

legislative approval for an appropriation of \$62,-980,000 for Central American highway projects. The \$109.5 million program (including Central American contributions) was begun Sept. 10, 1955, and by the end of 1958 would transform the Inter-American Highway into a broad artery from the Texan frontier to the Panama Canal. The Latin Americans were also heartened by the appointment on Dec. 16, 1954, of Nelson A. Rockefeller as an administrative assistant to President Eisenhower in the field of foreign policy.

Having sown dragons' teeth with their disarmament policies, the Latin Americans reaped the inevitable harvest. British and American jet aircraft were purchased in increasing quantities; more than 20 F-86F Sabre jet fighters were ordered from the United States by both the Dominican Republic and Venezuela, thereby giving them overwhelming air superiority over their Caribbean neighbors.

The increasing effectiveness of the air and naval forces strengthened the spirit of nationalism during the year. On Aug. 15, 1952, Peru, Chile, and Ecuador had declared their "exclusive jurisdiction and sovereignty" over waters contiguous to their coasts "up to a minimum distance of 200 nautical miles," and had reaffirmed the principle in a treaty signed Dec. 4, 1954. On Nov. 15-16, 1954, Peruvian naval and air units even bombed and machine-gunned whaling vessels of the A.S. Onassis fleet, which was 300 to 345 miles off the coast. These vessels, under Panamanian registry, were released only after \$3 million in fines were paid by Lloyd's of London (90%) and American insurance companies (10%). Again, on March 27, 1955, Ecuador seized two American fishing vessels some 14 to 25 miles west of an Ecuadorian island. Fines of more than \$49,000 were imposed on these vessels, but the amount would be paid by the U.S. Treasury, which had been authorized by Congress on Aug.

27, 1954, to insure these illegal losses for American shippers.

Inter-American Peace.—Conditions in the Western Hemisphere in 1955 favored pacific settlements. Disputes were keyed at a relatively low tension level, and the peace machinery was highly developed and manned by alert statesmen, while United States military power was available to enforce collective decisions. The tragic death on Oct. 19, 1955, of Carlos Dávila, secretary general of the Organization of American States (OAS), however, deprived the peace system of one of its key figures during the year.

The Nicaraguan dictator, Anastasio Somoza, precipitated the year's first threat to peace. Emboldened by the purchase of 25 P-51 fighter planes from Sweden and still resentful of the attempt on his life, which he had attributed to President José Figueres of Costa Rica, Somoza permitted a well-trained band of 600 men to invade Costa Rica on Jan. 11, 1955. The Council of the OAS, which two days earlier had declared any action would be "premature," hurriedly sent an investigating commission under the dynamic leadership of Luis Quintanilla to the trouble area. Assisted in its mission by United States military planes, the commission filed its first report on January 14. Two days later the council invoked for the first time in its history the military assistance provisions of the 1947 Treaty of Rio de Janeiro by requesting the United States to sell four F-51 Mustang planes to Costa Rica. Subsequently the investigating commission was successful in persuading both aggressor and defender to accept a 3-by-18-mile land and air buffer zone. Hostilities ceased on February 5. The final report of the investigating commission, presented to the OAS Council on February 18, declared there had been a violation of the territorial integrity, sovereignty, and political independence of Costa Rica and recommended, *inter alia*, that a commission of investigation and conciliation, as provided in the 1948 Pact of Bogotá, be established. A five-man commission, headed by the American representative, John C. Dreier, was selected on March 8 to re-establish complete amity between the two governments.

An emergency session of the OAS Council was again convoked on Sept. 8, 1955, when Ecuador formally charged Peru with massing 20,000 to 30,000 troops on her frontier and declared that Peruvian naval forces were menacing the Ecuadorian coastline. The council, however, awaited the report of the guarantors of the 1942 boundary treaty between Peru and Ecuador. The guarantors, who included the diplomatic representatives of the United States, Brazil, Argentina, and Chile in Rio de Janeiro, authorized their military attachés in the Peruvian and Ecuadorian capitals to inspect the border regions by air. The latter reported no unusual build-up, thereby allowing Ecuador to withdraw her appeal to the OAS Council on September 27. (See also ORGANIZATION OF AMERICAN STATES.)

Faltering steps were taken to revive the Organization of Central American States (known as ODECA from its Spanish initials), which was founded in 1951. The Communist-dominated Arbenz regime in Guatemala had curtailed its development until 1954, while the conflict between Nicaragua and Costa Rica during 1955 resulted in the postponement of a reorganization meeting in Antigua, Guatemala, until Aug. 17, 1955. With Panama attending as an observer, the meeting of the five Central American foreign ministers was frequently on the verge of dissolution until a

last minute agreement secured the appointment of the Salvadoran foreign minister as the first secretary general of the new organization.

Political Stability.—Revolutions against authoritarian regimes and elections in democratic countries interrupted Latin American governmental processes and handicapped inter-American relations. From the time of Perón's first attack on the Roman Catholic Church in November 1954, until he sought asylum on a Paraguayan gunboat, Sept. 19, 1955, Argentina was politically restive. The successor government of Maj. Gen. Eduardo Lonardi needed time to cope with the confusion resulting from the wreckage of an 11-year dictatorship; but the Lonardi government was itself overthrown on November 13 and was replaced by a junta headed by Maj. Gen. Eugenio Aramburo.

In Guatemala, the year-old Castillo Armas government, faced with the problems inherited from its Communist predecessor, was troubled by lack of political know-how; by exploitative monopolies in corn, beans, and wheat at the hands of speculators; by army resentment, which broke out into a one-day revolt on Jan. 19, 1955; and by numerous coercive controls deemed necessary, pending the writing of a new constitution.

The caretaker government of João Café Filho in Brazil underwent periodic cabinet changes while attempting to ameliorate worsening economic conditions and to provide for fair national elections on Oct. 2, 1955. The election of Juscelino Kubitschek as president, and of João Goulart as vice president, for terms beginning Jan. 31, 1956, was momentarily accepted by the Brazilian Army, but a growing struggle with a parochial, labor-oriented administration could be anticipated. In an "anti-coup" on November 11, designed to thwart a threatened coup by anti-Kubitschek elements, the army seized control from Acting President Carlos Luz, who had replaced President Café on November 8 after the latter suffered a heart attack and had to be hospitalized.

An exceptionally ugly eruption of a domestic power struggle was evidenced when Panama's First Vice President José Ramón Guizado was implicated in the assassination of President José Antonio Remón on Jan. 2, 1955. Spiraling inflation in Chile stimulated labor and political unrest; after 33 months in office, President Carlos Ibáñez reshuffled his cabinet for the 41st time on Aug. 18, 1955.

Elsewhere, stability was the rule. Ecuador, unaffected by an abortive military revolt in December 1954, continued to enjoy its longest period of political tranquility since 1925. The progressive Bolivian regime of President Víctor Paz Estenssoro, strengthened by American aid, successfully stamped out a revolutionary plot on April 18, 1955. Orderly congressional elections on July 3, 1955, characterized the Mexican scene, while the assumption of absolute personal power by Acting President Julio Lozano Díaz in Honduras on Dec. 6, 1954, was unchallenged by political opponents. In Colombia, President Gustavo Rojas Pinilla employed both censorship and coercion to maintain his power and subdue the revived guerrilla forces. A welcome stretch of internal peace in Cuba resulted in the return of the exiled former President Prío Socarrás on Aug. 5, 1955. Paraguay's stability was unaffected by an abortive army plot in January 1955, and no one challenged the dictatorial regimes in the Dominican Republic, Nicaragua, and Venezuela.

Communist strength on the continent was



UNITED PRESS

Costa Rican troops, about to board transport plane, leave San José for Nicaraguan border to quell rebel uprising.

weakening. Brazilians convened the unofficial Second Congress Against Soviet Intervention in Latin America on Aug. 22, 1955, in Rio de Janeiro, with representatives of all 20 republics in attendance. The underground Communist Party in Brazil, however, claimed 130,000 members and supported the winning candidate in the presidential elections. In Cuba, the Batista regime outlawed the party on Jan. 19, 1955, and instituted an official inquiry into its activities on April 23. Trade relations with Communist bloc countries had also worsened; anticipated trade of \$500 million in 1955 was to have been three times greater than that of the previous peak of 1948, but deliveries from the Soviet Union failed to materialize.

Economic Conditions.—The underdeveloped Latin American countries were increasingly dependent on hemispheric cooperation for economic and technical assistance. Their declining export prices, internal inflation, and slackening rate of capital investment had slowed their annual increase of per capita production from 2.9% before 1951 to 0.6% thereafter. Furthermore, Latin America's 1954 gross product of \$43.6 billion was increasing more slowly than the \$362 billion total for the United States. Colombia was exceptional, however, in that favorable coffee prices had permitted living standards to rise more rapidly after 1951 than during the early postwar years.

Persistent government credit expansion imposed a galloping inflation upon a discontented public and checked the importation of developmental goods to the Latin American countries. Since 1951 the cost of living had increased 24% per year in São Paulo, Brazil, and in Chile living costs were 37% higher in June 1955 than they had been the previous January. Mexico's mid-1955 price index was 23% above the previous year, while Perón had increased Argentina's per capita money in circulation by 500% and had expanded production only 3½% during the past decade. Among the major exporting countries affected by decreasing production, only Cuba was free from inflation.

Latin America also suffered from inadequate growth of its export production. Agricultural exports in 1954 had increased only 7% above their prewar level, and mining products, except for oil and iron ore, failed to match developments in other industries. Nevertheless, the countries to the south profited by a partial return to the fa-

avorable terms of trade which they had enjoyed until 1951. The United States, for example, was paying 43 cents a pound for Chilean copper in August 1955, as compared with 30 cents a pound the previous year. The price of coffee, on the other hand, had dropped. With the exception of Brazil, which would recover its trading losses by larger exports, the coffee states were expected to lose 20% to 30% of their exchange receipts in 1955. Latin America's 1954 favorable trade balance with the United States of \$160 million would not be exceeded in 1955. By June 30, 1955, the average annual rate of Latin American exports to the United States was \$3.2 billion, while imports from the latter totaled \$3 billion. This favorable balance fell below the \$500 million needed annually to pay the United States for transportation, insurance, interest, and dividends.

Economic growth requires a continuing high-level investment. Gross capital formation in Latin America in 1954, however, was \$6.4 billion, or 14.8% of the gross product, as compared with \$7.1 billion in 1952. Local sources provided about five sixths of the total, while the rest was supplied by foreign loans. United States private investments in Latin America had doubled in the postwar decade and by January 1955 totaled \$6.5 billion. New investments, however, had decreased from \$500 million in 1951 to \$222 million in 1954. New credits extended by the Export-Import Bank of Washington (q.v.) between January and June 1955 totaled \$167 million, while the International Bank for Reconstruction and Development (q.v.) had earmarked \$14.5 million for electric power in Colombia and \$18 million for irrigation in Peru during 1955. The 1956 budget for United States technical aid to Latin America was increased to \$38 million, while the OAS was administering its own assistance program with a 1955 budget of \$1.5 million.

(See also articles on the countries named in this review.)

MARTIN B. TRAVIS,
*Assistant Professor of Political Science,
Stanford University.*

INTERIOR DECORATION. Once regarded as a purely domestic or residential design problem, interior decoration in 1955 continued to expand into commercial, industrial, and institutional planning and rehabilitation. This "contract work," as it is called, formed a large part of the work done by professional interior decorators. Moreover, a great many architects and industrial designers have undertaken to design for interiors and to select furnishings for their buildings. Interior decoration in 1955 was more concerned with structural and installation problems in connection with air conditioning, lighting, high fidelity, and television, than with superficial improvements like refurbishing slipcovers and lampshades.

In general, furniture, fabrics, wall and floor coverings, lamps, table and house ware, and "domestics" (bath, table, kitchen, and bed linens) have never been so well made nor so widely available at popular prices. Manufacturers of low- and medium-priced furniture, for example, have watched the design tendencies in the custom-made luxury lines and have imitated them on a mass-produced basis wherever possible. In 1955, for the first time, new sources previously available only through decorators, became available through retail stores. Fabrics and furniture, based

on the designs of Frank Lloyd Wright, also reached the public at large through this medium.

A new attitude on the part of the American buying public became significant when buyers realized that furnishings—whether for home, office, or even such staid institutions as banks—are "expendable" or, in other words, suitable for here and now, but replaceable in half a decade as needs and fashions change.

Since, for several decades, ancient and exotic art objects have been used in modern interiors, it was inevitable that traditional interiors be discovered as effective foils for contemporary art objects. In 1955 this "antique" setting for modern art was fully exploited for the first time.

The two dominant styles in interior decoration and furniture during 1955 were the modern and the Early American, except in the expensive "antique" category, which showed a preference for the painted Venetian furniture of the 18th century. The major design directions in furniture were a handcrafted (not rustic) look in mass-produced furniture, not unrelated to an emphasis on American traditions and the influences of Scandinavian and Oriental designs. Out of these three inspirations (the latter occasioning quite an upsurge in lacquer furniture finishes) came an emphasis on regionalism in interior design: Oriental on the west coast, Early American in the Southeast (Williamsburg influence), and Scandinavian in the Middle West (owing to the national origins of many residents of that area).

Walnut, cherry, and mahogany were the most frequently used woods in furniture. The most popular choice of finish was a gray-taupe called "driftwood." Appearing in high-style furniture for the first time in 1955 was a colored glaze or transparent color stain which does not obscure grain. Satin-finished brass continued to be the most commonly used metal in hardware and for furniture leg tips, lighting fixtures, and hard floor covering insets.

Color in 1955 "exploded" in all areas of living, from the family car to the appliances in kitchen and laundry (predominantly pink). Strong sharp shades were avoided in wall colors, with a marked preference for analagous, muted tones, such as a subtle gray-green. The newest colors were "mustard," "spice," and "olive-green," with blues and beiges (especially "faun" and "sandalwood") rising in fashion.

Except for the continued expansion into synthetics and "documentary sources" for traditional fabrics, there was little that was new in 1955. Leather remained prominent as a decorating material. Developed during the year, a printed process was introduced which gives fabrics the appearance of chintz or imported damask and which is also colorfast and scuffproof. Allied with this development was the rise of more patterned, printed, and colorful "domestics" in sophisticated colors like "antique gold," "mustard," and "nutmeg."

There were few changes in curtains, blinds, and draperies during 1955. Vertical Venetian blinds (to repel dust) were first used in residential interiors as well as in offices. A nylon net was developed which permits cutting and hanging without hemming. Informal "café curtains" were made in unexpectedly rich fabrics, like satin, and used with wooden shutters in place of glass curtains and draperies.

Wall-to-wall carpets, which had become unfashionable in recent years, came back into style, promoted by assiduous advertising campaigns.

Cotton squares with adhesive backing to be set in stripes or diaper pattern sections for the "do-it-yourself" method came on the market. Accent rugs remained popular among professional interior decorators and were striking on parquet floors, which are also being revived. Most of these rugs were importations of native rugs from Israel, the Arab Middle East, and Latin America. Handsome vinyl tiles, cork, linoleum (in charcoal gray and pink), and travertine were popular floor coverings in 1955. (See also FURNITURE INDUSTRY; INDUSTRIAL DESIGN.)

JEAN ANNE VINCENT, Associate Editor, "Interiors"; Author of "History of Art," "Makers of Tradition," etc.

INTERNAL REVENUE. See Index entry.

INTERNATIONAL AFFAIRS. See references under the Index entry, *World Politics*.

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT. The International Bank, or World Bank as it is often called, is an international cooperative financial institution owned and operated by its member nations. It makes loans for productive projects in member countries, either to governments or to private enterprises with government guarantee. On June 30, 1955, the bank had 56 members and its subscribed capital was \$9,028 million.

Between June 30, 1954, and June 30, 1955, the bank made 20 loans in 14 countries, totaling \$410 million. This brought the number of loans since the start of operations in 1946 to 124 in 37 countries and raised the gross total of commitments to \$2,324 million.

A loan of \$54.5 million to Australia was to finance a wide range of imported goods and equipment needed for agriculture, transportation, electric power development, and manufacturing.

Two loans totaling \$22 million were made to help finance two hydroelectric power projects in southern and western Austria, which will increase supplies of power both for domestic consumption and for export to Italy and Germany.

To assist in financing four inland waterway projects and the completion of the Baudouin Lock at the Port of Antwerp, a loan of \$20 million was made to Belgium. Completion of these projects will assist the movement of a large portion of Belgium's domestic and foreign trade.

Ceylon received a loan of \$19.1 million to help carry forward the Aberdeen-Laksapana hydroelectric plan, which will supply additional power to southwestern Ceylon, the most productive and populous part of the country.

Three loans, totaling \$25.4 million, were made to Colombia to help in the development of agriculture and electric power, and to extend the Magdalena Valley Railroad another 190 miles, completing the link between central Colombia and Caribbean ports.

A loan of \$11.1 million to El Salvador will help complete an all-weather highway along the Pacific coast. The new road will provide an artery through the entire coastal region, and will serve to help open the country's last major land reserve to cultivation and settlement.

The Bank of Finland borrowed \$12 million which it is relending to companies carrying out projects to expand and modernize wood-products plants and to provide additional supplies of electricity.

In India two loans totaling \$26.2 million are financing the foreign exchange costs of a thermal electric power plant in Bombay and providing



CARL ULLRICH, INC.

The Midwest House, designed by Pipsan Saarinen for "Look Homeward, America" exhibit, shows Scandinavian influence.

the foreign exchange capital for the development of private industry.

The Cassa per il Mezzogiorno, a government agency administering large-scale development projects in southern Italy, received the bank's largest loan during the year, \$70 million, to increase agricultural production, industrial output, and electric power services. The Cassa is carrying out its investment program to raise living standards in Italy's most depressed regions.

The Pacific Railroad of Mexico borrowed \$61 million to purchase equipment for an extensive rehabilitation and modernization program. The railroad serves the northwest coast of Mexico and traverses one of the country's most rapidly growing and important agricultural areas.

A loan of \$25 million was made to Norway for the importation of capital goods required to continue the development of the nation's economy.

Some \$13.8 million was loaned to the Karachi Electric Supply Corporation, Ltd. for the development of electric power in Pakistan. The project will double the electric power available to the metropolitan area of Karachi, where there is an acute shortage.

Three loans totaling \$25.5 million were made to Peru for financing an irrigation project, agricultural development, and construction of a cement plant.

To modernize and expand the railroads, harbors, and road transport in Kenya, Uganda, and Tanganyika, a loan of \$24 million was made to the East Africa High Commission. Improvement in transport is vital to the expanding economy of East Africa.

During the fiscal year 1954-55, the bank added \$368 million to its lendable funds. Of this amount, \$97 million was derived from sales to other investors of parts of the bank's loans. The latter amount nearly equaled the sum so raised in the whole of the eight preceding years

of the bank's existence and was evidence of greater readiness on the part of private capital to enter the field of international investment. The equivalent of \$75 million net was obtained from the bank's borrowing operations. The remaining additions to the bank's lending resources came from releases of the 18% of members' capital subscriptions, loan repayments, and from operations.

The bank continued during the fiscal year 1954-55 to give advice to member governments on forward steps in development. Three general survey missions—to Nigeria, Malaya, and Syria—completed their work during the year, and another—to Jordan—was organized. Other developmental assistance covered specific matters such as agricultural improvements in Japan, scientific and industrial research in Ceylon, and electric power development in Mexico.

W. A. B. ILIFF,
Assistant to the President.

INTERNATIONAL CONFEDERATION OF FREE TRADE UNIONS. In its sixth year, the ICFTU had 111 trade union affiliates in 78 countries, with a membership of some 55 million workers. During 1955 the ICFTU undertook an intensive campaign to organize trade unions in the underdeveloped areas of Asia and Africa in order to: (1) hasten an improvement in wage and living standards; (2) prevent the success of communism and strengthen democratic institutions; and (3) speed the independence of colonial peoples. This campaign, fully supported by the American Federation of Labor, the Congress of Industrial Organizations, the British Trades Union Congress, and the other national labor organizations affiliated with the ICFTU, was one of the major decisions of the ICFTU's fourth biennial World Congress, held in Vienna, Austria, May 20-28, 1955.

In its efforts to foster trade unionism in underdeveloped colonial countries, the ICFTU was successful in helping to establish a national trade union federation in French Morocco. Although it condemned any "resort to violence from whatever source," the ICFTU urged the French government to free Moroccan trade unionists from jail, forced residence, or the threat of deportation. The ICFTU also strongly supported trade unionism in East Africa and asked that its Committee on Forced Labor investigate allegations of detention without trial and of forced labor in Kenya.

In almost all instances where colonial policies have been criticized, the ICFTU spoke out against these policies or undertook investigations of the charges. It fully supported the demand for self-determination by the people of Cyprus, charging that Cyprus "is under foreign occupation, contrary to the will of the people."

Another important event growing out of the World Congress was the convening of an ICFTU Conference on the Peaceful Uses of Atomic Energy. The congress, whose purpose was to develop a labor program on the atomic question, called for the association of free trade unions with the production and use of atomic energy and for the creation of international agreements which would seek to discontinue atomic weapon experiments. It further asked for the "free and unimpeded access of all nations" to fissionable materials to be used for peaceful purposes and for the provision of financial and technical assistance to weaker countries for the development of an atomic energy industry in order to raise living standards. In order to promote worldwide efforts for the peaceful use of the atom, it was sug-

gested that an International Atomic Energy Agency be established as part of the United Nations.

The ICFTU continued its program of opposition to communism and fascism. The World Congress, which is the ICFTU's ultimate authority, equally condemned both types of dictatorship and warned against the admission of Spain into United Nations agencies. It also criticized two international trade secretariats for admitting Yugoslav unions into their ranks, and rejected an invitation by the Communist World Federation of Trade Unions to form a united front. In addition, the ICFTU upheld the necessity of the free world's building its military strength in the face of communism's continued threat to world peace.

As the year 1955 came to a close, the ICFTU Executive Board met in New York City in December, directly following the merger convention of the AFL and the CIO.

ARNOLD BEICHMAN,
*Public Relations Representative, ICFTU
Office in New York.*

INTERNATIONAL CONFERENCES. See **ASIAN-AFRICAN CONFERENCE**; **GENEVA CONFERENCE**; and **Index** entries for specific conferences.

INTERNATIONAL COOPERATION ADMINISTRATION. See **FOREIGN AID PROGRAMS, U.S.**

INTERNATIONAL COURT OF JUSTICE. See **Index** entry.

INTERNATIONAL FINANCE CORPORATION. An affiliate of the International Bank for Reconstruction and Development (IBRD), designed to promote private enterprise and investment in underdeveloped countries. The corporation, which was still in the process of formation in 1955, was to have essentially the same membership as the IBRD but would have its own president and would be financially independent of the larger organization. The IFC can begin operations when a minimum of 30 governments have subscribed a total of at least \$75 million. On Dec. 5, 1955, the United States completed action on its membership. By December 16, five countries (Canada, Iceland, United States, Ecuador, and Egypt) had completed action on membership, with total capital subscriptions of \$39,404,000.

INTERNATIONAL GEOPHYSICAL YEAR. See **Index** entry.

INTERNATIONAL LABOR ORGANIZATION.* The International Labor Organization began the year 1955 with the accession to membership of Honduras, bringing total ILO membership to 70 countries. The organization paid particular attention in 1955 to the launching of a labor-management relations program. The subject was featured in the report by the director-general, David A. Morse, to the annual conference in June, and recommendations on a proposed program were presented to the director-general by David L. Cole, former director of the U.S. Federal Mediation and Conciliation Service.

As well as adopting a resolution authorizing work in labor-management relations, the 38th session of the International Labor Conference, held in Geneva, June 1-23, adopted several international instruments, including a convention calling for the abolition of criminal penalties for breaking employment contracts, and formal recommendations on rehabilitation of "the disabled

* The spelling generally used in American publications appears in this article. In Europe, the British-style spelling, International Labour Organisation, is commonly used.

and on the protection of migrant workers in underdeveloped countries. This brought the total number of conventions adopted since the first conference in 1919 to 104, and the total number of recommendations to 100. The conference adopted a 1956 budget of \$7,395,729.

Meetings in 1955 included 3 sessions of ILO's Governing Body (executive council), the first European Regional Conference of the ILO, and meetings of the Petroleum and Textiles committees, the Committee on Work on Plantations, the Permanent Agricultural Committee, and the Joint Maritime Commission. Committees of experts also met to discuss occupational safety and health, the social aspects of European economic cooperation, and family living studies.

The ILO's technical assistance program, financed both by the ILO's regular budget and by the United Nations Expanded Program of Technical Assistance, continued to offer expert advice on training, manpower, and other problems, at the request of the governments of the less industrially developed countries. (See also LABOR FORCE, WORLD.)

R. PETER STRAUS,

Director, Washington Branch Office, ILO.

INTERNATIONAL LAW. See Index entry.

INTERNATIONAL MONETARY FUND. The Board of Governors of the International Monetary Fund held its Tenth Annual Meeting in Istanbul, Turkey, Sept. 12-16, 1955. At that time, the Board of Executive Directors presented its *Annual Report* recording the activities of the fund for the fiscal year ended April 30, 1955.

In commenting on the world payments situation in 1954-55, the *Annual Report* stated that further progress had been made in the direction of freer and less discriminatory trade, on the basis of freer and increased multilateral payments. Benefits had accrued from the widening freedom in international payments recorded in the previous year. Many countries, especially the European industrial countries, had found it possible to reduce the use of restrictions for balance of payments reasons, and in a few cases virtually to abandon them. Though the advances toward liberalization of trade and convertibility of currencies in the fiscal year 1955 had been less rapid than in the previous year, they had still been of considerable significance. Prospects for continued improvement in the international payments situation were good.

Convertibility of currencies is accepted as one of the principal purposes of the fund, because widespread convertibility would be in the best interests of all the members and indicate the growing strength of the world economy, as well as be an important means for consolidating and increasing that strength.

The fund's general policy regarding the use of its resources was restated in the *Annual Report*, and may be summarized as follows. Unless there are overwhelming reasons for not doing so, the fund will invariably grant members' requests for gold tranche* drawings. Although no comparable principle applies to drawings beyond the gold tranche, more substantial assistance is readily available in case of need to countries pursuing policies consistent with the objectives of the fund. In practice, the fund's attitude toward applications for drawings within the first credit tranche is liberal. Several transactions have been

approved beyond the first credit tranche and, should there be need and substantial justification, drawings on subsequent tranches will be permitted. Finally, the fund's stand-by arrangements have been applied often enough to show that they are valuable to members.

During the year ended Sept. 30, 1955, demands for the fund's resources were very light. The following purchases were made by members for equivalent amounts of their currencies during the 12-month period: Colombia, \$25,000,000; Iran, \$8,750,000; and the Philippines, \$10,000,000. The stand-by arrangement with Belgium continued in effect, and those with Mexico and Peru were renewed. The first two permitted drawings up to \$50,000,000, and the third up to \$12,500,000. No drawings were made during the year under any stand-by arrangement. Sales of currency by the fund since the beginning of exchange transactions, March 1, 1947, through Sept. 30, 1955, included U.S.\$1,000,205,000, £67,800,000, 500,000,000 Belgian francs, and 18,480,000 Deutsche marks, totaling approximately \$1,207,700,000.

Both the number and the total amount of repurchases were much higher than in any previous reporting year. During the 12-month period ended Sept. 30, 1955, repurchases of their currencies by Australia, Austria, Ceylon, Denmark, Ethiopia, Finland, the Federal Republic of Germany, India, Iran, Mexico, Paraguay, and Turkey totaled \$125,641,925. As of that date, total repurchases by members since the beginning of exchange transactions amounted to \$731,810,472. All repurchases were made in gold or dollars.

During the period under review, Nicaragua changed its par value from 5 to 7 cordobas per United States dollar and Pakistan changed its par value from 3.30852 to 4.76190 rupees per United States dollar. Afghanistan, China, Greece, Indonesia, Israel, Italy, Korea, Thailand, and Uruguay have not yet agreed on initial par values with the fund. In addition, some members do not effectively maintain the par values agreed upon. (See also EXCHANGE RATES.)

During the fiscal year 1955, the staff paid numerous visits to member countries for the purpose of engaging in consultations and furnishing technical assistance. These consultations, along with general developments in exchange restrictions are described in the *Sixth Annual Report on Exchange Restrictions*, published by the fund in June 1955. On June 22, 1955, the Executive Board adopted a policy decision which, in part, requested the full collaboration of all members to reduce and eliminate as rapidly as practicable reliance on bilateralism.

Pursuant to a resolution adopted by the Board of Governors on Sept. 28, 1954, Czechoslovakia ceased to be a member of the fund at the close of business on Dec. 31, 1954, because of its failure to supply the fund with required information and enter into consultations with the fund under the provisions of the Articles of Agreement.

On July 14, 1955, and Aug. 26, 1955, Afghanistan and the Republic of Korea became members of the fund, with quotas of \$10,000,000 and \$12,500,000, respectively. As of Sept. 30, 1955, the total membership was 58, and total quotas amounted to \$8,750,500,000.

FRANK A. SOUTHARD, JR.,
U.S. Executive Director.

* A tranche is a component share or portion of a member-nation's drawing quota ordinarily amounting to 25% of the total quota.

INTERNATIONAL TRADE. World trade in 1955 was soaring once again to record levels. Total

exports for the first half of the year were \$80.7 billion on an annual rate basis, as compared with \$77.3 billion in 1954. Influenced by continuing prosperity in the industrialized countries and expanding development programs in most of the underdeveloped areas, the annual total was expected to approximate \$81.5 billion when year-end data became available. The United Nations index of the volume of world exports (current values adjusted for changes in prices) rose from 21% above the level of 1950 in the first half of 1954 to 31% in the first half of 1955.

All areas of the world were participating in the general rise in the volume of trade during 1955, except the nonsterling countries of the Middle East. However, because of lowered world prices for certain foodstuffs, notably coffee, the value of exports from the Latin American republics dropped below comparable 1954 levels. Outstanding increases in trade volume were registered by continental western Europe and the sterling area countries, particularly the United Kingdom and the Middle East.

This generally booming world trade was benefiting the manufacturing countries (western Europe, North America, and Japan) more than the countries producing primary products. In the first half of 1955, world imports from the primary producing countries had risen only slightly above levels of a year earlier, but trade between the manufacturing countries was 14% higher. There was a general increase in world trade in manufactured goods. In the first six months of 1954, exports of manufactures rose 7% above the year before; in the second half, the rate of increase had risen to 8%; and by the first half of 1955, it showed a further gain to 13%.

Among the significant happenings in the world trade picture in 1955 was the extension by the U.S. Congress of the Reciprocal Trade Agreements Act. The new law extended the president's power to negotiate for three years, until June 30, 1958. As a result of the passage of this extension to the act of 1934, a new round of tariff negotiations was scheduled to take place between 25 of the contracting parties of the General Agreement on Tariffs and Trade (GATT) at Geneva, beginning Jan. 18, 1956. (See **TARIFFS**.)

With the growth in stability in the world economy, some further steps were taken during the year toward reducing general trade restrictions and making possible eventual convertibility of all currencies. Many countries also eased still further their restrictions against dollar imports. Dutch imports were practically freed from control

as to source. Even in the United Kingdom, where some dollar restrictions continued to be imposed for balance-of-payments reasons, most raw materials and foodstuffs could now be imported without discrimination.

The current boom in world trade can be linked more or less directly to the simultaneous expansion of the highly industrialized economies of North America and western Europe. In the latter area, in the first half of 1955 the volume of world trade was nearly 70% above prewar levels. Intra-European trade was soaring far above former levels, although Europe had not yet been able to regain its prewar position in all of its overseas markets. European imports from North America increased rapidly during the first six months of 1955, while exports rose less sharply, leaving a rising dollar trade deficit, nearly 75% higher than the level of the first six months of 1954.

Sparking the general upward movement of trade in Europe was the expansion of the German economy. It was certain that the value of the German Federal Republic's foreign trade in 1955 would reach a new postwar peak. Production of capital goods in the first half of 1955 was 25% above the level of a year earlier; consumer goods production rose by nearly 10% in the same period. In the first 7 months of 1955, demands for imports to sustain such large increases in production caused them to soar to levels 32% above those of 1954. There resulted a smaller favorable trade balance, as exports rose, too, but more moderately.

United States.—United States exports in 1955 were expected to exceed those of any postwar year since 1947, possibly totaling more than \$14 billion. The value of domestic exports through the first 8 months of 1955 was \$10.0 billion. This was an 11% gain over the comparable period for 1954. Imports were also rising steadily, following a decline in 1954 as a result of the temporary recession in United States industrial production. In the first 8 months imports were about 7% above 1954 levels for the same period, and were valued at \$7.4 billion. The upturn in industrial activity which came in the autumn of 1954 was quickly followed by a renewed demand for imports in most of the classes of goods which had been depressed.

Increased trade in 1955 produced a United States trade surplus of slightly larger proportions than that of 1954. Despite this, there occurred no deterioration in the gold and dollar reserves of the rest of the world as a whole. The

TABLE 1—WORLD TRADE, BY QUARTERS, 1954 AND 1955
(Billions of dollars)

Country	Annual rate, 1954				Annual rate, 1955	
	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter*
Exports, f.o.b., total.....	73.7	78.4	74.6	82.5	80.4	81.0
United States and Canada.....	17.5	21.7	18.7	20.3	19.3	20.5
Latin American republics.....	8.1	7.7	7.7	7.8	7.6	7.7
Continental western Europe.....	19.9	20.8	20.8	24.3	22.9	23.6
Dependencies of continental western Europe.....	3.1	3.0	2.9	3.3	3.2	3.0
United Kingdom and dependencies.....	11.3	11.3	10.8	11.2	12.4	11.2
Independent sterling countries.....	7.6	7.4	7.1	8.4	8.2	8.2
Rest of world.....	6.2	6.5	6.6	7.2	6.8	6.8
Imports, c.i.f., total.....	75.8	80.3	78.2	83.0	85.2	86.3
United States and Canada.....	15.0	16.8	15.0	15.7	16.3	17.4
Latin American republics.....	6.5	7.0	7.5	7.8	7.1	7.1
Continental western Europe.....	22.3	23.5	22.9	25.9	26.0	26.9
Dependencies of continental western Europe.....	4.0	4.1	4.1	4.4	4.3	4.2
United Kingdom and dependencies.....	12.6	13.0	13.0	13.6	15.3	14.0
Independent sterling countries.....	7.2	7.5	8.0	7.7	8.4	8.3
Rest of world.....	8.2	8.4	7.7	7.9	7.8	8.4

* Partially estimated.

trade deficit of the other countries with the United States was largely financed by increased earnings from offshore United States military purchases, greater international travel by American

TABLE 2—PRINCIPAL COMMODITY EXPORTS AND IMPORTS OF THE UNITED STATES
(Millions of dollars)

Commodity	Year 1954	Jan.-Aug. 1955
Domestic exports, total.....	14,948	10,049
Wheat and flour.....	427	365
Coarse grains.....	177	207
Tobacco and manufactures.....	366	206
Raw cotton.....	780	356
Cotton manufactures.....	265	163
Synthetic fibers and manufactures.....	218	150
Paper and manufactures.....	162	130
Coal and related products.....	312	292
Petroleum and products.....	431	297
Iron and steel.....	510	509
Nonferrous metals and ferroalloys.....	305	210
Metal manufactures.....	341	245
Electrical apparatus.....	594	417
Industrial machinery.....	1,456	1,027
Tractors, parts, and accessories.....	278	199
Motor trucks, new.....	333	235
Passenger cars and chassis, new.....	301	272
Chemical specialties.....	326	257
Medicinal and pharmaceutical preparations.....	244	150
All other commodities.....	4,241	3,060
Imports for consumption, total.....	10,231	7,322
Meat products.....	180	110
Fish, including shellfish.....	209	138
Cocoa or cacao beans.....	252	137
Coffee.....	1,486	851
Sugar, cane.....	409	313
Rubber, crude, including latex.....	262	280
Wool, unmanufactured.....	223	181
Sawmill products.....	252	217
Paper base stocks.....	286	206
Newsprint.....	596	399
Petroleum and products.....	828	659
Diamonds, rough, cut and bort.....	171	141
Iron ore and concentrates.....	119	108
Ferroalloys, ores and metals.....	236	154
Aluminum, including bauxite.....	143	101
Copper.....	361	262
Nickel.....	155	121
Tin.....	175	118
Machinery.....	194	186
Chemicals and related products.....	249	171
All other commodities.....	3,442	2,469

Note: Commodity data exclude "special category" exports, which are restricted for security reasons, totaling \$2,881 million in 1954 and \$1,302 million in January-August 1955.

citizens, and a substantial rise in net foreign loans and nonmilitary grants by the United States government.

The largest increases in United States exports in January-August 1955 took place in trade with western European countries. The prosperity and rising industrial production in that area increased its demand for a wide variety of merchandise from the United States. Most important were steel, copper, metal scrap, machinery, chemicals, and fuels. In addition, a poor harvest on the continent increased the need for larger cereal imports. Rising United States exports to Europe in 1955 further showed the effect of the relaxation of controls over dollar imports which has been carried out in varying degrees by nearly all countries of western Europe.

United States trade with Canada, her principal trading partner, recovered from its lowered level of 1954, as both economies moved strongly ahead after earlier setbacks. United States exports to Latin America declined in 1955, as their earnings dropped, particularly because of the lowered value of coffee and cocoa imports by the United States. There were increased dollar earnings as a result of rising raw material imports into America, but these were not large enough to compensate for lowered food imports. With

other areas of the world—the Near East, Africa, and Asia—United States trade showed increases, although this, of course, was not true of trade with each country. One important exception was Japan, where United States exports dropped sharply from earlier levels. Japanese dollar earnings from United States military expenditures were greatly reduced. Earnings from exports to the United States in January-August 1955 were well above the rate for the comparable period of 1954, and partly offset the lowered military earnings.

A study of the commodity pattern of United States trade in 1955 showed that the rise in exports was concentrated in nonagricultural commodities. Compared with a year earlier, there were large percentage increases in shipments of coal, iron and steel, motor vehicles and parts, nonelectrical machinery, and chemicals. Advances in coal and iron and steel were principally to western Europe. The destinations of the others were widespread. Exports of many agricultural products were also higher, surplus disposal programs of the United States government being a major factor in this rise. Shipments of one of America's major agricultural exports, cotton, dropped significantly.

Among United States imports, those in the nonfood categories showed particular advances. There were major increases in the value of imports of iron ore, crude rubber, petroleum, sawmill products, textile manufactures, and machinery. The booming United States industrial economy accounted for these increases, most of which were accompanied by commensurate increases in quantity. There were some significant price changes, however. Prices of crude rubber rose in unit value from 18 cents per pound in January-August 1954 to 28 cents per pound in the corresponding period of 1955. Imports of coffee and cocoa, two of the major food imports, declined from previous levels. Only 1,578 million pounds of coffee were imported, at an average value of 54 cents per pound through August 1955, compared with 1,620 million pounds at 66 cents per pound in the like 1954 period.

The change in the United States balance of payments during the first half of 1955 reflected the worldwide rise in production. Exports of goods and services to all areas (omitting grants

TABLE 3—TRADE WITH PRINCIPAL COUNTRIES
(Millions of dollars)

Country	Exports, including re-exports		General imports	
	Year 1954	Jan.-Aug. 1955	Year 1954	Jan.-Aug. 1955
Total.....	15,077	10,137	10,207	7,359
Belgium-Luxembourg.....	266	204	192	147
Brazil.....	453	164	682	357
Canada.....	2,766	2,076	2,375	1,711
Colombia.....	341	214	507	265
Cuba.....	428	292	401	288
France.....	332	234	157	127
Germany, West.....	491	384	278	225
Italy.....	302	229	142	113
Japan.....	678	409	279	263
Mexico.....	628	448	328	286
Philippines.....	324	225	260	197
United Kingdom.....	688	573	501	396
Venezuela.....	531	343	504	384
Other countries.....	3,968	3,040	3,601	2,600
"Special category" exports.....	2,881	1,302	...	...

Note: Country data exclude "special category" exports.

for military supplies and services) rose from \$8.6 billion in the first half of 1954 to \$9.5 billion in the first half of 1955. Imports also rose—from \$8.0 billion to \$8.5 billion between the two half-

TABLE 4—CANADIAN TRADE BY PRINCIPAL COMMODITY GROUPS
(Millions of Canadian dollars)

Commodity	Exports of Canadian produce				Imports for consumption			
	Year 1954		Jan.-Sept. 1955		Year 1954		Jan.-Aug. 1955	
	Total	U.S.	Total	U.S.	Total	U.S.	Total	U.S.
Total	3,876	2,313	3,146	1,865	4,093	2,961	3,012	2,225
Agricultural and vegetable products	803	213	547	100	540	251	357	173
Animals and animal products	270	184	190	134	85	53	67	41
Fibers, textiles and products	21	11	15	7	333	181	252	131
Wood, wood products and paper	1,378	1,107	1,131	903	166	150	124	113
Iron and products	296	164	298	169	1,323	1,144	1,045	934
Nonferrous metals and products	709	384	609	324	357	262	239	176
Nonmetallic minerals and products	146	99	143	104	599	334	410	213
Chemicals and allied products	161	86	152	82	221	190	165	142
Miscellaneous commodities	92	65	61	42	469	396	353	302

year periods. In addition to changes in merchandise trade, these figures reflected sharp rises in military and travel expenditures abroad. The latter was a continuation of the rising trend evident for several years. United States military expenditures in January-June 1955 were \$100 million greater than in the corresponding months of 1954. Among the changes in capital movements was a fall of nearly 50% in private net capital going abroad, coupled with a change in government capital movement from a net inflow to a net outflow. These various balance-of-payments shifts allowed an accumulation of \$766 million in gold and United States dollars by foreign countries in the first half of 1955, about the same as in the first half of 1954.

The payments went more largely than a year earlier to continental western Europe and its dependencies, and to the nonsterling areas of Asia and Africa. The higher payments to Europe were accounted for by increasing American military expenditures, larger United States grants, and a larger capital inflow. A worsening in the position of Latin America vis-a-vis the United States was due principally to a decline in United States imports; dollar receipts by Latin America from third countries, however, helped to reduce the fall of gold and dollar receipts there. Compared with a year earlier, the positions of both Canada and the sterling area deteriorated, although the sterling area continued to receive a net payment.

Canada.—The trade of Canada showed a strong recovery in 1955 from its depressed 1954 levels. Both exports, totaling Canadian \$3.1 billion in the first nine months, and imports, valued at C\$3.0 billion in the first eight months, were at their highest peacetime levels. Each was about 12% above the level of 1954.

With the exception of food products, especially wheat, exports of all major commodities in January-September 1955 were well above those for the corresponding period of 1954. Increases in exports of newsprint paper, lumber, pulp, nonferrous metals, iron ore, petroleum, and chemicals more than offset the decline in grain exports. Clearances of wheat for overseas countries through October 1955 were about 155 million bushels, compared with 163 million in the same period of 1954 and 246 million in 1953.

Canadian imports were especially buoyant as a result of the demands of her expanding economy. Following the inventory recession of 1954, Canada's recovery had been so vigorous that industrial output in the latter part of 1955 was exceeding that of the previous peak of midsummer 1953 by 8%. This resulted in increased import requirements for foodstuffs, raw cotton and wool, building supplies, automobiles, aircraft, and electrical equipment.

Rising trade levels produced an increased trade deficit, totaling C\$232 million for the first 9 months of 1955. A major portion of this deficit was with the United States. In this connection, traders were especially interested in the fact that during October the United States dollar rose to a virtual par with the Canadian dollar, after almost three years of being at a discount amounting at times to 3 or 4 cents. This changed relationship was interpreted as being due largely to United States liquidation of Canadian securities, however, and not to the rising trade deficit with the United States. No loss of reserves was necessarily involved in this adjustment; at the end of September, Canadian reserves were at the relatively high level of U.S.\$1,937 million.

Especially noteworthy in the pattern of Canada's trade in 1955 was a 26% improvement in her exports to her second major partner, the United Kingdom. Losses in that market incurred in 1953 and 1954 were regained. This development was particularly significant because wheat exports to Britain, although improved, were still well below previous levels. To compensate, there were large increases in exports of nonferrous metals, forest products, and other agricultural products. Imports from Britain were slightly reduced, compared with January-September 1954; this was thought to be due, in large part, to the British dock strike.

Trade with the United States for the 9 months set a new high record, as the United States continued to be Canada's dominant trading partner, taking 59% of her exports and being the source of 74% of her imports. There were substantial increases in exports to the United States of asbestos, fertilizer, nonferrous metals, lumber, and iron ore; but agricultural products, particularly oats and barley, suffered a decline. Canada purchased more in the United States in every major commodity group than in 1954.

Latin America.—The first half of 1955 was a period of booming trade for certain republics of Latin America, but an unsatisfactory period in overseas trade for others. Among those major traders in the former group were Cuba, Mexico, and Venezuela. After a poor year in 1954, Cuban exports rose during the first half of 1955. Imports also increased, bolstered by a larger national income and increased business confidence. Following a rather depressed state after devaluation of the peso in April 1954, the Mexican economy recovered strongly in the early months of 1955. The value of exports was increased by 24% over 1954, while the trade deficit for the first 6 months was cut in half from the level of a year earlier. Nevertheless, it still totaled about \$100 million. American tourist trade, which was especially high in 1955, helped to bring about a balance on current account. Mexico's gold and dollar reserves rose

from a low, following devaluation, of U.S.\$100 million to an all-time high of U.S.\$372 million at the end of November 1955. The economy of Venezuela continued to prosper, as world demand for petroleum, her primary export, remained strong and imports continued without control. As in

TABLE 5—TRADE OF PRINCIPAL LATIN AMERICAN REPUBLICS
(Millions of dollars)

Country	Year	Annual rates 1955	
	1954	Jan.-Mar.	*Apr.-June
<i>Exports, total</i>	7,812	7,618	7,690
Argentina.....	1,062	1,060	n.a.
Brazil.....	1,562	1,191	1,259
Colombia.....	657	510	508
Cuba.....	539	629	n.a.
Mexico.....	563	647	650
Venezuela.....	1,690	1,871	n.a.
<i>Imports, total</i>	7,207	7,095	7,142
Argentina.....	955	1,055	n.a.
Brazil.....	1,634	1,404	1,241
Colombia.....	672	724	682
Cuba.....	533	583	n.a.
Mexico.....	789	738	767
Venezuela.....	921	924	n.a.

* Partially estimated. n.a. = not available.

Cuba and Mexico, the United States was by far the most important source of imports and destination for exports for Venezuela.

Of the other Latin American republics, 3 major trading countries were experiencing special trade difficulties in 1955. Argentine earnings from cereal exports were sharply cut—in the case of corn, by drought and consequent lowered supplies for export; and in the case of wheat, by reduced world demand and falling prices. At the end of August, 40% of the wheat available for export still remained unsold. In order to strike a balance in international payments, the only apparent alternative to cutting essential imports was to draw down reserves of foreign exchange which had been slowly accumulated through two years of tight import restrictions.

Declines in coffee and cotton exports from Brazil in the first half of 1955 brought about a \$70 million trade deficit, where normally a trade surplus paid for a deficit of invisibles in her balance of payments. The situation was so serious that Brazil found it necessary to obtain a \$75 million line of credit from the United States during the year to help meet current obligations.

Colombia was also suffering from an unfavorable trade balance as a result of the sharp drop in coffee prices. In an effort to meet this situation, a series of new import and exchange restrictions was issued early in the year. These had achieved a noticeable effect on trade by the middle of 1955, and since then, Colombia appeared to be making steady gains toward reaching a trade balance.

United Kingdom.—British trade for the first 9 months of 1955 was well above the level of the previous year. Imports rose to £2,884 million, or 15% above the like 1954 period, and domestic exports totaled £2,123 million, about 6% more than in 1954. The trade deficit averaged nearly £75 million per month, compared with £47 million a month in 1954. British export prices showed little change, and the increased value was therefore attributable almost entirely to greater trade volume. Prices of imports, however, rose in 1955 as compared with 1954, so that the increase in value represented only an 11% increase in volume. All of these comparisons were affected to some extent by the overspill into 1955 of trade delayed by the October 1954 dock strike

and the general retardation of trade caused by the more serious May-July 1955 dock strike.

Exports of many kinds of commodities rose in the first 9 months of 1955 over shipments in the comparable period of 1954. Noteworthy among them were machinery, both electric and non-electric, commercial vehicles, aircraft, ships and boats, nonferrous metals, iron and steel, and chemicals, especially synthetic detergents, pigments, medicines and plastic materials. There were important declines in exports of cotton and synthetic fiber goods, coal, and petroleum.

Even more substantial were increases in British imports. Of a total rise of £372 million during the 9 months of 1955, £153 million was accounted for by manufactured goods, and over half of this was in the iron and steel and nonferrous metals groups. Greater quantities of imports of black steel sheet, ingots, and other crude steel forms were responsible for much of the rise. The increase in the price of copper, and to a lesser extent, in lead and zinc, was the prime cause of the greater value of nonferrous metal imports. There was also a substantial rise in British food imports. The major portion of this was wheat and animal feed, but striking increases also occurred in imports of fruits, vegetables, and meats.

The area distribution of British trade changed in some respects from that of 1954. Trade with the sterling area was particularly affected by the dock strike, and had not entirely recovered by the end of the third quarter of 1955. New restrictions on imports by Australia adversely affected British trade with that area. Trade with the nonsterling world showed large increases, and reflected the high level of economic activity in many parts of the world, as well as the progress made in Europe and elsewhere in relaxing trade restrictions. Arrivals from the dollar area also registered big increases, and exports to that area were about 15% above the level of the year before. Whiskey, wool goods and fabrics, copper, and electrical goods

TABLE 6—UNITED KINGDOM TRADE WITH PRINCIPAL COUNTRIES, 1954 AND JANUARY-SEPTEMBER 1955

(Millions of pounds sterling)

Country	Imports		Exports	
	Year 1954	Jan.-Sept. 1955	Year 1954	Jan.-Sept. 1955
Total.....	3,379	2,884	2,675	2,123
<i>Sterling countries:</i>				
Australia.....	237	201	278	215
India.....	149	116	115	94
Ireland.....	103	72	101	80
Kuwait.....	135	98	10	5
New Zealand.....	177	143	126	102
Nigeria.....	108	79	49	42
Union of South Africa.....	84	61	156	127
<i>Nonsterling countries:</i>				
Argentina.....	81	64	23	18
Belgium.....	53	45	55	44
Canada.....	273	258	132	102
Denmark.....	125	93	82	55
Finland.....	59	55	32	31
France.....	97	99	64	51
Germany, West.....	78	65	61	55
Netherlands.....	110	97	100	79
Norway.....	42	40	69	55
Sweden.....	117	102	93	69
United States.....	283	302	149	129

sold especially well in the United States. Trade with Canada, depressed during 1954 and early 1955, appeared to be on the upswing toward the end of the year. On the continent of Europe, increasing competition from Germany was causing Britain to lose part of her share in expanding European trade. Nevertheless, trade with the continent was at high levels.

The United Kingdom balance of payments on current account showed a small surplus of £17 million in the first half of 1955, a deterioration from the first half of 1954, when there was a surplus of £141 million. The change was more than fully accounted for by a swing in the British position with nonsterling countries from a surplus of £41 million to a deficit of £135 million between the two periods. The deficit with the dollar area rose from £3 million in January-June 1954 to £100 million in January-June 1955. Despite this, gold and dollar reserves of the sterling area fell by only £29 million in the first 6 months of 1955, due principally to the net surplus of the rest of the sterling area with nonsterling countries and the net inflow of capital into the United Kingdom. A further deterioration in Britain's balance of payments was, however, expected when the accounts for the second half of 1955 were complete.

(See also FOREIGN AID PROGRAMS, U.S.; TARIFFS; and articles on the countries named herein.)

FRANCES L. HALL,
Chief, Foreign Trade Section, International
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INTERSTATE COMMERCE COMMISSION. This independent federal administrative agency, created in 1887, regulates approximately 21,000 common and contract carriers by rail, road, water, or oil pipeline, and freight forwarders, and also, as to safety, many thousand interstate private and exempt for-hire motor carriers. It is composed of 11 members appointed by the president, Commissioner Charles D. Mahaffie was succeeded by Everett Hutchinson, and Commissioner Hugh W. Cross succeeded Commissioner Richard F. Mitchell as chairman for the year ending June 30, 1956. After Chairman Cross' subsequent resignation from the commission, Commissioner Anthony F. Arpaia became chairman on Jan. 1, 1956, for the calendar year 1956.

The Defense Transport Administration was abolished and its remaining functions were transferred to the commission, under a Transport Mobilization Staff directed by Commissioner Owen Clarke, former defense transport administrator.

The railroads petitioned the commission to make permanent the last general increase (15%) in rail rates, authorized in stages in 1951 and 1952 and set to expire Dec. 31, 1955. Competitive and other conditions have caused the actual postwar average increase to be considerably less than the 79% in cumulative authorizations. Water carriers and freight forwarders were permitted the same increases. Motor carriers of general freight in various areas received authority during the year to advance their rate levels.

Floods, droughts, and labor disturbances affected traffic movements and required remedial measures by rail and other carriers. Beginning in May 1955, freight car shortages reached serious proportions. The building of freight cars fell to an extremely low level, while retirements continued at a substantial pace. Five service orders were issued to alleviate the car supply. Motor facilities were in ample supply, and there were substantial additions to the equipment of inland waterway carriers.

All forms of transportation continued to advance technologically. In the first six months of 1955, diesel locomotives accounted for 86% of road freight and 88% of road passenger service. Modern terminals and yards, improved equip-

ment and facilities, and more efficient operating practices came into use (see RAILROADS). Highway improvements were carried forward at a high level (see HIGHWAYS).

Rail ton-miles were 11% higher in the first half of 1955 than in the same period of 1954, and freight revenue rose 7%. Rail passenger-miles were 3% lower in the first six months of 1955 than in those months of 1954, and rail passenger revenue was down 4%. Net income (after income taxes) of Class I railroads was up 80% in a half-year comparison. Tons handled by the larger intercity motor carriers in the first quarter of 1955 were 12.4% higher than in the first quarter of 1954, operating revenue was up 13.7%, and net income (after income taxes) increased 149.1%. The traffic and earnings picture varied for other carriers. Certain branches of water transportation continued to face very burdensome costs. Traffic on inland waterways except the Great Lakes showed an overall increase (see INLAND WATERWAYS). Pipeline traffic expanded.

Railroads showed a continuing interest in expanding their "piggy-back" services—the transportation of loaded highway trailers on flat cars. Some roads instituted such service for the first time, using specially designed equipment to handle the trailers.

In the year ended June 30, 1954, carriers regulated by the commission had total revenue of \$17.1 billion. Railroads accounted for 60.4% of the total revenue, compared with 62.5% in the year ended June 30, 1953. Motor carriers of property accounted for 28.1%, compared with 26.5% in the previous year.

The commission again postponed, to March 1, 1956, the effective date of its order proscribing trip-leasing of motor vehicles as to certain specialized carriers. Legislation to set aside the trip-leasing ban was pending in Congress.

RICHARD F. MITCHELL,
Commissioner.

INVENTIONS. See PATENTS and articles on the physical sciences, major industries, and commodities.

INVESTIGATIONS, Government. See the Index entry, *Government Corruption and Investigations*.

INVESTMENTS. For foreign investments, see FOREIGN INVESTMENTS; and for other investments, see the Index entry, *Investments*.

IOWA. Central state, United States; admitted to the Union, Dec. 28, 1846. The "Hawkeye State" ranks 24th in area and 22d in population (1955) among the 48 states.

Area and Population.—Area: 56,290 square miles (land, 56,045; inland water, 245), divided into 99 counties. Population: (1950) 2,621,073; (est., July 1, 1955) 2,690,000. Urban places with 1950 populations above 10,000 are as follows:

Ames.....	22,898	Fort Madison.....	14,954
Boone.....	12,164	Iowa City.....	27,212
Burlington.....	30,613	Keokuk.....	16,144
Cedar Falls.....	14,334	Marshalltown.....	19,821
Cedar Rapids.....	72,296	Mason City.....	27,980
Charles City.....	10,309	Muscatine.....	19,041
Clinton.....	30,379	Newton.....	13,572 ²
Council Bluffs.....	45,429	Oskaloosa.....	11,124
Davenport.....	74,549	Ottumwa.....	33,631
Des Moines.....	177,965	Sioux City.....	83,991
Dubuque.....	49,671	Waterloo.....	65,198
Fort Dodge.....	25,115		

¹ Capital. ² Special census, 1954.

Executive.—Chief State officers in 1955:
Governor: Leo A. Hoegh (Republican)
Lieutenant Governor: Leo Elthon
Secretary of State: Melvin D. Synhorst
Treasurer: M. L. Abrahamson
Attorney General: Dayton Countryman
Supt. of Public Instruction: J. C. Wright

Constitution and Judiciary.—The present constitution went into effect in 1857. The Supreme Court comprises nine justices; chief justice in 1955 was Theodore C. Garfield.

Legislature.—The General Assembly (Senate, 50 members; House of Representatives, 108) meets in odd-numbered years commencing the second Monday in January.

The 1955 session appropriated approximately \$136.6 million a year for the 1955–57 biennium, including special funds of \$1,173,000 to the State Conservation Commission for water projects and \$5,220,750 for the renovation of institutions of the State Board of Education. Tax legislation increased the sales and use tax from 2% to 2½%, except on new cars and accessories, and extended it to cigarettes, beer, and gross receipts of bowling alleys; state income tax rates by about 7%; taxes on gasoline from 5 to 6 cents a gallon and on diesel fuel from 6 to 7 cents; and the corporation tax from 2% to 3%. Additional legislation established a legislative research bureau; approved the Uniform Reciprocal Enforcement of Support Act; raised salaries of Supreme Court judges from \$10,000 to \$12,000 and of district court judges from \$8,000 to \$10,000; increased workmen's compensation payments from \$28 to \$32 a week and unemployment compensation benefits from \$26 to \$30, extending the latter to 65,000 additional workers; approved a \$500 tax exemption for Korean War veterans and extended soldiers' preference to them in public employment; and repealed the 100-year-old Sunday "blue laws."

Finances.—State treasury receipts (1954–55 fiscal year), \$115,153,232; expenditures, \$136,535,561; treasury balance, \$39,973,401; long-term indebtedness (June 30, 1954), \$29,205,000.

Taxation.—State tax revenue (1954–55 fiscal year): \$197,850,000, including \$125,952,000 from a 2½% general sales tax and selective sales taxes; \$42,880,000 from licensing; and \$21,900,000 from individual income taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 94 national banks had \$922,513,000 in assets, \$667,771,000 in demand deposits, and \$188,618,000 in time deposits; the state's 562 other banks had \$1,911,830,624 in assets, \$1,221,678,620 in demand deposits, and \$530,817,219 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 18, inclusive. Operating expenditures of \$126,393,225.71 (\$272.47 per pupil) for public elementary and

IOWA SCHOOL STATISTICS, 1953–54

Type of school	No.	Teachers	Students
Public elementary (k–8).....	6,009	15,987	399,477
Public senior high (9–12).....	904	8,548	123,477
Private and parochial elementary and secondary schools..	381	2,615	67,034
Public junior colleges.....	16	297	6,374
State teachers colleges.....	1	243	3,069*
State colleges and universities..	2	1,701	18,572*

* Figures are for 1954–55.

secondary education in the 1953–54 fiscal year comprised \$106,781,962.33 from local school districts, \$18,898,000 from the state, and \$713,263.38 from the federal government. Expenditures for construction and improvements totaled \$40,058,661.72. Teachers' salaries averaged \$3,233.82 (elementary school teachers, \$2,264.10; high school teachers, \$3,667.21).

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institu-

IOWA WELFARE INSTITUTIONS

(As of July 31, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic..	2	3,330
Hospitals for the mentally ill.....	4	5,093
Sanatoriums for the tubercular.....	6	616 ¹
Schools for the blind.....	1	161 ²
Schools for the deaf.....	1	338 ³
Hospitals for crippled children.....	1	171 ¹
Homes for dependent children.....	2	400
Soldiers and sailors homes.....	1	368
Training schools for delinquent boys.....	1	236
Training schools for delinquent girls.....	1	63
Reformatories for males.....	1	870
Reformatories for females.....	1	177
Prisons.....	1	1,276

¹ As of Jan. 1, 1955. ² Sept. 7, 1955. ³ Oct. 25, 1955.

tional costs) in the 1954–55 fiscal year totaled \$43,028,240, including \$32,564,894 for old-age assistance, \$9,102,601 for dependent children, and \$1,360,744 for the needy blind; a monthly average of 50,312 persons received public assistance. Expenditures for health and welfare institutions totaled \$10,119,611.09; for correctional and penal institutions, \$2,886,932.99.

Labor Force.—The labor force (July 15, 1955) numbered 1,108,120, including 330,095 agricultural workers. Nonagricultural employment was 753,105, and for the 12 months ending July 1955 averaged 746,829. There were 24,520 unemployed workers on July 15, 1955, and the state paid \$9,123,704 in unemployment compensation claims to workers during 1954.

Manufacturing.—Establishments numbering 3,736 in 1954 had 165,000 employees who received \$637,000,000 in salaries and wages. Value added by manufacture totaled \$1,179,513,000. In 1953, investment in new plant and equipment amounted to \$64,614,000. Earnings of production workers in manufacturing averaged \$71.01 for an average work week of 40.4 hours in 1954 and \$74.31 for 40.9 hours during the first half of 1955.

MAJOR IOWA MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salary and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
All manufactures.....	166,274	\$642,766	\$1,179,513
Food and kindred products.....	48,374	185,387	353,913
Nonelectrical machinery.....	37,237	158,962	281,424
Printing and publishing.....	9,852 ³	36,038*	55,385*
Fabricated metal products.....	7,686	29,805	51,701
Stone, clay, glass products.....	5,601	20,762	51,569
Chemicals and allied products.....	5,869 ³	23,090*	50,977*
Electrical machinery.....	9,139	31,070	49,413
Rubber products.....	3,889	15,746	33,204
Transportation equipment.....	4,567	18,952	25,882

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work ³ 1952 figures.

Mining.—Iowa ranked third among the states in the production of gypsum in 1953, and 33d among the states in the total value of its output, with 0.36% of the United States total.

IOWA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.).....	9,111,358	\$23,330,177
Clays.....	913,413	981,353
Coal.....	1,388,006	5,262,373
Gypsum.....	1,151,692	2,939,654
Peat.....	17,233	...
Sand and gravel.....	10,385,322	6,400,827
Stone ¹	10,715,078	13,215,352
Other minerals.....	...	...
Total.....	...	\$52,001,000 ²

¹ Excluding that used in making cement. ² Includes non-metallic minerals and excludes clays used for cement. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$1,067,829,000, and for the full year 1954 comprised \$1,844,090,000 from livestock and livestock products, \$452,242,000 from crops, and \$9,538,000 from government payments. Receipts from principal crops and livestock in 1954 included: hogs, \$905,972,000; cattle, \$605,165,000; corn, \$274,457,000; dairy products, \$142,221,000; soybeans, \$111,451,000; eggs, \$107,677,000; and oats, \$25,431,000.

The state's 192,933 farms (34,044,533 acres; harvested cropland, 22,444,290) had an average of 176.5 acres and \$36,077 in value of land and buildings per farm in 1954. There were 168,414

farms with telephones and 188,073 with electricity. Livestock on farms on Jan. 1, 1955, included 6,279,000 cattle, 1,307,000 sheep, 12,048,-000 hogs, and 30,378,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, 340,564 family and hired workers were engaged in farming.

IOWA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Corn (1,000 bu.)	540,971	564,462	495,282
Flaxseed (1,000 bu.)	872	284	225
Hay (1,000 tons)	5,763	6,805	7,088
Oats (1,000 bu.)	205,027	226,500	258,210
Popcorn (1,000 lb.)	52,661	43,400	32,200
Potatoes (1,000 bu.)	1,635	600	750
Sorgo sirup (1,000 gal.)	313	312	362
Soybeans (1,000 bu.)	35,438	56,154	40,774
Wheat (1,000 bu.)	4,019	2,096	3,300

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$61,780,678.20, and newly completed construction and reconstruction aggregated 1,636 miles.

Highways and roads on Dec. 31, 1954, totaled 101,339 miles (79,894 surfaced). Registered *motor vehicles* numbered 1,252,680 on Nov. 30, 1954, including 924,066 passenger cars. There were 13 *railroads* (1954) operating 8,515 line miles, and in 1955, 3 regularly scheduled *airlines* and 171 *airports and airfields* (94 commercial and municipal, 2 military, and 85 private).

Communications media (1954) included 60 *radio stations* and 12 VHF operating *television outlets*; 46 daily *newspapers* (circulation, 925,629) and 392 other newspapers (circulation, 614,022); and (Jan. 1, 1955) 192,615 business and 715,782 residential *telephones*.

Principal Events, 1955.—Leo A. Hoegh was inaugurated as governor on January 13. Leo Elthon, who had filled out the unexpired term of Gov. William S. Beardsley (killed in an automobile accident in November 1954, and the first Iowa governor to die in office), resumed his duties as lieutenant governor.

Among other actions in its 1955 session, the General Assembly voted a 0.5% increase in the general sales tax, raising it to a 2.5% level for two years. It also increased the income tax and advanced the gasoline tax by 1 cent per gallon. (See also above, *Legislature*.)

The assembly also created a Toll Road Authority with provisions that bonds to cover the cost of a new toll road would be sold and construction would be begun after either Illinois or Nebraska had completed financial arrangements for a similar superhighway to the Iowa border. Plans call for the Iowa toll highway to be 298 miles in length, to cost \$180 million, and to link Davenport on the Mississippi River with Council Bluffs on the Missouri.

During 1955 an extensive road-widening program under the aggressive leadership of Governor Hoegh made considerable advance, and primary road construction was also moving rapidly ahead. By late 1955, 338.74 miles of highways, using both bituminous and portland cement, had been built.

Receiving nationwide notice was the visit to Iowa in July of a 12-man delegation of Soviet farm experts. Meanwhile, as part of a 15-man American delegation, a group of Iowa farmers made an exchange visit to the Soviet Union.

The heaviest one-minute rainfall on record in the United States fell 11 miles north of Jefferson on July 10. For 1.4 minutes, precipitation was at the rate of .69 of an inch per minute. The

previous record of .65 of an inch had been set in California 30 years earlier.

Nevertheless the summer of 1955 was the driest in Iowa since 1936. Corn and bean yields were reduced by at least 50% in some areas, although other sections suffered only slightly, if at all. The corn crop in 1955, which exceeded in value that of any other state, was valued at \$693,-395,000, compared with \$818,470,000 in 1954. Other aspects of the state's economic life were accelerated during 1955 as 65 new industrial establishments began operations in the state.

Principal Events by: CLAUDE R. COOK,
Curator, Iowa State Department of History and Archives.

IRAN. A constitutional monarchy in southwestern Asia, Iran is bounded on the north by the Soviet Union, on the west by Turkey and Iraq, and on the east by Afghanistan and Baluchistan. Area (est.) 629,343 square miles; pop. (U.N. est., April 1, 1955), 21,037,000. Principal cities and populations (1949 est.): Teheran (Tehran), the capital (and district), 1,010,000; Tabriz 272,000; Abadan and Khorramshahr, 201,-000; Isfahan, 192,000; and Meshed, 191,000.

Living Conditions.—The majority of the people are Shi'ite Moslems of the Iranian language group, Persianized Turkic elements, comprising perhaps 35%, live mainly in the north. Nomadic tribes, numbering between 2 and 3 million, include the Kurds, Lurs, Bakhtiariis (Bakhtiariis), Qashqais, and Shah Savan; during the last decade many of these have been more or less autonomous within their territories. About 3 million live in cities and towns of over 20,000 population. The bulk of the remainder are farmers or peasants living in about 45,000 villages. The vast majority have a relatively low living standard. An estimated 85% of the population is illiterate. About nine tenths of the peasants are tenant farmers, the great majority of which are in debt to their landlords, many of whom are absentee. Rural areas have benefited little from modernization programs to build roads, establish schools, and extend health facilities. The infant mortality rate is appalling, said by many to be as high as 50%. In recent years great progress has been made in fighting malaria, and its elimination is almost within sight; but dysentery, trachoma, tuberculosis, and similar diseases are still widespread.

Government.—Executive power rests in the shah (Mohammed Reza Pahlevi, acceded 1941) and his Council of Ministers, which is responsible to Parliament. The lower house, or Majlis, consists of 136 deputies elected every two years. The Senate, consisting of 60 members (30 appointed by the shah), first came into existence in 1950. Hussein Ala is the present prime minister; he succeeded Gen. Fazlollah Zahedi on April 7, 1955.

Political parties in the Western sense do not exist. The Communist-led Tudeh (Masses) Party, which has been outlawed since 1949, still operates underground, although not so boldly or so effectively as previous to 1954. The Iran Party, chief in the nationalistic coalition under ex-Premier Mohammed Mossadegh, still exists but is in eclipse under the present regime. Most of the so-called parties of the country consist mainly of shifting parliamentary cliques formed around individual leaders.

The 18th Majlis was opened on March 18, 1954, and will sit for two years, by which time a new body should have been elected to succeed it. Under prevailing social and political conditions, elections offer little opportunity for expression of the popular will. Most of the candidates are powerful landlords or tribal chieftains; and, to a large extent, peasant votes are cast in a block, generally by the landowner. The elections for the current Majlis were notoriously "rigged" by the previous government of General Zahedi.

Education.—Education is free and compulsory between the ages of 7 and 13, according to law. Actually large sections of the country lack schooling. In 1949 there were 2,401 primary schools, 320 high schools, some maktabas (religious schools), technical schools, and schools for adults. The University of Teheran enrolls approximately 8,000 students.

Religion.—The official religion of Iran is the Ithna 'Ashariyah Shi'i sect, which recognizes 12 imams, or spiritual successors of the Prophet Mohammed. The Sunni Moslem sect, numbering some 850,000, is widespread among the Kurds. There are small minorities of Nestorian, Gregorian, Roman Catholic, and Protestant Christians.

Defense.—The Iranian Army reportedly numbers about 120,000. It is top-heavy with higher officers, many

of whom had been retired by ex-Premier Mossadegh in 1953, but returned to their posts of duty and influence during the Zahedi regime. A United States military mission has advised the army since 1942; and American weapons, supplied under the Mutual Security Program, will probably be increased with Iran's adherence to the Baghdad Pact (see below, *Principal Events, 1955*).

Finance.—For years there has been no annual budget; appropriations are voted by Parliament on a month-to-month basis. The unsound state of government finances was improved during 1955 by the restoration of oil royalties following the reactivation of the petroleum industry under the international consortium formed in April 1954.¹ A program of economic development, suspended during the oil nationalization dispute, 1951–54, has been aided by substantial loans from the United States (see below, *Principal Events, 1955*). No basic improvement in government finance and economic development can be expected without modernization of the country's tax structure and civil service, which no recent government has had the courage to tackle in any realistic and basic fashion.

Economic Development.—With the reactivation of the petroleum industry in Iran in October 1954, it was agreed that over the next five years \$500 million from the oil royalties should be earmarked for the economic development of the country. During 1955, in addition to outright grants-in-aid amounting to \$42,300,000, there were two loans made to Iran, the first by the Export-Import Bank for \$53 million, and the second by the Foreign Operations Administration (FOA) for \$32 million (at 2.41% interest, payable in 25 years). These sums fulfilled the obligations agreed to by the United States during 1954. Considerable dismay was evident in Teheran when in July the Point Four Program funds were reduced and about 2,000 employees in that organization were dismissed.

Agriculture.—The following estimates, drawn mostly from the U.S. Department of Agriculture's *Foreign Crops and Market* reports, indicate production of the main crops in 1954 (with figures for 1953 in parentheses): wheat, 82,500,000 bushels (78,000,000); rice, 580,000 tons (550,000); barley, 37,850,000 bushels (37,700,000); cotton, 57,500 tons (50,135); almonds, 8,800 tons (6,600); dried dates, 155,000 short tons; wool, 19,300 tons (18,750). Other crops of importance include sugar beets, apricots, tobacco, pistachio nuts, and opium. Livestock comprises chiefly sheep (17,750,000 in 1954), goats, and cattle (about 5,000,000 in 1953).

Industry.—Aside from petroleum, Iran's most important industry is rugmaking, which engages about 100,000 persons, or nearly a third of the country's industrial force. Other light industrial products include textiles, silk, jute, cement, cigarettes, refined sugar (largely from beets), canned fruit, matches, cardboard, soap, vegetable oils, and small arms ammunition.

Minerals.—Although Iran's natural resources have never been thoroughly surveyed, known deposits include coal, chrome, iron ore, copper, lead, sulfur, antimony, nickel, and red oxide. Coal production is relatively small, little more than 100,000 metric tons a year. Until nationalized on May 2, 1951, Iran's oilfields were one of the world's major sources of petroleum; the refinery at Abadan was the world's largest. Operations of the industry, including the refinery, were begun under a new agreement with an international consortium after Oct. 31, 1954. During the first ten months of 1954 crude production averaged 1,581,000 metric tons, and for the last two months, 1,355,000 metric tons. During the first five months of 1955 production averaged 1,103,800 metric tons, which was still less than half the monthly average (2,668,000) during

1950, the last full year before nationalization.

Foreign Trade.—The principal exports, with percentage figures for the ten months ending Jan. 20, 1955, were: cotton (21.4), dried fruits (14.9), rugs and carpets (12.3), wool (8.8), rice (7.6), and petroleum (7.5). In 1951 petroleum had led the list. The chief imports were: sugar (16.4), vehicles (10.0), cotton cloth (9.5), machinery (6.5), iron and metal products (6.3), tires and tubes (4.7).

During this same period the total value of exports was 8,237,000 rials; of imports, 16,766,000 rials. (The rate of exchange was 75 rials to the U.S. dollar as of October 1955.) This foreign trade was distributed among the major countries as follows (export percentages preceding import): USSR (16.3; 6.5), Germany (14.8; 17.2), France (10.4; 3.4), Japan (9.8; 10.3), United Kingdom (7.0; 7.9), and the United States (9.7; 25.4).

Principal Events, 1955. Internal Affairs.—After the shah's return from a trip to Europe and the United States during January and February, Gen. Fazlollah Zahedi resigned the premiership on April 5 and departed to Europe for medical treatment. In his place on April 7, the shah named Hussein Ala, an elder statesman who had been ambassador to Paris, London, and Washington, and his trusted minister of the court.

This move was generally interpreted to mean that the shah proposed to assume a more definite and personal role in governing the country. This became especially apparent with the early departure of Premier Ala to Europe to undergo medical treatment, which delayed his taking active command of the government by several months. Before departing, however, he had made it clear that one of the major efforts of his government would aim at the elimination of corruption among public servants. The cabinet he formed (April 9) showed little change in personnel until he shifted Dr. Ali Amini from the Finance to the Justice Ministry (May 23) and replaced (August 21) Gen. Abdullah Hedayat of the War Ministry by Gen. Ahmed Vossogh, so that the former could be immediately appointed by the shah as chief of staff in command of the combined army, navy, and air forces. On November 20 the government announced the appointment of Dr. Ali Amini as ambassador to the United States.

During the premier's absence in Europe, attention was deflected from any possible crusading reform by a widespread attack on the Bahai sect. This persecution was inaugurated and further formalized by the government's declaration of the sect's illegality on May 17, 1955, and was dramatized when the military governor of Teheran personally took charge of the demolition of the Bahai Temple in Teheran.

During the same week three prominent members of the Mossadegh regime—Bagher Kezemi, a former foreign minister; Amir Alai, a former minister of interior; and Abdullah Moazemi, speaker of the 17th Majlis—were placed under arrest. It appeared that the rigid control of affairs by the government, through its police and security forces, would continue. This policy was further emphasized when, on August 18, six more army officers, convicted of complicity in the Tudeh plot of the previous year to assume control of the military forces, were executed, bringing those so condemned to a total of 27.

In the usual Iranian tradition, at least in a token gesture thereto, a small minority of the Majlis continued to criticize the incumbent gov-

¹ See THE AMERICANA ANNUAL, 1955, p. 376.

ernment, although not in the numbers nor with the vehemence directed at Premier Zahedi. Yet when the premier pressed for a vote of confidence, the opposition was inarticulate: the initial vote in the Majlis on April 17 was 92 to 2, while that which was demanded on July 31 was 72 to 6. Although by the end of the year both the shah and Premier Ala were privately reported to be very discouraged with the lack of progress in governmental reform and economic development, there appeared to be no weakening of the government's determination or ability to continue the present general program of consolidating its power.

Foreign Relations.—During 1955 Iran moved steadily away from its traditional policy of neutrality into more overt cooperation with the Western powers. At the end of 1954 the USSR had signed an agreement to settle its differences with Iran in regard to World War II payments and disputed borders. On June 1, eleven tons of gold arrived in Teheran from Moscow, where it had been held ever since the height of World War II, and with it came the promise that £3,000,000 in Iranian goods received during the war would be repaid in kind. On July 13 the shah announced that he would accept the Soviet invitation to visit Moscow, the date to be announced later. By the end of the year, however, the time had yet to be announced, for in the meantime the improved relations with the Soviet Union had been clouded by subsequent events.

It was announced by the government on October 11 that Iran had decided to adhere to the Baghdad Pact (q.v.) inaugurated between Turkey and Iraq on February 24, joined later by Britain on March 30, and by Pakistan on June 30. The Iranian announcement followed shortly upon the visit to Teheran of President Celâl Bayar of Turkey, who apparently persuaded the shah and his government that the time was ripe for such a step. Just before Bayar's arrival on September 20, Premier Ala had told the Majlis that Iran could no longer remain neutral in the present world situation, and the visit of the Turkish president was notice that the Iranian government intended to adhere to the pact. The only surprise to many was the promptness of the announcement, which almost coincided with the news from Cairo that Egypt had contracted to buy arms from Czechoslovakia.

As early as March 8 the Soviet Union had warned Iran against any thought of joining the newly announced pact, adherence to which would be considered by Moscow as an unfriendly act and not permissible under the 1921 treaty of friendship between the two countries.² It was not surprising, therefore, that the USSR dispatched a note to Teheran on October 12 declaring that Iran's adherence to the pact was "incompatible with the interests of consolidating peace and security in the region of the Middle and Near East and contradicts the good-neighborly relations be-

tween Iran and the Soviet Union and certain treaty obligations."

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IRAQ. An Arab monarchy in southwest Asia, Iraq is bounded on the north by Turkey, on the west by Syria and Jordan, on the east by Iran, and on the south by Saudi Arabia, Kuwait, and the Persian Gulf. Its area is 171,599 square miles, and its population is 4,948,000 (July 1, 1954, est.), of whom about 80% are Arabs, 15% Kurds, and the remainder mostly Iranians and Turks. Baghdad, the capital, has a population of 558,820 (1947 census). Other important cities are Mosul (273,389) and Kirkuk (147,806) in the north and Basra (219,167), the country's port, located in the south on the Shatt-al-Arab, the confluence of the Tigris and Euphrates rivers.

Government.—King Faisal II (b. May 2, 1935; acceded to the throne under a regency, April 4, 1939; attained majority, May 2, 1953) heads a constitutional hereditary monarchy. The king delegates executive power to a cabinet (the cabinet in office until Dec. 14, 1955 was formed Aug. 4, 1954, with Nuri as-Said as prime minister) which is responsible to the Parliament, but which may also be dismissed by the king. The bicameral legislature consists of a Senate, whose members are appointed by the ruler for 8-year terms, and a Chamber of Deputies, elected for a maximum term of 4 years by direct vote of adult male citizens.

Religion.—Some 96% of all Iraqis are Moslems. The villagers and townsmen of central and southern Iraq belong to the Shi'ite sect of Islam and form a slight majority of the population. The inhabitants of northern Iraq, the nomads, and the people of Baghdad and Basra are largely Sunnite Moslems. Christians of the Nestorian, Gregorian, Jacobite, Chaldean, Orthodox Armenian, and Uniate sects (numbering together 149,656 in 1947) are found in all principal towns and in some northern villages.

Education.—Although education is compulsory in its early stages, the law is difficult to implement. According to the 1947 census, 89% of the non-nomadic population over 5 years of age is illiterate. There were in 1952-53 only 1,573 government elementary and secondary schools with an enrollment of 255,769. Plans exist for the construction within 5 years of 400 elementary schools and 300 agricultural and 300 technical secondary schools. In Baghdad a university is in process of organization to incorporate the existing colleges of arts and sciences, engineering, and medicine. In the capital there are higher institutions of law, theology, economics and commerce, agriculture, pharmacy and chemistry, dentistry, education, and fine arts, and the Queen Aliyah College for Girls, the Royal Faculty of Medicine, a military college, and a police college.

Defense.—Defense units include an army of 3 divisions, an air force of 4 fighter squadrons with a fifth in process of formation during 1955, and a navy consisting of a river flotilla of 4 gunboats. Military training is legally obligatory for all males between the ages of 18 and 25 for a period up to 2 years.

Finance.—Iraq is a member of the sterling bloc, and the Iraqi dinar (ID) equals £1 or U.S.\$2.80. Currency in circulation in February 1955 amounted to ID42,541,522. Besides the Iraq National Bank, there are a number of domestic and foreign commercial banks and 4 state-owned long-term financing institutions. For the fiscal year 1954-55, the revised government budget called for receipts of ID48,512,000 and expenditures of ID57,609,370. The budget for 1955-56 called for revenues of ID50,972,000 and expenditures of ID51,546,010. These figures do not include the 70% share of the revenues from petroleum royalties which is assigned to the Iraq Development Board, or outlays for the board's economic development program. In January 1955 the condition of the board's budget was so favorable that Iraq cancelled the unused portion of a 15-year loan of \$12.8 million granted in June 1950 by the World Bank, and later in the year repaid the \$6.3 million already drawn under the loan agreement.

Development Program.—The Iraq Development Board is responsible, in cooperation with the Ministry of Development, for the planning and execution of economic development projects. On April 1, 1955, the 6-year plan (1951-57) for flood control and irrigation, and for improvements in agriculture, forestry, industry, transportation, community facilities, and public health was superseded by a 5-year plan (1955-60).

² The 1921 treaty stipulates that it would be considered an unfriendly act on the part of Iran if substantial forces of any third power hostile to the USSR were to be admitted into Iran. Before the Majlis would ratify this treaty, there was attached to it, by way of interpretation, an exchange of letters which made it quite clear that the third forces referred to meant only those opposed to, and seeking the overthrow of, the then (1921) ruling Soviet Bolshevik government. Despite the clear reference to the Deniken and Wrangle (Czarist) forces of the time, the Soviet government has continued to quote this treaty in application to much broader situations, including its invasion of Iran in August 1941. Iran has regularly answered that it does not consider this portion of the treaty to be relevant to the current situation.

The new program envisages expenditures of ID304,306,100, as compared with the planned (but never completed) investment of ID155,374,000 under the old program. The flood control project on the Euphrates at Ramadi was expected to be ready for use by the end of 1955, and the Wadi Tharthar project on the Tigris, by the spring of 1956. The government's \$25,000,000 oil refinery at Dora was officially inaugurated on Nov. 28, 1955. Bids were sought in the fall for a large sugar refinery near Mosul.

Agriculture and Manufacturing.—Iraq is primarily an agricultural country, although petroleum is its major source of revenue. It normally produces about 80% of the world's dates (320,000 metric tons in 1954). Barley (750,000 tons), wheat (750,000 tons), and rice (250,000 tons) are important crops. Other agricultural products include cotton (45,000 bales) and tobacco (10,000 metric tons), and corn, millet, sesame, and citrus fruits. In 1954 the wool clip was 10,000 metric tons. Crop damage, especially to barley, from the floods of March, April, and May 1954 proved less than expected; but the date crop was of poor quality and found little market. Manufactures, conducted in some 2,500 factories and shops, many of which are very small, include wool, cotton, rayon textiles, footwear, cement, bricks, tiles, petroleum products, vegetable oils, flour, beer, alcohol, soap, matches, glass, and cigarettes.

Petroleum.—Crude oil production totaled 30,678,000 metric tons in 1954 and 16,089,000 metric tons in the first 6 months of 1955. The Iraq Petroleum Company and its affiliates, owned jointly by British, Dutch, French, and American interests, control most of the country's oil production and pay to the government as royalties 50% of their profits before the deduction of foreign taxes. An agreement concluded in March 1955 and retroactive through 1954 resulted in an increased payment to Iraq of about \$0.98 a ton. Government oil revenues for 1954 amounted to about ID67,500,000 under the new formula, and were estimated at ID73 million for 1955 and ID76 million for 1956. Revenues are eventually expected to increase to ID100 million annually.

Foreign Trade.—Exports in 1954 were valued at ID155,600,000, and imports had an estimated value of ID72,800,000. The principal exports were crude petroleum (29,185,000 metric tons in 1954), cereals, dates, live animals, wool, cotton, and animal products. The major export countries, with 1953 export values in thousands of Iraqi dinars, are: Great Britain (5,971), India (1,573), Kuwait (1,473), Syria (958), and Italy (873). Principal imports were textiles and clothing, iron and steel, machinery, sugar, automobiles, tea, chemicals, and pharmaceuticals. The major suppliers are Great Britain (25,915), the United States (10,469), Japan (4,366), Ceylon (4,002), and West Germany (3,332).

Transportation and Communications.—The state-owned railway system comprises about 1,100 miles. A standard-gauge line (407.3 miles) from Baghdad through Mosul to the Syrian frontier at Tel Kotchek provides a direct rail link with Europe. Meter-gauge lines (691.7 miles) connect Baghdad with Basra, Kirkuk, and Khanaqin. Water transportation plays an important role in Iraq's economy, with the Tigris navigable from Basra to Baghdad. In addition, roads suitable for vehicular traffic total about 4,550 miles, and in 1953 there were 28,522 registered motor vehicles.

The state-operated Iraqi Airways serves Iraq and neighboring countries, and international lines

use the airport facilities of Baghdad and Basra. There were 179 telegraph and post offices in 1953, and 28,010 telephones as of Jan. 1, 1954.

Principal Events, 1955.—The government of Prime Minister Nuri as-Said moved ahead during 1955 with its program of linking Iraq with the West. In January the Iraqi legation in Moscow was closed and the Russian mission to Baghdad was withdrawn. On January 12, the prime minister announced that Iraq would shortly sign a mutual security treaty with Turkey. Despite bitter protests by Egypt, supported by Saudi Arabia and Syria, that such action would undermine Arab League collective security arrangements, the Turkish-Iraqi Treaty (later known as the Baghdad Pact) was concluded in the Iraqi capital on February 24 and ratified by the legislatures of both countries two days later. (See BAGHDAD PACT.) On November 21–22 the prime ministers of Iran, Pakistan, and Turkey, and the foreign minister of Great Britain met in the Iraqi capital under the chairmanship of Nuri as-Said to establish permanent machinery for implementing the pact. And on December 1 an Iraqi diplomat, Awni Khalidy, was appointed secretary general.

On Dec. 15, 1954, Nuri as-Said told Parliament that his government hoped to terminate, before its expiration in October 1957, the Anglo-Iraqi treaty of 1930 which gave Britain the right to maintain Royal Air Force bases in Iraq. On March 30, 1955, the British government announced its decision to adhere to the Baghdad Pact and to replace the 1930 treaty by new arrangements for Anglo-Iraqi cooperation. On April 4 a special agreement was signed by which Britain turned over to Iraq the Habbaniya and Shaiba airfields, but secured the right to maintain limited installations and to use certain Iraqi facilities for its visiting military aircraft. Britain also undertook to assist in the training of the Iraqi armed forces and to supply aid, including military assistance, if Iraq should be attacked. On May 2 the British airfields were formally transferred to Iraqi control.

An Iraqi delegation led by Dr. Fadhil al-Jamali, the former prime minister, participated actively in the Asian-African Conference (q.v.) held at Bandung, Indonesia, from April 18 to April 24. There the Iraqis defended, against Chinese and Indian objections, the concept and practice of collective security, and also supported the Arab states' successful effort to have the claims of the Arabs of Palestine recognized in the conference's final report.

The government which had held office since August 1954 was replaced on Dec. 17, 1955, by a new cabinet also headed by the veteran prime minister, Nuri as-Said. The reorganization of the cabinet apparently did not foreshadow any change in government policy.

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IRELAND, NORTHERN. See NORTHERN IRELAND.

IRELAND, Republic of. With jurisdiction over 26 of the 32 Irish counties (the remainder constituting Northern Ireland), the Republic of Ireland is a sovereign state (area, 26,602 square miles) separated from England and Wales by the Irish Sea and St. George's Channel. Its capital, largest city, and chief port is Dublin, whose estimated population is 600,000.

Population.—The population, which totaled 8,175,000 in all of Ireland in 1841, is at present virtually stationary, the 1951 census of 2,960,593 showing an increase of only 0.2% over 1946. A report, issued in

1955 by a commission which since 1948 has studied the problem of Ireland's steadily decreasing population in the last hundred years, cited the drain of emigration on rural areas as the primary cause of this decline, but also blamed the low marriage rate. About one quarter of the population never marries, and the marriage rate of 5.5 in 1,000 of population (1946-51) is one of the lowest in the world. The aims of a government program designed to reverse this trend include an increase of agricultural and industrial production, reclamation of waste land, and afforestation.

According to the 1946 census, Roman Catholics numbered 2,786,033, and Protestants, 169,074.

Government and Political Events, 1955.—The national Parliament (Oireachtas) consists of the president (Sean T. O'Kelly, re-elected May 12, 1952, for a second term of 7 years); a 60-member senate (Seanad Eireann), elected by the Dail and county councils; and a 147-member House of Representatives (Dail Eireann), 138 members being popularly elected on the basis of proportional representation. General elections were held May 18, 1954, and John A. Costello, leader of the Fine Gael party, became prime minister of a coalition government, succeeding Eamon de Valera. Party membership in the Dail in January 1955 was as follows: Fianna Fail, 65; Fine Gael, 50; Labor, 19; Clann na Talmhan, 5; Clann na Poblachta, 3; Independents, 5.

Two members of the outlawed Irish Republican Army were sentenced to life imprisonment on Oct. 5, 1955, for a raid on a British Army camp on August 13. Earlier the prime minister deplored such methods of attempting to end the division of Ireland as "futile and dangerous."

On Dec. 14, 1955, Ireland, along with 15 other countries, was elected to membership in the United Nations.

Education.—Free elementary education was provided in 1953 at 4,880 national schools, with enrollment of 484,364. Estimated state expenditure on elementary education for 1954-55 was £8,262,490. Recognized secondary schools numbered 447 in 1953-54, with 54,019 pupils, and 4,170 teachers; £1,689,870 was expended on secondary education. There were also 224 permanent vocational schools; 603 nonpermanent centers (85,627 students, 2,300 teachers); and 6 state-aided training colleges in 1953. The National University of Ireland had 271 professors and lecturers and 5,084 students in 1953-54 in its constituent colleges (Cork, 1,086 pupils; Galway, 936; Dublin, 3,528; St. Patrick's, and Maynooth, 534). Students at the University of Dublin (Trinity College) numbered 1,995, with 121 professors and lecturers.

Finance.—For the fiscal year 1955-56, revenue was estimated at £110.5 million (an increase of £3.8 million over the previous year), and expenditure at £113.5 million, compared with £120.6 million in 1954-55. Capital expenditure was set at £34.07 million, of which £2.83 million was offset by loan repayments, leaving £31.24 million to be raised by borrowing. A final deficit of £1.63 million was recorded on the 1954-55 current budget, which estimated customs receipts at £37.09 million; income taxes at £25.63 million; and excise receipts at £16.8 million. Current expenditures were budgeted at £14.36 million for agriculture; £11.34 million for education; and £21.12 million for social welfare.

Economy.—Economic life revolves largely around agriculture, the principal industry; tourism, ranking second in terms of earnings; and manufacturing, which is slowly rising in output.

The total acreage of crops and pasture in 1954 was 11,615,822, including a 37.4% increase in the area seeded to wheat, bringing the total to 486,368 acres on which 489,000 tons were harvested. Acreages and yields of other leading crops were as follows: oats, 533,148 acres (475,000 tons); barley, 162,644 acres (176,000 tons); potatoes, 291,949 acres (2,248,000 tons); turnips, 120,292 acres (1,975,000 tons); and hay, 1,878,266 acres (3,724,000 tons). Pasturage comprised 7,929,366 acres, and fruit was grown on 11,698 acres. In June 1954, livestock included 329,054 horses, 4,504,026 cattle, 3,112,842 sheep, 958,321 pigs, and 16,062,050 poultry.

Major manufactures, in order of rank, are food processing (baked goods and beet sugar are important), tobacco, textiles, clothing, and building and construction. The index for industrial output (1936 = 100) rose to 188.5 in January-September 1954 from 183.7 in the same period a year earlier. Some 221,295 persons were em-

ployed in industries and services in 1952-53, including 139,829 in manufacturing. Unemployment, which has been a serious problem, has shown signs of easing. By August 1955, unemployment had dropped to 27,400, representing 5.8% of the labor force.

The output of electricity for domestic use, motive power, and public lighting, increased in 1954 to a monthly average of 117.2 million kw.-hr., compared with 103.8 in 1953.

The fisheries industry, of less importance than others, yielded £613,546 in 1954 from fish and shellfish landings.

Foreign Trade.—A major factor in the continued moderate prosperity of the republic during 1954-55 was the demand for cattle and meat by the United Kingdom (Ireland's principal trader). Imports (adjusted for balance of payment purposes) decreased from £180.4 million in 1953 to £177.4 million in 1954, including a decline of £8.5 million in imports from the dollar area, while exports and re-exports increased from £112.7 million in 1953 to £113.4 million in 1954.

Communications.—Including tracks partly situated in Northern Ireland, there are 2,711 miles of railways. The government-owned railway and road transport system operated with a reduced deficit of about £1 million in 1954, when 14 new diesel train sets were put into operation and proved instrumental in raising passenger revenue. Roads total 50,002 miles (main roads, 9,844 miles). Motor passenger services carried 295,915,277 passengers in 1954, and gross receipts from fares totaled £4,969,891. Aer Lingus, the government-owned air service, carried 293,422 passengers, 7,908,000 pounds of cargo, and 2,926,000 pounds of mail in 1952-53.

IRIAN, West. See NETHERLANDS NEW GUINEA.

IRON AND STEEL. Renewed expansion of the iron and steel industry, and development of iron ore deposits on a worldwide scale, were the outstanding events in the industry during 1955. Other important events were the progress in nationalizing and expanding the British industry, the attainment of iron and steel production records in the United States, production of pig iron in the experimental low-shaft furnace, and the wage settlement which terminated a "12-hour" strike in the United States industry.

United States.—On Jan. 1, 1955, the raw steel annual capacity of United States mills was 125,828,310 net tons. Production of raw steel during 1955 was estimated at 117 million tons, a record. Other records established in 1955 were: (1) monthly raw steel output of 10,501,050 tons in October; (2) weekly raw steel output of 2,421,000 tons for the week beginning December 12; and (3) monthly pig iron output of 6,965,273 tons in October. The needed increase in raw steel capacity was estimated to be 4 million net tons a year for the next 15 years, and to cost at least \$15 billion.¹

Part of the future iron ore requirements of the industry will come from beneficiated taconite. The investment in producing taconite concentrates from existing and planned plants was estimated to total \$1.5 billion by 1975.² It was expected that the remaining ore will be supplied by other deposits in the United States and by imports. During the first six months of 1955 a total of 10,096,681 tons of iron ore was imported from Brazil, British West Africa, Canada, Chile, Cuba,

¹ Steel, Sept. 5, 1955, pp. 41-44.

² New York Times, June 12, 1955, Sec. 3, p. F.

Dominican Republic, Liberia, Mexico, Peru, Sweden, United Kingdom, and Venezuela.

A strike of some 600,000 workers began and ended on July 1, 1955. Companies in the basic steel industry and the CIO United Steelworkers of America reached agreement within 12 hours on an increase of the minimum wage rate by 11.5 cents to a new minimum wage rate of \$1.685 an hour, and on an increase in the increment between job classes to 6 cents an hour from the previous increment of 5.5 cents. The 32 job classes affected ranged from \$1.685 for job class 1 to \$3.545 for job class 32. The weighted average increase in wage rates was estimated to be about 15 cents an hour.

After negotiating separate agreements on wages, some of the steel companies individually announced increases in the prices of their steel products. One company stated that its price increase was equivalent to about 5.8%, in comparison with the 7.5% increase in steel wages; and that the increase was made necessary by steadily mounting costs.

Republic Steel Corporation on Sept. 7, 1955, announced plans to increase steelmaking annual capacity by 16%, from 10,262,000 to 11,880,000 tons, at a cost of \$130 million.

Canada.—On April 25, 1955, H. G. Hilton, president of The Steel Company of Canada Limited, predicted that Canadian steel consumption by 1961 will be 25% higher than the average of 5.5 million ingot tons for the years 1951 to 1953. That company planned to develop an iron ore deposit at Bristol (60 miles northwest of Ottawa) and to beneficiate 500,000 tons of ore annually.

A study of the industry west of the Canadian Rockies indicated a total of about 11 million tons of possible reserves of magnetite ore in British Columbia and 35 million tons of iron "tailings" or concentrates, containing about 45% iron, at Kimberley, B.C. Plans for a new steel and cement industry for British Columbia, including a \$10 million steel plant of 50,000 tons annual capacity, were announced.

An iron ore deposit at Natashquan, Quebec, was reported to contain 5 billion tons of ore capable of yielding 200 million tons of concentrates containing 68% iron.

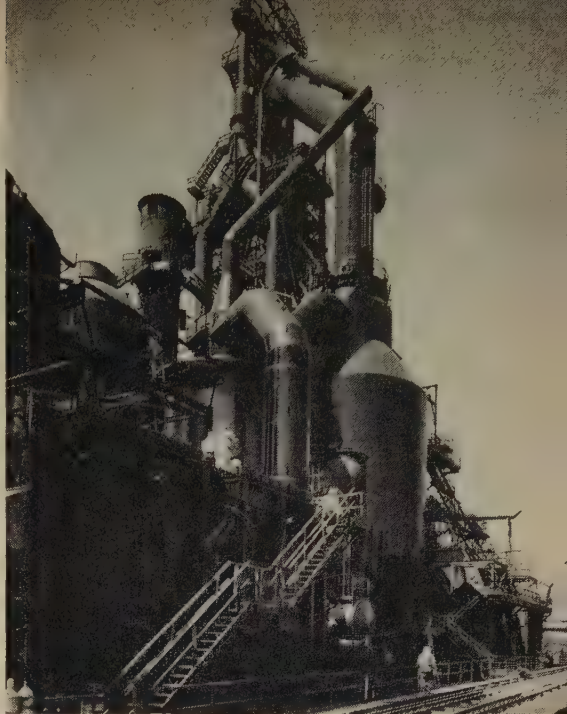
Canadian Javelin Company began the development of an iron ore deposit at Wabush Lake, Labrador. That company reported that three German steel companies would purchase a minimum of 2 million tons of high-grade ore from its deposit.

In May 1955, Bethlehem Steel Company began shipment of concentrates containing 65 to 67% iron which were produced from a low-grade magnetite deposit, averaging 37% iron, at Mamora, Ontario. That deposit was discovered in 1949 during an aeromagnetic survey by the Canadian government. Five years of development work, including the stripping of 20 million tons of limestone, preceded the mining of the ore.

Further development of the Steep Rock, Ontario, iron ore deposit was planned to yield 5 million tons of ore annually by 1959, for an investment of about \$12 a ton of annual capacity.

The \$6.2 million mill of Canadian Western Pipe Mills, Ltd., a subsidiary of Phoenix-Rheinische Roehrenwerke (a German company), was opened at Port Moody, British Columbia, on July 22, 1955, to produce pipe for the transmission of gas and oil.

Other Countries.—World production of iron ore, pig iron and ferroalloys, and crude steel in 1954 is shown in the table on page 384.



COURTESY OF GREAT LAKES STEEL CORPORATION

Great Lakes Steel Corporation's blast furnace on Zug Island in River Rouge, Mich., has a monthly capacity of 50,000 tons of pig iron.

By August 1955 about 65% of the annual capacity of England's iron and steel industry had been denationalized. Government control of both the nationalized and denationalized portions of the industry continued through the British Iron and Steel Board, which was created in 1953. Examples of that control are seen in the board's: (1) establishment of maximum prices for domestic sales of iron and steel products; (2) requirement that company expenditures of over \$280,000 for plant improvement be approved by the board; and (3) plans for the expansion of the industry.

The board established these cost ratios in setting product prices: metallic content, 30%; other materials, repairs, and maintenance, 13%; coal, coke, oil, and electric power, 20%; wages and salaries, 21%; inland transportation, 10%; and depreciation and obsolescence of fixed assets, 6%. To those costs the board added a "fair" profit to establish the sales price.

The board's plant expansion program includes annual capacities of pig iron and steel ingots of 15.2 million tons and 22.5 million tons, respectively, by 1958. Since 1945 the expansion program cost \$1.1 billion; by 1958 it will total \$1.7 billion. Nineteen iron ore boats are being built to carry iron ore from Liberia, Labrador, Venezuela, Sweden, Norway, North Africa, and French Guiana. It was planned to import 17 million tons of iron ore in 1958, and to expand the output of domestic high-phosphorus ore to 17.5 million tons in 1958.

An appraisal of the world's reserves of iron ore was recommended in a report prepared by a panel of seven members for the Economic and Social Council of United Nations and released on April 3, 1955. The panel members contended that more accurate information on iron ore reserves is needed for economic planning. The members were uncertain about the 1955 estimate of world reserves of 84.58 billion metric tons of ore; that is a revision of the 1950 United Nations

estimate of 54 billion metric tons. The 1955 estimate included the following continental distribution of iron ore reserves, in billion metric tons: Asia and the Middle East, 28; South America, 19.7; Europe, 16.48; and North America, 14.1.

On July 12, 1955, a hot-strip mill capable of rolling 2 million tons of steel a year began op-

PRODUCTION OF IRON ORE, PIG IRON
AND FERROALLOYS, AND CRUDE STEEL,* 1954
(In net tons of 2,000 pounds each)

Country	Iron ore	Pig iron and ferroalloys	Crude steel*
Algeria.....	3,348,978	...	...
Argentina.....	...	...	339,000
Australia.....	3,846,080	2,040,904	2,487,891
Austria.....	3,088,906	1,472,272	1,818,795
Belgium.....	82,650	5,008,590	5,525,830
Brazil.....	1,910,000	1,128,448	1,256,622
Canada.....	7,280,256	2,317,839	3,157,867
Chile.....	2,445,338	333,906	...
Cuba.....	230,000	...	...
Czechoslovakia.....	3,030,500	3,320,000	5,103,649
Finland.....	...	80,446	...
France.....	47,916,062	9,839,758	11,711,938
Germany (East).....	1,446,206	1,470,000	2,590,405
Germany (West).....	14,371,840	13,633,944	19,215,294
Greece.....	89,000	...	...
Hungary.....	566,000	947,000	1,587,312
India.....	4,303,310	2,136,778	1,852,966
Italy.....	1,190,160	1,502,026	4,607,614
Japan.....	1,828,218	5,189,318	8,542,825
Luxembourg.....	6,487,474	3,085,600	3,117,304
Malaya.....	1,376,398	...	...
Mexico.....	302,200	217,000	591,935
Morocco (French).....	380,190	...	...
Morocco (Spanish).....	974,168	...	...
Netherlands.....	...	668,914	1,024,037
Norway.....	1,293,748	247,950	...
Philippines.....	1,310,278	...	...
Poland.....	1,497,419	2,970,000	4,361,801
Rumania.....	751,553	550,000	826,725
Saar.....	...	2,753,898	3,091,952
Sierra Leone.....	976,372	...	...
South Africa, U. of.....	2,079,474	1,295,952	1,557,550
Spain.....	3,983,730	975,270	1,212,530
Sweden.....	16,909,088	1,005,024	2,039,255
Tunisia.....	1,038,084	...	...
Turkey.....	357,048	214,890	185,186
USSR.....	59,590,000	32,100,000	45,194,300
United Kingdom.....	17,403,680	13,310,080	20,739,040
United States.....	87,207,680	59,806,242	88,311,652
Yugoslavia.....	1,215,506	393,414	666,892
Other countries.....	2,777,758	4,939,000	3,574,592
Total.....	304,885,352	174,954,463	246,292,259

* Ingots and steel for castings. (Sources: Bureau of Mines, U.S. Department of the Interior; Dominion Bureau of Statistics, Canada; *Monthly Bulletin of Statistics*, Statistical Office, United Nations; British Iron and Steel Federation, London; American Iron and Steel Institute, New York.)

erating at August Thyssen Steel Works in Duisburg, West Germany. This was the first such built in West Germany since World War II; it replaced one dismantled by the British Occupation Authority after the war.

During 1955 the construction or modernization of iron and steel plants was planned or begun also in Argentina, Austria, Brazil, Chile, China, India, Lebanon, Luxembourg, Malaya, Mozambique, Pakistan, Southern Rhodesia, Turkey, and the USSR.

Technical Developments.—Results reported on the experimental low-shaft furnace at Liège, Belgium, indicated the successful production of low-silicon pig iron from raw materials not readily usable in conventional blast furnaces because of fineness or other reasons. Experiments were directed by Belgian National Center of Metallurgical Research with the cooperation of the local steel industry and assistance of research workers from France, Italy, and Luxembourg.

The British Iron and Steel Research Association developed a water-cooled periscope for insertion in an open hearth furnace to permit visual examination or photographing of the bath, walls,

and roof. This is a significant tool in the improvement of steelmaking, furnace design, and maintenance.

Casting machines in which molten steel solidifies in a continuous strand were reported during 1955 in Argentina, Austria, Canada, France, West Germany, Italy, Japan, Sweden, Switzerland, the United Kingdom, and the United States.

Great Lakes Steel Corporation began operating a new blast furnace, having a rated capacity of 50,000 tons of pig iron a month, at its plant on Zug Island in River Rouge, Mich. The hearth diameter of 30 feet 3 inches was reported to be the world's largest.

(See also CHEMISTRY; EUROPEAN COAL AND STEEL COMMUNITY; METALLURGY; MINERALOGY; MINING.)

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IRRIGATION. See Index entry.

ISHAM, Ralph Heyward, American collector of rare manuscripts: b. New York, N.Y., July 2, 1890; d. New York, N.Y., June 13, 1955. He spent over 20 years of his life in the search for and acquiring of the complete papers of James Boswell, author of the great *Life of Samuel Johnson* (1791).

Isham was educated at Cornell (1908-09) and Yale (1910-11) universities, and after a brief period in business, went to England, where in 1916 he enlisted in the British Army. During World War I, he served with distinction on the staffs of Field Marshall Sir William Robertson and Lord Haig, attaining the rank of colonel. On his return to the United States after the war, he took over the presidency of the Trumbull Securities Corporation and the vice presidency of the New England Water Power Company. He also began to collect rare manuscripts, and not long afterward became deeply involved in one of the most fascinating literary quests in the annals of English literature: the search for the papers of the prolific Scottish author, James Boswell (1740-95).

The century-old myth that Boswell's papers had been burned was exploded by Professor Chauncey B. Tinker of Yale University in 1925, when he discovered part of them in an ebony cabinet in Malahide Castle, Ireland. Unable to obtain their release, however, Professor Tinker returned to the United States empty-handed. At this juncture Colonel Isham took up the quest. He went to Ireland, entered into negotiations with Lord Talbot de Malahide (a descendant of Boswell), secured the papers in 1928, and published them in a private edition known as the *Malahide Papers*. In 1930 another cache of the papers was found in a croquet box in a cupboard of the castle, and in the same year two large boxes containing more of Boswell's papers were discovered at Fettercairn House, near Aberdeen, Scotland. After protracted litigation and private transactions, Colonel Isham was given the opportunity to purchase all the new material.

In 1937 Isham revisited Malahide Castle, and found what he thought was the last of Boswell's literary legacy. In 1940, however, Irish soldiers found in an outbuilding loft at the castle still another cache, which contained a great part of the Scottish author's correspondence with such notable contemporaries as Sir Joshua Reynolds and Oliver Goldsmith. After the war, Colonel Isham took the material back to the United



ISRAEL OFFICE OF INFORMATION

Israeli troops patrol Gaza strip where Israeli-Egyptian fighting in 1955 threatened to break into general war.

States; in 1950, with the purchase of another newly discovered lot of Boswell's papers, he completed his collection.

Since these acquisitions had depleted his fortune, the colonel sold the entire collection on July 23, 1949, to Yale University, which in 1950 arranged with the McGraw-Hill Book Company, Inc., to edit and publish the papers. It is expected that the material will eventually fill 50 volumes.

ISLAM. See Index entry, *Moslems*.

ISLE OF MAN. This United Kingdom dependency (area, 141,263 acres; pop., 1951, 55,213) lying off the coast of Cumberland, has close attachments to the crown and a distinctive relationship to government, not being bound by acts of Parliament unless specially mentioned in them. Chief towns are Douglas, the capital (pop., 20,288), Ramsey, Peel, and Castletown.

Local laws are administered by the ancient Court of Tynwald, consisting of a lieutenant governor (Sir Ambrose D. F. Dundas, assumed office Sept. 6, 1952), a Legislative Council, a 24-member elected House of Keys, and (since 1946) a 7-member Executive Council appointed to act with the governor on all matters of government. A bill abolishing double taxation for residents deriving their income from the United Kingdom was approved in February 1955. Queen Elizabeth II presided over a meeting of the Court of Tynwald in August 1955 while making her first visit to the Isle of Man. Revenue totaled £2,943,111 in 1953-54; expenditure, £2,779,359. In 1954 there were 31 primary schools, with 4,479 pupils. Principal crops are oats, wheat, and barley; and stock raising is a valuable industry.

ISOTOPES. See Index entry.

ISRAEL. A republic of the Middle East, bordered by Egypt on the south, Syria and the Hashemite Kingdom of the Jordan on the east, and Lebanon on the north. Area, 8,048 square miles; pop. (Dec. 31, 1954), 1,717,834, including 191,818 non-Jews, chiefly Arab Moslems. Chief cities and populations (est. Dec. 31, 1954): Jerusalem (the capital), 144,000; Tel Aviv-Yafo, 358,500; Haifa, 154,500; and Ramat Gan, 51,000. Hebrew is the official language, although Arab citizens have the right to use Arabic in their dealings with the government.

Government.—The State of Israel came into being on May 14, 1948. The president, whose functions are largely titular, is elected by the Knesset (Assembly) for

a 5-year term. Itzhak Ben-Zvi, Israel's second president, took office on Dec. 10, 1952. The Knesset, Israel's unicameral legislature, has 120 members elected for a 4-year term by proportional representation. In the elections of July 26, 1955, 876,085 citizens (83% of the electorate) voted. The Mapai (Israel Labor Party) obtained 40 seats (32.3% of the popular vote); Herut (rightist nationalists), 15; General Zionists, 13; Mizrachi and Hapoel Mizrachi (religious parties), 11; Ahdut Avodah (neutralist Socialists), 10; Mapam (pro-Soviet Socialists), 9; Agudat Israel and Poalei Agudat Israel (religious parties), 6; Communists, 6; Progressives, 5; and Arab lists (affiliated to Mapai), 5. David Ben-Gurion (Mapai) headed a coalition cabinet approved by the Knesset on Nov. 3, 1955.

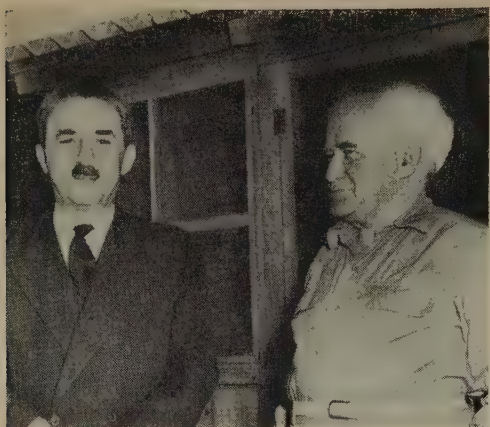
Education.—School attendance is free and compulsory for children between 5 and 14. In 1953-54 there were 1,340 kindergartens (65,000 pupils) and 929 elementary schools (232,205). High school students numbered 32,000, including 10,000 in technical and agricultural schools. There are also many Arab schools, adult and continuation classes, teacher-training colleges, and other special schools. Higher institutions include Hebrew University in Jerusalem (3,258 students in 1954-55), the Israel Institute of Technology at Haifa (1,721), the School of Law and Economics at Tel Aviv, and Bar Ilan University at Ramat Gan (inaugurated in 1955).

Religion.—Observance of the rabbinical code varies among the Jewish population, and controversy exists over kosher food laws, religious education, and military service for women. There is no established church, and freedom of worship exists. Moslems number 131,500; Christians, 42,800.

Immigration.—From May 15, 1948, to Dec. 31, 1954, Jewish immigrants numbered 735,394, of whom 46.4% came from Europe; 34% from Asia; and 16.3% from Africa. In the year 1954, 17,471 immigrants entered Israel (16,896 in the first 7 months of 1955).

Finance.—The budget for the fiscal year 1955-56 was estimated at I£631 million (I£571 million in 1954-55), including I£192.5 million for development (I£189.4 million in 1954-55). Of the 1955-56 revenue, an estimated I£295.6 million was to come from taxes, customs, and other ordinary sources, and about I£262.5 million from counterpart funds of German reparations, United States grants-in-aid, independence and development loans, and other special sources. At the principal exchange rate, I£1.80 = U.S. \$1.00 (or I£1.00 = U.S. \$0.56).

Production.—Israel's growing economy is featured by diversified light industries and a highly intensive agriculture. National income in 1954 was estimated at I£1,426 million, representing a rise in aggregate real income (corrected for price changes) of about 20% over 1953, and a rise in per capita real income of about 12%. Of Israel's labor force of 561,400 (June 1954), 135,900 were in manufacturing, 102,200 in agriculture, and 68,500 in commerce and banking. Israel's chief industries are foodstuffs, clothing and textiles, building materials, woodwork, leather and shoes, printing and paper, machinery, metals and metal products, electrical apparatus, chemicals, glass products, diamonds, plastics, au-



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David Ben-Gurion (right), who resumed the Israeli premiership Nov. 3, 1955, with Foreign Minister Moshe Sharett.

tomobiles and tires, rubber products, and ceramics. Cement output in 1954 totaled 563,099 metric tons, a rise of 21% over 1953. Electric power production in 1954 was 895.6 million kw.-hr. (18% over 1953), and the nation's generating capacity of 237,000 kw. was being expanded in 1955 by the construction of two large power stations. Minerals exploited include phosphates, potash, bromides, glass sand, and clays.

Israeli agriculture is largely on collective or cooperative lines. Area under cultivation in 1954 approximated 925,000 acres, of which 200,000 was under irrigation. Chief crops are grains, fodder, vegetables, grapes, bananas, olives, and peanuts. Some 400 million eggs and 150 million liters of milk were produced in 1954. Cultivation of cotton, flax, agave, kenaf, and other industrial crops is in the experimental stage. Israel's citrus crop provides the nation's chief export. The citrus yield in 1954-55 (prelim.) totaled 9.3 million boxes (11.4 million in 1953-54).

Foreign Trade.—Exports in 1954 were valued at \$88.1 million; imports, \$289.7 million. Citrus fruit exports accounted for 39.3% of the 1954 total; diamonds, 18.5%; motor cars, 7.6%; and textiles, 4.0%. Consumer goods accounted for

only 18.5% of 1954 imports, the remainder constituting production and investment goods and fuels and lubricants. The United Kingdom purchased 22.9% of Israel's 1954 exports; the United States, 16.9%; and Turkey, 14.9%. The United States provided 27.4% of imports; West Germany, 18.0%; and the United Kingdom, 9.5%. In 1954, Israel was visited by 38,661 tourists. Income from tourism amounted to \$9.5 million.

Transportation and Communications.—Main railway lines in operation at the end of 1953 totaled 210 miles; branch and extension lines, 120 miles. Israel's road network at the end of 1954 totaled 1,635 miles, of which 1,278 was asphalt-surfaced. Israel's merchant fleet as of Dec. 31, 1954, comprised 34 vessels aggregating 137,000 gross tons. El Al Israel Airlines operated 24 scheduled weekly flights to 15 countries in 1955. Licensed motor vehicles included 12,745 passenger cars and 17,303 trucks in 1954; telephones, 58,200 (1954); radio sets, 244,622 (end of 1953). Of the nation's 24 daily newspapers (1954), 16 were in Hebrew.

Principal Events, 1955.—Israel's eighth year of nationhood was the most crucial for the young republic since the conclusion of the Arab-Israeli War in 1949. Border violence appeared at times as but a prelude to full-scale warfare. Czechoslovakia's shipment of arms to Egypt beginning in October posed a new threat to the life of Israel. Israelis, nevertheless, continued to pour their energies into building their nation, and important domestic achievements were recorded during the year.

Foreign Affairs.—Following a six-month period of intermittent Arab raids and sabotage in the western Negeb, an Israeli armed force struck at Egyptian positions in the Gaza strip on February 28, killing 38 Egyptians, with a loss of 8 Israelis. Israel was condemned for the action by the Egyptian-Israeli Mixed Armistice Commission on March 6, and by the U.N. Security Council on March 29, although Maj. Gen. E. L. M. Burns, chief of staff of the U.N. Truce Supervision Organization in Palestine, stated that increased infiltration from the Gaza strip had been one of the main causes of the border tension. In connection with the Gaza attack, Israeli leaders stated that Israel wished to abide by the 1949 armistice but would retaliate severely against terrorism and warlike actions by the Arab states. On March 30 the Security Council called upon both Israel and Egypt to cooperate in strengthening border controls. Scores of incidents occurred in the spring involving clashes of border patrols, raids on Egyptian and Israeli villages, and the blowing up of Israeli vehicles by land mines placed in Israeli territory.

An effort by U.N. Secretary General Dag Hammarskjöld to arrange high-level Israeli-Egyptian talks failed in June, following Egypt's rejection of the proposal. On June 28, however, after 53 Egyptians and 23 Israelis had been killed since the beginning of the year, truce talks began at the Gaza border between Israeli and Egyptian representatives, with General Burns as chairman. The talks, which aimed at an arrangement to reduce border incidents, failed to produce any significant agreement. Israel sought direct contact between local commanders, while Egypt demanded contact through a United Nations intermediary. Following a clash near the Gaza border on August 22, Egypt broke off the talks. The subsequent two weeks were marked by further border clashes, deep sorties into Israel

Israelis vote in the general election of July 26, 1955.

ISRAELI OFFICE OF INFORMATION



by organized terrorists, the shooting down of two Egyptian Vampire jets over Israeli territory by Israeli fighters, and an Israeli reprisal attack on an Egyptian post at Khan Yunis on September 1, killing 40 Egyptians. Between August 22 and September 4, when both sides accepted a cease-fire appeal by General Burns, 16 Israelis and at least 47 Egyptians had been killed. In a report to the Security Council on September 5, General Burns proposed the establishment of a one-kilometer demilitarized zone and the erection of a physical barrier along the Gaza strip. The council on September 8 directed both Egypt and Israel to cooperate in the Burns proposals.

Beginning in October the scene of violence shifted to the Sinai Peninsula border, particularly the El 'Auja demilitarized zone, where each nation charged the other with maintaining illegal military positions. On October 27 an Israeli attack upon an Egyptian camp at El Kuntilla, said to be in reprisal for the Egyptian seizure of an Israeli police post in the El 'Auja zone on October 25, resulted in 5 Egyptians killed and 20 taken prisoner. A night-long Israeli attack on November 2 against Egyptian positions allegedly encroaching upon the demilitarized zone resulted in 50 Egyptians killed and 40 taken prisoner. The action of November 2 was the largest since the 1948-49 war.

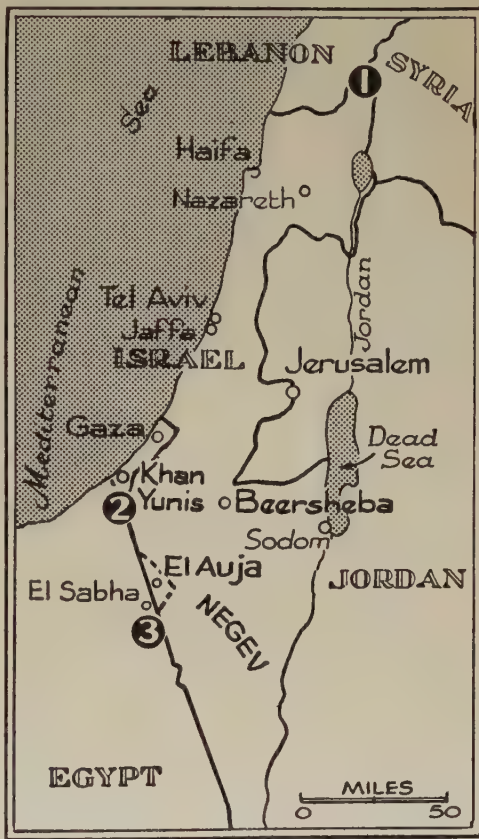
Incidents involving other Arab states continued in 1955, though on a diminished scale. The killing of 2 Israeli youths by Jordanians in February was followed by the Israeli killing of 5 Jordanians west of the Dead Sea on March 4. Marauders from Lebanon attacked the Israeli village of Alma in Galilee on September 13, and 3 Israelis were killed in an ambush of a bus near Meiron, in northern Israel, on September 22. Following several alleged violations by Syrians, an Israeli force struck at a Syrian unit near Aalmine, Syria, on October 22, killing 3 Syrian soldiers and taking 5 prisoners. A major encounter occurred on December 11, when Israeli forces struck at Syrian shore positions overlooking the Sea of Galilee. Fifty-six Syrians and 6 Israelis were killed, and the incident was taken up by the U.N. Security Council in late December.

Despite the mounting violence, Israeli foreign policy in 1955 continued to be based on the hope of a permanent Arab-Israeli peace. On October 24, in the midst of the crisis with Egypt, a Knesset resolution decisively rejected the idea of a preventive war to forestall the Egyptian arms buildup. Prime Minister Ben-Gurion on November 2 offered to meet with Arab leaders to ease tensions, but on November 15 rejected a British offer of mediation which implied a cession of Israeli territory. To counterbalance the Czechoslovak arms shipment to Egypt, Israeli policy in late 1955 was directed toward obtaining arms and support from the Western powers, especially the United States.

An incident which shocked the Israeli people on July 27 was the wanton shooting down of an El Al Israel Airlines Constellation by Bulgarian fighter planes near the Bulgarian border village of Petrich, with the loss of all 58 aboard. The Bulgarian government subsequently expressed its regret and offered to pay part of the compensation.

Domestic Affairs.—The Mapai, Israel's dominant political party, maintained its leadership of the nation in 1955, though suffering a loss in strength. A source of embarrassment to the party was the case of Dr. Israel Kastner, an official in several Mapai ministries, who was publicly ac-

cused of having collaborated with the Nazis in sending the Jews of Budapest to their death in 1944. When the General Zionists, members of the government coalition, refused to support the government on a no-confidence motion on the Kastner case, Prime Minister Moshe Sharett ousted them from the cabinet on June 29. In the elections of July 26, the Mapai obtained 32% of the popular vote (37% in 1951) and 40 seats in the Knesset (45 in 1951). The General Zionists obtained only 13 seats (a loss of 7) and lost its



ISRAEL

Border clashes took place in 1955 between Israeli and Syrian forces in October (1); between Israeli and Egyptian forces on September 1 at Khan Yunis (2); and between Israeli and Egyptian forces on November 2 at El Sabha (3) near the demilitarized zone of El 'Auja.

second place position to the rightist Herut. The Herut, which demanded more forceful action against the Arabs, won 15 seats (a gain of 7) and became the principal opposition party. David Ben-Gurion, having returned to the government as defense minister in February after a 15-month retirement on a Negeb farm, resumed the premiership on November 3. The new Mapai-led coalition included for the first time the Mapam (pro-Soviet Socialists) and the newly formed Abduh Avoda (neutralist Socialists), as well as other parties.

A major development in Israel's national life was the inauguration on July 19 of the 66-inch irrigation pipeline extending from the Yarkon River, at Rosh Haayin, 65 miles southward into the Negeb. The giant line, which cost \$40 million and took two and a half years to complete, will add some 50,000 acres to the 200,000 al-

ready under irrigation in Israel. Work on a second pipeline extending into the eastern Negeb was begun in 1955, with completion scheduled for 1958. Also begun in 1955 was a five-year, \$53 million project for the reclamation and development of some 250,000 acres in the Negeb, Judea, and Galilee. The program, which included the planting of 25 million trees, was undertaken by the Jewish National Fund of the World Zionist Organization. After several years of hopeful prospecting, an oil gusher was brought forth on September 22, at Heletz, in the western Negeb, giving rise to hopes that Israel may one day provide its own fuel.

Announcement was made on February 13 of the Israeli government's purchase from the Syrian Archbishop Metropolitan in Jerusalem of four Biblical scrolls known as the "Dead Sea Scrolls" and reputed to be the oldest known Biblical manuscripts.

M. J. G.

ITALIAN LITERATURE. There were several interesting attempts in 1955 to appraise and define the trends of Italian literature of the postwar decade. The more discerning critics held that the confusion characteristic of the early postwar years still existed in 1955. With the end of World War II, it was natural that writers should stress the political and economic aspects of the national and international chaos. Today the confusion still exists, but there is more than a sprinkling of other elements to add to its complexities. The technological, psychological, biological, mystical, and spiritual aspects of human relationships are as much a part of the enigmatic picture as the former dominant Marxist and political colorings.

The late Ugo Betti (1892-1953) was perhaps among the most outstanding of Italian authors to give dramatic expression to the belief that there is no simple or singular explanation for the actions, beliefs, and hopes of men. In man's inability to penetrate the inner mysteries of peace and war, of plenty and want, and of love and hatred, Betti saw the chief reason for the world's current troubles.

In 1955, Alberto Moravia, the Italian author best known in the United States, added another novel, *Il disprezzo*, to his works dealing with the knotty problem of conjugal love. This work is the story of a wife who at first is strongly attracted physically to her husband, but who soon realizes she does not understand him. Neither does she understand her own uncertainty or her own emotional instability. It does not take long before she betrays him and scorns him with the same intensity of passion with which she first was attracted to him. Moravia depicts this struggle with unerring literary skill, with detached serenity, and with keen psychological insight.

G. Dessi's *I passeri* (*The Sparrows*) is a work that aims to reveal how certain individuals, through an elegiac contemplation of their past, can find a realistic approach to present and future problems of existence. The author seems to convey the notion that through crisis and sorrow man often finds his salvation and happiness.

Giuseppe Cassieri's *Dove abita il prossimo* (*Where Does My Neighbor Live?*) is another in the long series of realistic novels which expose the miseries and difficulties encountered by any enterprising young man from the south of Italy who attempts to find work in a large northern city. The hostile reception of the big city, the many futile and discouraging trials, the misery, the solitude, and the reluctance to return home a

failure all lead to inevitable desperation, starvation, and death. The author's intensity of feeling, however, is marred by a sporadic if not uncertain literary style.

Perhaps the most talked-about book in Italy in 1955 was Goffredo Parise's *Il prete bello*, which was translated into English as *Don Gastone and the Ladies*. In this novel, Parise depicts with obviously maturing literary skill the elemental forces that impel life in the crude, raw, and impoverished districts around Venice and Vicenza, where many of the inhabitants are as hungry for love, passion, and gossip as they are for food. The story revolves around the life and torments of a handsome young priest who arrives to take over a new parish, where he becomes the prized target of many of the love-starved ladies of the parish. The role of two vividly portrayed street urchins as go-betweens gives the novel an unusual fascination. The story ends tragically, not only for Don Gastone and the ladies, but for the boys as well. But while Parise gives the reader a very tragic portrayal of the destructive power of human passions, there is much solace and comic relief throughout the novel.

A literary event of major importance in 1955 was the publication by Dall'Oglio of Milan of the *Opere* of Italo Svevo (1861-1928). In one large volume, for the first time, are contained the major works of Trieste's greatest modern author. The analytic evocative nature of Svevo's *Coscienza di Zeno* paved the way for many a present-day author who is motivated by the psychological approach.

I classici nella storia della critica, by Walter Binni, represents a noteworthy contribution in 1955 to the long list of handy scholarly texts designed to acquaint the student of literature with the history of the vicissitudes of literary taste over the centuries.

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ITALIAN SOMALILAND. See SOMALILAND.

ITALY. A republic of southern Europe, Italy projects into the central Mediterranean in the form of a boot-shaped peninsula; it also includes two large islands, Sicily and Sardinia. With the 81 square miles of Zone A of Trieste transferred to Italian administration in 1954, the republic has an area of 116,305 square miles. It is divided into 19 regions, 91 provinces, and 7,896 communes. Under United Nations trusteeship, Italy administers Somaliland (q.v.).

Population.—On Jan. 1, 1955, the estimated population of Italy was 47,138,335. In 1954 there were 850,837 births and 436,576 deaths, resulting in a net increase of 414,261. Between 1951 and 1954 the birth rate decreased from 18.5 to 17.9 per 1,000 inhabitants, and the death rate from 10.3 to 9.2 per 1,000. The infant mortality rate decreased from 115.06 per 1,000 live births in 1943 to 52.8 per 1,000 in 1954.

In the poorer southern regions of Italy the population increased from 35.29% of the total in 1931 to 37.43% in 1951. The growth that has taken place in the north and center has been due chiefly to migration from the south. Emigration has not helped appreciably to ease Italy's population pressure. From 1946 to 1954 the net loss through emigration was 1,219,571 persons; for the year 1954 the loss was 132,108.

Between 1921 and 1955 the population of Rome, the capital, increased almost threefold, from 691,314 to 1,790,638. The two next largest cities, Milan and Naples, had populations of 1,288,301 and 1,044,586, respectively, in 1953. Other major cities, with their 1951 census populations, are Turin (712,596), Genoa (680,563), Palermo (483,777), Florence (376,383),

Bologna (339,195), and Venice (316,228).

The great majority of the Italian people are Roman Catholics. In addition, there are about 65,000 Protestants, 40,000 Jews, and several thousand members of the Greek Orthodox Church.

Government.—The Italian Constitution of 1948^a provides for a National Assembly (Parliament), consisting of a Chamber of Deputies, with one deputy for each 80,000 inhabitants, and a Senate elected on a regional basis. The Chamber is elected for five years, and the Senate for six. The president of the republic is elected for a seven-year term at a joint session of Parliament in which three delegates from each region also participate. Giovanni Gronchi (q.v.) was elected to that office in April 1955. In July 1955, Antonio Segni (q.v.) succeeded his fellow Christian Democrat, Mario Scelba, as premier. (See below, *Principal Events, 1955.*)

Education.—In 1952-53, the latest school year for which statistics are available, there was general improvement as compared with 1951-52. The number of kindergartens rose from 12,995 in 1951-52 to 13,561 in 1952-53, and attendance from 990,103 to 1,012,238. In the same period the number of elementary schools increased from 40,138 to 40,550, and the number of pupils from 4,443,168 to 4,477,299. Figures for the various types of elementary schools were as follows in 1952-53:

Type of school	Number	Pupils	Teachers
Government schools.....	35,251	4,138,950	160,547
Approved schools.....	537	67,479	2,213
Private schools.....	2,393	238,885	8,211
Subsidized schools.....	2,369	31,985	2,369
Total, elementary schools..	40,550	4,477,299	173,340

In 1952-53 there were 6,217 secondary schools with 1,317,172 students. In that year the lower secondary schools enrolled 65.6% of the total secondary school student body; the higher secondary schools, 19.5%; and the technical and vocational schools, 14.9%.

In 1953-54 the Comitato Centrale per l'Educazione Popolare intensified its campaign against illiteracy by increasing the number of its courses to 23,983 and attendance to 479,605.

The number of schools for technical and vocational training rose from 935 in 1947-48 to 1,015 in 1952-53, and the number of pupils from 131,837 to 195,930.

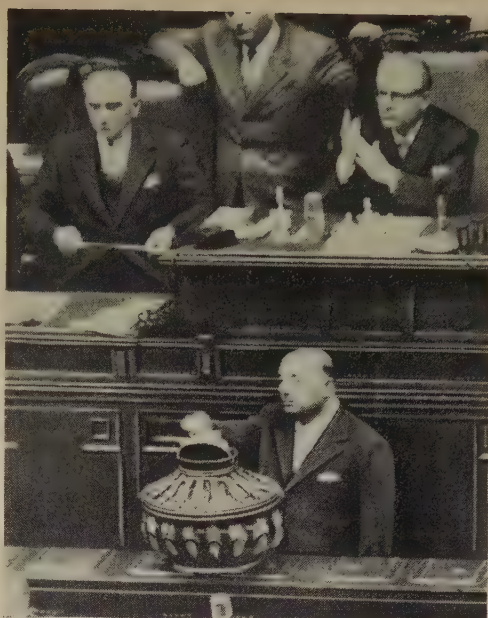
The total number of students registered in 1952-53 in all Italian universities and other institutions of higher learning was 138,814, as compared with 142,722 in 1951-52. In addition, there were 84,813 special students. The largest registrations were in the faculties of law (20.5%), medicine (16.3%), and the mathematical, physical, and natural sciences (15.2%). Women comprised 27.3% of all university students.

Budget.—As approved by the cabinet on Jan. 29, 1955, the record 1955-56 Italian national budget provided for expenditures of 2,726 billion lire (625 lire = U.S.\$1), 371 billion more than in 1954-55, and revenues of 2,446 billion, or 287 billion more than in 1954-55. The expected deficit of 280 billion lire was 5.7% less than that of 1954-55.

Italy is endeavoring to increase the proportion of revenue derived from direct taxes and decrease that from indirect taxes. In January 1955, Parliament approved a bill providing prison sentences for tax evaders. On March 31, 4,076,885 returns were filed, as compared with 3,486,000 when the first sworn declarations were filed in 1953.

Economic Conditions.—The Italian government has achieved an encouraging success in the three principal objectives of its economic policy: currency stabilization, increased production, and wider foreign trade.

National Income.—Although crops were poor in 1954 (see below, *Agriculture*), the overall Italian economy made progress. The value of all



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Premier Scelba (resigned June 22, 1955) casts ballot during parliamentary elections, April 29, in which Giovanni Gronchi (seated at right) was chosen president of Italy.

available resources was 13,447 billion lire, or 5.3% more than in 1953. The national economic balance for 1953 and 1954 is shown in the accompanying table.

ITALY'S ECONOMIC BALANCE, 1953 AND 1954 (In billions of lire)

	1953	1954
Gross national income.....	11,093	11,797
Importation of goods and services.....	1,677	1,650
Total resources.....	12,770	13,447
Private consumption.....	8,317	8,723
Public consumption.....	832	862
Total consumption.....	9,149	9,585
Gross investments.....	2,284	2,443
Total domestic consumption.....	11,433	12,028
Exportation of goods and services.....	1,337	1,419
Total resources.....	12,770	13,447

In recent years about 20% of the gross national income has gone into investments. Gross investments increased from 2,284 billion lire in 1953 to 2,443 billion in 1954, or about 7%. In billions of lire, gross investments were allocated as follows in the two years:

	1953	1954
Agriculture.....	310	337
Industry.....	740	750
Transportation and communications.....	358	386
Building and public works.....	726	803
Miscellaneous.....	120	132
Total.....	2,284	2,443

Wages.—Although wages increased 3.3% in 1954, the average hourly wage (including additional pay for overtime and work on holidays and at night) of the Italian worker was only 180.78 lire, or less than 29 cents. Moreover, what increases occurred were offset by a rise in the cost of living, so that real wages remained unchanged at about one third more than before World War II. The per capita share of the gross national income was only \$393 at the end of 1954.

Prices.—From December 1953 to December

1954 the cost-of-living index (1938 = 1) rose from 56.78 to 58.82. The increase resulted principally from rising prices for food, due in part to higher duties on imported livestock, meat, and fish; and in part to a reduced domestic supply because of poor crops. The wholesale price index (1938 = 1), which was fairly stable during 1953 (52.50 in June and 52.59 in December), fluctuated in 1954 from 53.36 in March to 52.51 in July and 53.50 in December.

Unemployment.—Unemployment remains Italy's chief problem. In 1954 the average number of unemployed was 2,197,299 (1,456,699 men and 740,600 women), or 16,069 more than in 1953. In addition, there was about an equal number of underemployed persons who barely earned a living wage. On Dec. 29, 1954, Minister of the Budget Ezio Vanoni introduced a plan under which 4 million new jobs would be created by public and private investments over a 10-year period. The Vanoni Plan would cost about \$6.4 billion. A 4-year plan (1955-58) to accomplish its first stages was published in May 1955.

In 1954 the highest percentage of unemployment was in industry (42.5%), followed by agriculture, hunting, and fishing (22.4%), and unskilled labor (20.9%). The largest numbers of unemployed were in Emilia, Campania, Lombardy, and Apulia. As compared with 1953, unemployment increased chiefly in Emilia, Sicily, Sardinia, and Campania, and decreased in Lombardy, Latium, Abruzzi, and Calabria.

Standard of Living.—Despite low wages and unemployment, the standard of living in Italy is higher than ever before. In 1954, Italians spent 126 billion lire on recreation, and the consumption of such foods as meat and fruit increased. Bank deposits, retail sales, and the number of motor vehicles in circulation also rose.

Industrial Production.—In 1954 the general industrial production index (1938 = 100) averaged 171, or 9.6% higher than in 1953. Comparative indices for various branches of industry in the two years are as follows:

Industry branch	1953	1954	% increase
Mining	175	197	12.6
Metalliferous minerals	102	116	13.7
Nonmetals	208	234	12.3
Manufactures	150	165	10.0
Food	150	155	3.3
Textiles	113	114	0.9
Wood	59	70	18.6
Paper	129	134	3.9
Metallurgy	149	170	14.1
Mechanical	156	164	5.1
Transportation	161	172	5.3
Chemical	212	260	22.6
Rubber	160	194	21.3
Electric and gas	202	217	7.4
General index	156	171	9.6

Industrial activity continued to increase in 1955, and in March the general index was 201.

Advances in the chemical, rubber, iron and steel, and construction industries have been especially significant. In 1954, 1,100,000 residential rooms were built, as compared with 900,000 in 1953 and 150,000 in 1938. During the year a record 1,300,000 metric tons of pig iron and 4,150,000 tons of crude steel were produced. Electric power production also rose, from 32,619 million kw.-hr. in 1953 to an estimated 35,500 million kw.-hr. in 1954. Automobile production increased 24.3%, from 174,308 in 1953 to 216,700 in 1954. Of the total 1954 production, 44,136 cars, or 20.4%, were for export, principally to Austria, West Germany, Sweden, Switzerland, and the Netherlands.

As of Jan. 1, 1955, the Italian merchant marine included 4,269 units with an aggregate ton-

nage of 4,037,405. This was an increase of 314,934 tons, or 8.46%, since Jan. 1, 1954.

Italy is the chief European producer of natural gas, 1955 production averaging 10 million cubic meters daily. A project for piping the gas across the Brenner Pass into West Germany and Austria is being studied.

Agriculture.—The satisfactory progress of industry in 1954 was partly offset by a bad year for agriculture, due chiefly to unfavorable weather. The general index of agricultural production (1938 = 100) decreased 6.3%, from 120.1 in 1953 to 112.5 in 1954, and farm income, despite higher prices, declined by about \$100 million. Comparative indices for various branches of agriculture in the two years are as follows:

Agriculture branch	1953	1954	% difference
Cereals	110.9	91.3	-17.7
Legumes	108.2	105.5	-2.5
Potatoes and green vegetables	136.6	144.2	+5.6
Industrial plants	127.6	122.3	-4.2
Fruits	171.7	157.4	-8.3
Vegetable products	136.5	120.8	-11.5
Animal products	107.5	115.5	+7.4
Forest products	108.9	99.9	-8.3
General index	120.1	112.5	-6.3

Production of the chief crops in 1954, in thousands of metric tons with 1953 figures in parentheses, was as follows: wheat, 7,184 (9,041); barley, 278 (312.6); oats, 545.7 (602.1); rye, 115.1 (129.6); sugar beets, 6,513.5 (6,233.8); potatoes, 3,177.4 (3,134.3); and tomatoes, 1,532.4 (1,368.1).

There has been considerable improvement in the mechanization of agriculture. On Dec. 31, 1954, Italy had 144,757 tractors and other agricultural machines, or 25,528 more than on Dec. 31, 1953. Of those in use at the end of 1954, 60% were less than five years old.

Agrarian Reform.—By March 1955, the Italian land reform program, which involves the eventual redistribution of up to 3,500,000 acres of land to landless peasants, was approximately one third completed. The program has been highly successful. Many peasant families have been able to acquire farms of their own; large tracts of land have been brought under cultivation; farmhouses, roads, irrigation canals, and other facilities have been built; and modern farming methods have been introduced in many areas. Of the \$2 billion which the program will have cost by 1962, a total of \$787,200,000 has been appropriated. Of this sum, 71% has been devoted to the development of agriculture, 26.9% to industrial installations, and 2.1% to tourism.

Thus far 1,446,000 acres have been expropriated (plus 180,000 acres in Sicily, under a separate regional law), and 865,000 acres have been voluntarily relinquished by their owners or acquired by other means. By June 30, 1955, 1,222,932 acres had been distributed to 93,247 peasant families; the average size of the individual farm is slightly over 13 acres. Two thirds of the land under the program is in southern Italy and Sicily and Sardinia, the poorest sections of the country.

By June 30, 1955, the Cassa per il Mezzogiorno (Fund for the South) had approved 46,614 projects, with an aggregate cost of more than 577 billion lire; had contracted for 46,303 projects costing over 514 billion lire; and had completed projects costing 183 billion lire. On June 1, the International Bank for Reconstruction and Development approved a loan of \$70 million to the fund, to be used for irrigation work, industrial enterprises, and electric power in Sicily.

Foreign Trade.—Italian exports increased from \$1,506,862,000 in 1953 to \$1,635,979,000 in

1954, or 8.6%. In the same period imports declined 0.8%, from \$2,420,298,000 to \$2,400,977,000. The divergent trend in exports and imports resulted in a decrease in the trade deficit of 16.3%, from \$913,436,000 in 1953 to \$764,998,000 in 1954.

The slight decrease in imports in 1954 resulted mainly from reduced purchases of cereals and machinery, which more than offset larger purchases of iron and steel scrap and fuel. Exports of textiles declined from \$360 million in 1953 to \$346 million in 1954, but shipments of agricultural products and chemicals increased substantially.

Italy's trade by monetary areas in 1953 and 1954 is shown in the accompanying table. The principal increase in Italian imports in 1954 was from the area of the European Payments Union (EPU), with the exception of the sterling area, from which imports declined slightly. The decrease in Italian purchases from the dollar area continued in 1954, though to a lesser degree than had occurred between 1952 and 1953.

ITALY'S FOREIGN TRADE, BY MONETARY AREA,
1953 AND 1954
(In millions of dollars)

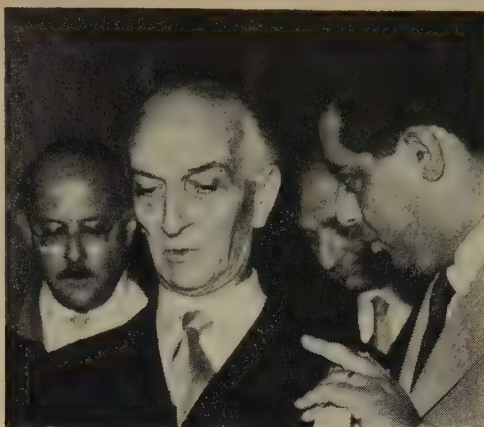
Area	Imports		Exports	
	1953	1954	1953	1954
United States.....	\$ 324.8	\$ 292.1	\$ 145.3	\$ 129.7
Other dollar area....	93.2	59.5	62.7	85.7
Sterling area.....	655.7	637.3	301.6	313.4
Other EPU area.....	966.0	1,023.0	682.6	776.4
Other countries....	380.6	389.0	314.7	331.5
Total.....	\$2,420.3	\$2,400.9	\$1,506.9	\$1,636.7

Italian exports showed a slight increase to the sterling area in 1954 and a larger increase to other EPU countries, especially West Germany and Switzerland. Although total exports to the dollar area rose to a small degree, those to the United States declined.

In 1955, Italy's trade with the United States rose once more. Imports from the United States in the first six months of the year amounted to \$180.4 million, as compared with \$147.3 million in the same period in 1954; and exports to the United States to \$86.3 million, as compared with \$65.7 million. The chief Italian exports to the United States are cheese, wine, vermouth, olive oil, tomatoes, textiles, office machinery, sewing machines, and motor scooters.

Principal Events, 1955. Domestic Affairs.—On April 29, Giovanni Gronchi (q.v.), a left-wing Christian Democrat, was elected president of Italy, succeeding Luigi Einaudi, at a joint session of the Chamber of Deputies and Senate. He lacked the support of the other three center parties of the government coalition—the Liberals, Republicans, and Democratic Socialists—and the votes of the Communists and left-wing Socialists were necessary to give him the required number of votes. Four ballots were cast; results of the fourth and final one were as follows: Gronchi, 658; Einaudi, 70; blank, 92; other candidates, 11; invalid, 2.

Although Gronchi is free from Communist leanings, he favors what is termed an "opening to the left." Speaking at his inaugural on May 11, he stated that he believed the extreme left-wing parties should share in the government in the "fundamental interest of Italian democracy." A younger man than his predecessor, he has indicated that he intends to play a more active role in Italian politics. In Italy the president's powers are more extensive than in most other countries



WIDE WORLD

Antonio Segni is interviewed in Rome, following his acceptance of the Italian premiership on July 2, 1955.

with a cabinet form of government. The president can dissolve Parliament before the expiration of its normal term, veto legislation, and authorize government bills.

On June 5, elections were held for the third regional Parliament of Sicily. A total of 2,736,185 persons, or 86.85% of the eligible voters, went to the polls. As compared with the preceding regional elections, held in 1951, the Christian Democrats improved their position considerably. They obtained 38.6% of the votes and 37 seats, as compared with 31.2% of the votes and 30 seats in 1951. Their gains were made at the expense of the minor parties, such as the Liberals, Republicans, and neo-Fascists. The Communists and their allies, the left-wing Socialists, continued to hold 30 seats.

Despite these regional gains, internal divisions in the Christian Democratic Party weakened the position of Premier Mario Scelba. On June 20 the members of his cabinet resigned so that he might reshuffle the offices. He was unable to form a new cabinet, however, and on June 22 he resigned after 16 months in office. Following consultations with party leaders, President Gronchi, on July 2, formally designated Antonio Segni, a left-of-center Christian Democrat, to form a new government. On July 5, Segni announced that he had formed a coalition government composed, as was that of Scelba, of 14 Christian Democrats, 4 Democratic Socialists, and 3 Liberals (like its predecessor, the government has the support in Parliament of the fourth center party, the Republicans). The new cabinet, which was sworn in on the following day, contained 12 ministers who served under Scelba, and most of the principal posts remained in the same hands.

In policy, Segni's government is committed, as was Scelba's, to continued collaboration with the Western countries, especially the United States. Its internal and social policies have a marked left-wing slant. The government was confirmed by the Chamber of Deputies, by a vote of 293 to 265 with 12 abstentions, on July 18, and by the Senate, by a vote of 121 to 100 with 3 abstentions, on July 22.

On August 26, the neo-Fascists (Italian Social Movement) and most of the Monarchists announced that they would in the future act as a single unit both in Parliament and in the labor unions. The new alliance is somewhat like that which joins the Communists and left-wing Socialists. Although its chief aim is stated to be fighting

Communist and left-wing subversion, its opposition to the Christian Democrats will mean in practice that it will vote with the extreme left.

During the year there was a substantial weakening of the Communist hold on Italian labor. In elections held on March 29 at the Fiat automobile plant in Turin, candidates of the democratic unions won an overwhelming victory over those of the Communist-controlled Italian General Confederation of Labor, who obtained 39% of the votes, as compared with 63% at the previous elections. A similar result was obtained in elections for shop stewards held on April 21 at the Falck factories in Sesto San Giovanni, a suburb of Milan. As reported on July 27, final results of the 1955 Italian shop steward elections indicated that, although the Communist-controlled unions still commanded 54% of the votes, they had lost about 14% of their strength since the previous year, while the non-Communist unions had increased theirs by over 36%.

There has been an increase in the number of strikes, from 1,407 in 1953 to 1,984 in 1954, and the trend continued in 1955. The principal cause of the work stoppages was labor's demand for a new system of computing industrial wages, resulting in additional costs for industry of 90 billion lire annually. On May 28, 1955, 91,600 teachers in secondary schools struck for higher salaries. They asked for a beginning salary of \$105 per month, as compared with the current average of \$80. The government promised to study their grievances.

Foreign Affairs.—International cooperation in the fields of economics, finance, and trade continued to be a pillar of Italian foreign policy in 1955, in harmony with the policies of other western European countries. On January 10-12, Premier Pierre Mendès-France paid an official visit to Rome. On February 14, Premier Scelba and Foreign Minister Gaetano Martino visited the headquarters of the North Atlantic Treaty Organization (NATO) near Paris and then, on February 15-20, consulted with the British government in London. On their return to Italy, they expressed satisfaction with the strengthening of friendly relations with other Western countries. The Chamber of Deputies had voted on Dec. 23, 1954, to ratify the Paris agreements reorganizing the Western European Union (WEU) and admitting West Germany to NATO. Following wild demonstrations in Rome for and against the WEU, the Senate also ratified the agreements, by a vote of 139 to 82, on March 11, 1955.

Relations with the United States also were close. On January 7, Italy signed an agreement with the Foreign Operations Administration (FOA), and on February 11, Mrs. Clare Boothe Luce, United States ambassador to Italy, informed the Italian government that the FOA had

assigned \$15.5 million as a contribution to the Cassa per il Mezzogiorno. In addition, \$37.5 million in accumulated Trieste counterpart funds would be turned over to Italy to use in assisting the economy of the territory.

On March 25-27, Premier Scelba and Foreign Minister Martino visited Canada and then, from March 27 to April 8, paid an official visit to the United States. In their speeches and in their conversations with President Dwight D. Eisenhower and Secretary of State John Foster Dulles, they urged that NATO be developed into an economic, social, and political organization.

Under an agreement signed in Rome on May 23, Italy was to receive \$50 million worth of United States cotton, wheat, and tobacco. The agreement also provided for loans to aid in the redevelopment of southern Italy and the islands.

The forthcoming conclusion of the Austrian State Treaty and withdrawal of the occupying forces led to negotiations with Italy on the transfer to Italy of some of the United States troops previously stationed in Austria. In May, Foreign Minister Martino said that Italy had no objection to the transfer, and that the country would comply with any decision the North Atlantic Council might take. There were many protests by Communists and left-wing Socialists, but the independent Italian press indicated that the United States troops would be welcome. (The United States had previously had troops stationed in Leghorn to maintain a supply line in Austria.) On September 29 the first combat troops were transferred from Austria to Italy. They were stationed at Vicenza, the site of two of the three barracks turned over to the United States by the Italian government. By October 25, a total of 5,500 troops entered Italy. They formed a new NATO force known as the Southern European Task Force (SETAF).

The Chamber of Deputies, on September 28, and the Senate, on October 12, approved Italy's policy of collaboration with the West and her continued active membership in NATO. On October 22, Secretary Dulles, en route to the Big Four conference in Geneva, visited Rome. In talks with President Gronchi and Premier Segni, he discussed relations between the two countries and international problems. Although the Italians reaffirmed their determination to remain loyal to NATO, they stated that they believed Italy should play a more important role in decisions affecting Western affairs.

On December 14, Italy, along with 15 other countries, was elected to membership in the United Nations.

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IVORY COAST. See FRENCH WEST AFRICA.



JAMAICA. This British West Indian colony, lying 90 miles south of Cuba in the Greater Antilles, has an aggregate area of 4,674 square miles and a population provisionally estimated at 1,546,584 in 1954. It comprises the island of Jamaica (area, 4,411 square miles; 1954 est.

pop., 1,531,933); the Morant and Pedro cays; and the two dependencies of Turks and Caicos Islands (170 square miles; est. pop., 7,000), and Cayman Islands (93 square miles; est. pop., 7,651). On Jamaica are United States leased naval and air bases. Kingston (pop., 142,464 in 1953) is the capital and chief seaport. Most of

the inhabitants are of Negro stock. The colony's legislature has adopted the plan for a British Caribbean Federation (see **BRITISH WEST INDIES**).

Government.—The governor, Sir Hugh Mackintosh Foot (assumed office April 1951), gave effect to constitutional changes in 1953 and again in 1955, providing for 9 elected ministers from the 32-member House of Representatives, who serve on the 14-member Executive Council and have executive responsibilities. N. W. Manley, leader of the People's National Party, which at elections held in January 1955 won 18 seats in the House of Representatives, is the chief minister. A 15-member Legislative Council constitutes with the House of Representatives a bicameral legislature.

Finance.—Government expenditure in 1954-55 totaled £16,249,385; revenue, £16,533,802. Estimated revenue for 1955-56 was £17,018,270; expenditure, £18,149,576. The British Treasury is contributing £4,229,000 to a 5-year development program estimated to cost £30 million.

Education.—In 1954 the 698 government primary schools had 218,611 pupils; 26 secondary, 7,000; and 10 vocational, 2,260. Government expenditure on education totaled £2,550,000. The University College of the West Indies, at Mona, St. Andrew, has faculties of medicine, natural science, and art.

Production and Trade.—Acreage and production in 1954 of principal crops were as follows: sugarcane, 147,500 acres (363,304 tons of sugar); bananas, 110,000 acres (14,500,000 stems); coconuts, 120,000 acres (9,013 tons of copra); cocoa, 2,480,000 cocoa trees (2,700 tons of cocoa exported); and coffee, 17,600 acres (2,100 tons exported). Rum manufactured in 1954 totaled 1,935,000 gallons.

Production of bauxite, in which an estimated £22 million is invested, rose from 200,000 tons in 1952 to an aggregate in 1953 of 1 million tons shipped from the island to continental smelters.

The total value of exports in 1954 was £29,983,473, including sugar, £10,984,250; fruit and nuts, £5,421,489; rum, £859,391; and tobacco, £409,981. Imports were valued in 1954 at £37,467,252. In 1954, Jamaica's net dollar position from all transactions showed a surplus of £9,325,000, representing an increase of 20 per cent over 1953.

Communications.—Railways aggregate 250 miles, and highways, 6,992 miles. Palisadoes Airport, near Kingston, and Montego Bay Airport are operated by the government. Nine airlines, including British West Indies Airways, serve the colony.

Turks and Caicos Islands.—Grand Caicos is the largest island of this dependency, lying 450 miles northeast of Jamaica. On Grand Turk (pop., 1,800), the principal island, are the capital and an important cable relay station. A guided missile observation station was completed on Grand Turk in 1953 (see **BAHAMAS**), and a naval facility in 1954. A commissioner (E. G. Lewis) heading the administration is assisted by an 11-member Legislative Board. The government operates 12 schools and has doctors on Grand Turk and South Caicos.

Salt of the finest quality is produced by solar evaporation; other exports include sisal to Jamaica, crawfish to Miami, Fla., and conchs to Haiti and Miami. Many of the islanders are employed in lumberyards in the Bahamas.

Cayman Islands.—Grand Cayman, Cayman Brac, and Little Cayman are principal islands of this dependency, lying 178 miles northwest of Jamaica. On Grand Cayman are Georgetown (pop., 1,462), the capital; West Bay (1,886); and Boddentown (618). A commissioner (A. M. Gerrard) is assisted by a 54-member Legislative Assembly. In 1955 there were 11 government elementary schools, and two private secondary schools.

Principal local industries are turtle and shark fishing, and the manufacture of thatch rope.

There is an international airport at Grand Cayman, from which regular passenger, mail, and freight services of British West Indies Airways and Líneas Aéreas Costarricenses link the dependency with Miami, Fla., Jamaica, and Central America. Grand Cayman is also connected by air with Cayman Brac.

JAMES, Marquis, American author: b. Springfield, Mo., Aug. 29, 1891; d. Rye, N.Y., Nov. 19, 1955. A journalist with a romantic attachment to the American frontier, he was awarded the Pulitzer Prize for biography in 1930 for *The Raven: A Biography of Sam Houston* (1929), and again in 1938 (shared with Odell Shepard) for his two-volume biography of Andrew Jackson (1933-38).

Before he was three years old, Marquis James moved with his parents to "a raw prairie claim" near Enid, Okla., about which he later wrote in his autobiographical work, *The Cherokee Strip* (1945). Following a brief period of study in Enid at Oklahoma Christian University (now Phillips University), he worked from 1910 to 1913 as a reporter for a number of newspapers in the Midwest, the South, and the East, supplementing his income by writing for the pulp magazines. Subsequently he became a copyreader for the *Chicago Tribune* (1914), an assistant city editor of the *Chicago Daily Journal* (1915), and finally a rewrite man for the *New York Tribune*.

With the entry of the United States into World War I, James served for 19 months in France, emerging as a captain of the infantry. After the war he became national director of publicity for the American Legion, and helped found the *American Legion Monthly*. In 1923 he was named the magazine's editor, a post he held until 1932. His contributions to the magazine, mostly of a historical nature, began to attract attention, and in 1925 he was appointed to the writing staff of *The New Yorker*. He left this position in the following year to begin work on his biography of Sam Houston.

Besides his colorful and meticulously documented historical works, he wrote several books on institutions and personalities prominent in the American business world, among which are *Alfred I. DuPont: The Family Rebel* (1941); *Metropolitan Life: A Study in Business Growth* (1947); and *The Texaco Story: The First Fifty Years, 1902-1952* (1953).

JAPAN. A constitutional monarchy of eastern Asia, Japan consists of four main islands—Hokkaido, Honshu, Kyushu, and Shikoku—and numerous small ones, with a total area of 142,798 square miles. Administratively it is divided into 45 prefectures and the region of Hokkaido.

Population.—In May 1955 the population was estimated at 88.9 million, an increase of almost 1 million over the previous year. The net population increase declined from 12.6 persons per 1,000 in 1953 to 11.9 per 1,000 in 1954, but Japan still faces the necessity of developing an economy to provide for 100 million persons by 1965. Population density is about 622 persons per square mile, and the density of 3,890 persons per square mile of cultivated land is the highest in the world. By 1955 the land reform program had added 1,332,500 acres to the cultivated area, and projects were under way to drain large new tracts near Nagasaki and Okayama.

Greater Tokyo had a population of 7,736,113 on Aug. 1, 1954. Other major Japanese cities, with their 1950 census populations, are Osaka (1,956,136), Kyoto (1,101,854), Nagoya (1,030,635), Yokohama (951,189), and Kobe (765,435).

Government.—Executive power rests in a cabinet responsible to the Diet, or Parliament. The latter is divided into a 250-member upper chamber, the House of Councillors, half of whose

members are elected every 3 years for 6-year terms; and a 467-member House of Representatives, for which elections are held every 4 years unless it is previously dissolved. Under the Constitution of 1947, Emperor Hirohito's powers are restricted largely to ceremonial functions.

Defense.—For the fiscal year 1955 (ending March 31, 1956), Japan adopted a defense budget of 132.7 billion yen (360 yen = U.S.\$1), which involved a reduction of 17.8 billion yen in the Japanese contribution to United States forces in Japan. Of the total, 86.8 billion yen was for the Defense Board, 38 billion for the support of United States forces in Japan, and 7.9 billion for the expansion of facilities.

Legislation to establish a National Defense Council, consisting of the prime minister, foreign minister, director general of the Defense Board, and head of the Economic Counsel Board, passed the House of Representatives on July 27, 1955, but died when the House of Councilors failed to act before adjournment. Because of the failure of this legislation to be enacted, Arata Sugihara, head of the Defense Board, resigned and was replaced on July 31 by Shigemasa Sunada. Pending creation of a National Defense Council, Sunada established on August 2 an unofficial consultative body of former generals and admirals, known as the Cabinet Defense Deliberation Council, to assist in defense planning.

During the fiscal year 1955 the ground self-defense force (Japan's armed forces are known as self-defense forces) was scheduled to reach a strength of 130,000. The naval self-defense force, with a goal of 20,000 men, launched a number of its own ships for the first time and received from the United States its first planes. The air self-defense force received its first planes in January 1955; its strength was set at 12,000 men.

Education.—Education in Japan is compulsory and free for 6 years of elementary school and 3 years of junior high school; attendance in these grades is almost 100%. As of May 1, 1954, there were 22,036 elementary schools with 11,750,923 pupils, 12,650 junior high schools with 5,664,066 pupils, 3,257 senior high schools with 2,544,966 students, and 227 colleges and universities with 491,543 students. In addition, there were 251 junior colleges.

Religion.—Since many Japanese are believers in both Buddhism and Shintō, of a population estimated at 84 million in 1951 there were more than 43 million adherents of 207 Buddhist sects (7 of them having over 1 million followers each) and 70 million members of 201 Shintō sects. In addition, there were 415,000 Christians (225,000 Protestants, 157,000 Roman Catholics, and 33,000 members of the Japan Orthodox Church).

Economic Conditions.—National income in 1954 totaled 6,197 billion yen; for 1955 it was estimated at 6,323 billion yen. Per capita income increased from 68,582 yen in 1953 to 70,149 yen in 1954. Since 1953 real per capita income has exceeded the prewar (1934-36) level, but it is still roughly one tenth that of the United States, one fourth that of Great Britain, and less than half that of West Germany.

A budget for the fiscal year 1955 of 991,457 million yen, or slightly less than the 999,879 million yen total of the combined regular and supplemental budgets for the fiscal year 1954, was passed by the House of Representatives on June 7, 1955, and by the House of Councilors on July 1, after the nation had operated on provisional budgets for three months. Members of the opposition Liberal Party had demanded a bond

issue with funds to be applied to tax reductions, and the budget was passed only after the Democratic government compromised to the extent of selling bonds to city banks in order to raise investment funds originally included in the budget. At the same time, welfare expenditures were increased.

Japan's balance-of-payments position and the economy as a whole continued throughout 1955 to show the favorable effects of a deflationary program instituted late in 1953. The overall payments position for the first six months of 1955 showed a surplus of \$140 million, as compared with a deficit of \$176 million for the same period in 1954. Special United States procurement orders continued to account for the favorable payments position, but whereas such orders constituted 38% of Japan's total receipts in 1953 and 26% in 1954, they amounted to only 22% of receipts in the first half of 1955. As of March 31, 1955, foreign exchange holdings totaled \$1,106 million, as compared with \$802 million in March 1954.

Prices also reflected the stabilizing effects of the deflationary program, with the consumer price index (1952 = 100) for July 1955 standing at 117.1, as compared with 118.7 at the beginning of the year and 119.9 in July 1954. The wholesale price index (1952 = 100) was 97.3 for July 1955, as compared with 97.6 a year earlier. The number of totally unemployed, however, reached a postwar high of 840,000 in March 1955, before declining to 680,000 in June.

Production.—Partly as a result of deflationary fiscal measures, Japanese industry experienced a general deflation during 1954, but business began to revive in the last quarter of the year, and this trend carried over into 1955. The industrial index (1934-36 = 100) was 185.8 in July 1955, as compared with an average of 173.5 for 1954.

Electric power output in 1954 totaled 50,108 million kw.-hr. (40,338 million of hydroelectric and 9,770 million of thermal power), an increase of 6% over 1953. A five-year power development plan envisages an increase of 5,120 million kw.-hr. by March 31, 1958. Meanwhile, coal mining efficiency, as the result of narrow seams, increased drainage, and pit extension, remained at 55% of the prewar level; 42,717,855 metric tons of coal were produced in 1954, as compared with 46,530,638 tons in 1953.

The year 1954 was one of the best in the history of the Japanese steel industry, partly because of the European steel boom. Pig iron production totaled 4,608,262 metric tons, and steel ingot production 7,740,317 metric tons, as compared with 4,515,676 and 7,652,800 tons, respectively, in 1953. Production of other commodities in 1954, with 1953 figures in parentheses, was as follows: paper pulp, 1,632,000 (1,512,000) metric tons; cement, 10,633,000 (8,768,400) metric tons, an all-time record; and cotton yarn, 1,023,878,000 (861,237,000) pounds.

The 1955 rice crop was forecast at 11,100,000 metric tons, the best in Japan's history (9,113,000 metric tons in 1954). Other forecasts were: wheat, 1,469,000 metric tons (1,516,000 in 1954); and barley and naked barley, 2,407,000 metric tons (2,583,000 in 1954). There were 440,000 fishing vessels aggregating 1,210,000 tons in Japan in 1953; the year's catch amounted to 4,250,000 tons, as compared with an average prewar catch of 3,700,000 tons.

Foreign Trade.—Japanese exports in 1954 totaled \$1,629.4 million and imports \$2,399.6 million, as compared with \$1,274.8 million and

\$2,409.6 million, respectively, in 1953. The increase in exports was accounted for by easy credit terms, the linkage of import profits to export subsidies, an increased emphasis on barter trade, and export incentives through foreign exchange retention provisions, all of which coincided with a general improvement in world business conditions. At the same time, imports were held down through the deflationary program, a prohibition of luxury imports, and a reduction in the stocks of imported raw materials. This trend continued in the first half of 1955, in which exports totaled \$892 million and imports \$1,222 million, as compared with \$719.6 million and \$1,412 million, respectively, in the corresponding period of 1954.

The principal exports in 1954 (in millions) were cotton fabrics, \$252; iron and steel, \$166; chemicals, principally fertilizers, \$79; ships, \$52; and canned and frozen fish, \$44. The more important imports were raw cotton, \$432; rice, \$251; petroleum, \$199; machinery, \$177; wheat, \$168; and wool, \$147. Japan's most important customers (in millions) were the United States, \$284; Indonesia, \$120; Brazil, \$78; Hong Kong, \$77; South Korea, \$69; Formosa, \$66; and Thailand, \$65; imports were obtained chiefly from the United States, \$851; Canada, \$123; Australia, \$117; Saudi Arabia, \$111; Mexico, \$92; Brazil, \$74; and Thailand, \$69.

Transportation and Communications.—Japan has about 17,200 miles of railways (12,400 government operated), of which 28% are electrified. There are approximately 86,000 miles of national and prefectural roads, and as of April 1954 the number of registered motor vehicles was 1,122,000. Scheduled air transportation is provided by 3 Japanese and 11 foreign airlines. There are 2.8 million telephones (September 1954), 10.5 million radio receiving sets (March 1953), and 5 television stations and approximately 50,000 sets (1955). (See also BRIDGES.)

Domestic Affairs, 1955. Elections.—When conservative Democratic Prime Minister Ichiro Hatoyama formed his first cabinet on Dec. 10, 1954, with Socialist support, he was able to do so only by promising to hold general elections by the following March. Accordingly, the 21st regular session of the Diet was convened as a formality on Jan. 21, 1955, only to be dissolved three days later, and Japan's sixth postwar general elections were scheduled for February 27. Despite more stringent restrictions on electioneering than had applied to any previous election, 37,338,182 persons, or 75.8% of the eligible voters, went to the polls; this was the second highest percentage in the postwar period.

As a result of the elections, the positions of ex-Prime Minister Shigeru Yoshida's Liberals, for most of the postwar period Japan's largest party, and that of Hatoyama's Democrats were virtually reversed. Liberal seats in the House of Representatives dropped from 183 to 112, while the Democrats improved their position from 122 seats to 185, receiving 36.5% of the popular vote, as opposed to 26.6% for the Liberals. Both Socialist parties gained seats at the expense of the conservatives, with the Left Socialists for the third straight election improving their position with respect to the Right Socialists. The Left Socialists won 15.4% of the popular vote, and the Right Socialists, 13.9%. Total Communist strength remained the same, even though the Communist Party increased the number of its seats from 1 to 2, since their satellite Labor-Farmer Party dropped from 5 to 4 seats.

Inasmuch as the Liberal Party had been in power for a number of years and there was considerable sentiment that it was time for a change, it is difficult to pinpoint the issues that led to Hatoyama's success. A major campaign issue was the question of closer relations with nations of the Communist bloc, the Democrats calling for a "more independent" foreign policy, while the Liberals pointed to the danger of jeopardizing Japan's close relations with the United States. With respect to constitutional revision, both conservative parties favored revising not only Article 9, which is interpreted by many persons to forbid rearmament, but other articles as well, generally in the direction of a more centralized control of government; the Socialists vehemently opposed such revision. Rearmament itself was an issue, with the Socialists opposing acceptance of United States military assistance, while the conservatives advocated gradually rebuilding a modest military force for Japan's self-defense. Finally, there was a series of scandals with which the conservatives as a whole, and the Liberals in particular, had been charged in 1954.

Although the position of the conservative parties did not greatly deteriorate—they maintain roughly a two-to-one edge over the Socialists—the latter now hold over one third of the seats in the House of Representatives and therefore can effectively block constitutional revision, for which a two-thirds vote of both houses is required prior to a popular referendum. The Socialist gains were widely credited to their ability to win over new voters, some 2 million of whom had come of age.

The accompanying table indicates the number of seats each party held in the lower house before and after the elections and as of Oct. 10, 1955. The distribution of seats in the upper house as of that date also is shown.

Party	House of Representatives Before election	House of Representatives After election	Oct. 10, 1955	House of Councillors Oct. 10, 1955
Liberal ¹	183	112	117	90
Democratic ¹	122	185	185	25
Right Socialist ²	61	67	66	24
Left Socialist ²	73	89	89	45
Ryokufukai (Green Breeze Society).....	...	...	...	47
Labor-Farmer.....	5	4	4	2
Communist.....	1	2	2	1
Other.....	13	8	3	11
Vacancies.....	9	...	1	5
Total.....	467	467	467	250

¹ Merged on November 15. ² Merged on October 14.

When the Diet was convened on March 18, Hatoyama was elected prime minister. He immediately formed a Democratic cabinet, approved on the following day, in which Mamoru Shigemitsu continued as deputy prime minister and foreign minister.

On April 23 and 30, Japan's first local elections since 1951 were held. As in the case of the Diet elections, the Democrats gained at the expense of the Liberals, although the latter maintained their edge in most of the prefectural assemblies, and the Left Socialists gained at the expense of the Right Socialists. Conservative independents were elected governors of Tokyo and Osaka by narrow margins over their Socialist opponents.

Political Developments.—As compared with 1954, little major legislation was enacted at the session convened in March 1955, even though the Diet prolonged its activity until July in order to pass the budget. A bill to establish a Constitutional Research Council as a first step toward



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Japanese Foreign Minister Shigemitsu greets Gen. Douglas MacArthur in New York City, Sept. 2, 1955, on the 10th anniversary of Japan's surrender.

constitutional revision was passed by the lower house on July 28, but died in the same manner as the bill to create a National Defense Council (see above, *Defense*) when the upper house failed to act before adjournment. Much of the Diet's activity was devoted to partisan politics. A no-confidence motion against a leading Democratic politician, Ichiro Kono, minister of agriculture and forestry, was passed by the House of Representatives Budget Committee in June (Liberals joining with the Socialists in opposition to the Democrats), but was not submitted to a plenary session. A Socialist-sponsored motion against Defense Board head Sugihara for his refusal to disclose the contents of the defense plan was defeated on the floor of the lower house in July.

Outside the Diet, political attention was focused on efforts to merge the two major conservative parties and to reunite the two Socialist parties, which had split in 1951. On April 12, Bukichi Miki, chairman of the Democratic Executive Board, startled political circles when he announced that both he and Hatoyama would step aside in the interests of a conservative merger. Since differences over personalities rather than issues have been the major stumbling blocks in the effort to create a single majority conservative party, this announcement, subsequently endorsed by the prime minister, gave rise to renewed activity in the direction of a merger. A joint Democratic-Liberal policy committee began talks in July to form a common program, and the chiefs of both parties—Miki and Nobosuke Kishi for the Democrats and Bamboku Ono and Mitsujiro Ishii for the Liberals—also began meeting regularly. Starting in Tokyo on September 28, a series of joint speech rallies were held in major cities at which Hatoyama and Taketora Ogata, president of the Liberal Party, appeared on the same platform for the first time, and declared a conservative merger necessary in order to stabilize the political situation. Finally, on November 14, the two parties were dissolved, and on the following day were replaced by a new Liberal-Democratic Party. Hatoyama resigned as premier on November 21. He was re-elected on November 22, and formed a new cabinet consisting of 9 former Democrats and 7 former Liberals.

As an election promise, the Socialist parties on January 18 had unanimously passed a resolution calling for an early merger and an all-out

struggle against the conservatives. Accordingly, a Socialist unification negotiating committee began meeting on May 6, and leaders of the two parties met together periodically thereafter. In September conventions of both parties accepted a draft platform for a unified party, and on October 14 the party was reunited at a joint unification convention.

Communist Party.—In 1955 the Communist Party in Japan publicly de-emphasized its underground activity and stressed nonviolent, open political action. Thus, a number of clandestine periodicals ceased publication during the year. Yoshio Shiga, a member of the Central Committee who had gone underground with other top leaders in 1950, surfaced on Jan. 21, 1955, to run for the Diet from Osaka; he was elected as one of the two successful Communist candidates, both from that city. As Communist candidates had done in the elections of April 1953, 39 of the 99 party candidates withdrew at the last minute, either because they would have run a poor last or to aid other left-wing candidates.

One of the political surprises of 1955 was the unexpected appearance at a Communist rally on August 11 of Sanzo Nosaka and two other party leaders. The three were seized by the police, but they were released on August 16, and on the next day Nosaka was named first secretary of the party. Since it was announced on July 29 that Kyuichi Tokuda, former secretary general, had died in Peking, the only member of the Central Committee remaining underground was Ritsu Ito, who had been purged by the party in 1953.

Labor.—Japanese labor is organized into two major federations—Sohyo (General Council of Japanese Trade Unions), with 3,000,000 members, and Zenro (Japanese Trade Union Council), with 800,000 to 900,000 members—and a number of independent unions with a total membership of 1,500,000 to 2,000,000. The Teachers Union, which belongs to Sohyo, with 565,000 members is Japan's largest union.

At Sohyo's annual convention in August 1955, Minoru Takano, pro-Communist secretary general, was replaced by Akira Iwai. Takano remained in control of much of the federation's organization, however, and Sohyo continued to engage in political activity on a large scale. Its leadership of the sometimes violent protest movement against extension of certain United States air bases in Japan was criticized in the Diet as a violation of the labor union law.

Foreign Affairs, 1955.—During 1955, Japan continued to work in close cooperation with the United States at the same time as it attempted to restore relations with the USSR and Communist China and to reassert its position as an Asian nation. Despite the emphasis placed during the election campaign on the necessity of Japan's "balancing its relations with the United States," Foreign Minister Shigemitsu declared in a major foreign policy speech before the Diet in April, "It is and shall be our immutable policy to maintain close cooperation with the United States so that Japan's international position is assured," and Prime Minister Hatoyama gave repeated assurances that Japan remained aligned with the free world.

United States.—United States interest in Japan in 1955 was symbolized by the visits to Japan of a number of government officials: Adm. Arthur W. Radford, chairman of the Joint Chiefs of Staff, in January; Harold E. Stassen, head of the Foreign Operations Administration, and As-

sistant Secretary of Defense H. Struve Hensel, in March; and Under Secretary of State Herbert Hoover, Jr., and John B. Hollister, director of the International Cooperation Administration, in October.

Foreign Minister Shigemitsu visited Washington, together with Democratic Party Secretary General Kishi and Agriculture and Forestry Minister Kono, on August 29-31. The joint communiqué issued at the close of this visit emphasized the unity of views of the two countries. It was agreed that Japan should, "as rapidly as possible, assume primary responsibility for the defense of its homeland and be able to contribute to the preservation of international peace and security in the Western Pacific." The two countries concurred that when these conditions had been achieved, "it would be appropriate to replace the present Security Treaty with one of greater mutuality."

An agreement was initiated in Washington on June 21, providing the basis for future cooperation between the United States and Japan in the field of atomic energy. Pursuant to an agreement reached on May 27 under the authority of the Agricultural Trade Development and Assistance Act of 1954, Japan is to purchase \$85 million worth of agricultural commodities, paying 25% in yen, with the remainder converted into a long-term Export-Import Bank loan. A second agreement, for \$65.8 million worth of such commodities, was initiated in Washington on September 30.

Asian Nations.—On Jan. 25, 1955, Japan received an invitation to its first postwar international political conference, the Asian-African Conference (q.v.) held at Bandung, Indonesia, on April 18-24. It sent to the conference a delegation led by Tatsunosuke Takasaki, head of the Economic Counsel Board, and participated actively in all committee meetings. Japan's desire to participate in regional economic development programs in Asia was exemplified by its attendance at a conference of Colombo Plan members held at Simla, India, in May; and at the meeting of the Colombo Plan Consultative Committee held in Singapore in October. In addition, Tokyo was chosen as the site of the 11th session of the U.N. Economic Commission for Asia and the Far East (ECAFE), held on March 28-April 7.

Considerable progress was made in 1955 toward settling Japan's wartime obligations to its Asian neighbors, although these remained among the most difficult problems for Japanese foreign policy. Instruments of ratification of the peace treaty and the reparations and economic cooperation agreement signed with Burma on Nov. 5, 1954, were exchanged in Tokyo on April 16. Following the visit to Japan in April of Prince Wan Waithayakon of Thailand, a settlement of \$41.6 million was reached with respect to Thai accounts blocked in Japan during World War II. In addition, a Japan-Thailand cultural agreement was signed on April 6.

After prolonged negotiations in Manila and Tokyo, a formal proposal was made by the Philippines in August to settle its reparations claims against Japan for a total of \$800 million. Of this sum, \$500 million would be in capital goods, \$30 million in services (\$230 million of the combined total being payable in 10 years and \$300 million in 10 to 20 years), \$20 million in cash, and \$250 million in development loans. Inasmuch as the opposition Liberal Party strongly opposed certain features of the proposal, and in view of past difficulties in negotiating with the Philippines, how-

ever, there was no guarantee that the agreement would go into effect.

Although Takasaki had an opportunity to talk to Indonesian officials at the Bandung Conference, little progress was made in settling reparations claims with Indonesia.

Relations with the Republic of Korea, with which negotiations for the restoration of normal diplomatic relations had been broken off in 1953, remained strained in 1955. The South Korean government continued to seize Japanese fishing vessels within a unilaterally proclaimed Rhee Line; Takeshima, two tiny islands in the Sea of Japan, in dispute between the two countries, remained in the hands of South Korea, which had seized them in 1954; the Japanese would not agree to the release of a number of Koreans detained at Omura unless the Republic of Korea would accept them; and each country continued to maintain property claims against the other. Rumors of Japanese intentions to trade with North Korea, and the accidental sinking of a Japanese vessel by a Korean frigate in February further exacerbated relations. In August the Republic of Korea decided to sever trade relations with Japan, and on November 17 it was announced that any Japanese fishing vessel crossing the Rhee Line would be fired on.

The USSR and Communist China.—Toward the end of 1954 both the USSR and Japan had hinted broadly that they were prepared to enter into negotiations leading to the restoration of relations between the two countries. On December 11, following the first meeting of Hatoyama's first cabinet, Shigemitsu stated, "Let it be remembered that we desire to cultivate friendship with all the nations of the world irrespective of ideology. We are, therefore, willing to restore normal relations with Russia and China on mutually acceptable terms, without prejudice, however, to our basic collaboration with the free nations." Following receipt by Hatoyama of an unsigned note from the chief of the unofficial Soviet mission in Tokyo, the Japanese Cabinet decided on Feb. 4, 1955, to open negotiations with the USSR. An exchange of notes thereupon ensued, with the USSR requesting that talks be held in Tokyo or Moscow, and Japan suggesting New York as the site. London was finally decided on as a compromise, and talks between Russian Ambassador Jacob A. Malik and Japanese Ambassa-

Prime Minister Hatoyama (in light suit) is cheered after Japanese parliamentary elections on Feb. 27, 1955, in which his Democratic Party won 36.5% of the popular vote.



UNITED PRESS

dor Shunichi Matsumoto commenced on June 1.

Progress at the talks was slow, since the Japanese insisted that such issues as the repatriation of Japanese still held in the USSR and territorial questions be settled at the outset, while the USSR held that it was necessary to end the state of war between the two countries and exchange diplomatic missions before discussing other questions. A Russian draft treaty submitted on June 14 bore a striking resemblance to the Soviet proposals submitted at the San Francisco Conference in 1951; among the more unacceptable provisions was the prohibition of passage through the straits leading to the Sea of Japan by warships of nations other than the USSR. Japanese counterproposals, more nearly in conformity with the San Francisco Treaty, were submitted on August 16, but failed to elicit a favorable response.

A 38-man Communist Chinese trade mission visited Japan, where it concluded on May 4 an unofficial agreement with trade representatives and members of the Diet League for the Promotion of International Trade. The agreement called for \$84 million worth of trade in each direction, but since it would require government sanction for implementation, its effect was limited.

Additional groups of Japanese Diet members, labor leaders, and academicians traveled to both the USSR and Communist China during 1955, but few tangible benefits from this intercourse were forthcoming. Both countries continued to seize Japanese fishing vessels, and even though Communist China agreed to the repatriation of at least two groups of Japanese during the year, a total of 71,165 Japanese were still in Communist hands, 52,167 in Communist China and 13,037 in the USSR and Outer Mongolia, according to a Ministry of Welfare announcement made in May.

Prime Minister Hatoyama had called recognition of "two Chinas" the best possible solution, claiming that Japan could play a role between East and West. On August 17, however, cold water was thrown on any hopes for an early settlement with Communist China by a stiff statement by Chou En-lai, in which he called Japanese repatriation demands "groundless" and demanded normalization of relations and the development of trade.

In December, Japan's hopes for entry into the United Nations were shattered by Soviet insistence on coupling Japan's admission with that of Outer Mongolia. (See also UNITED NATIONS.)

ALBERT L. SELIGMANN,
U.S. Department of State.

JAPANESE SOUTH SEA ISLANDS. See PACIFIC ISLANDS.

JARDINE, William M., American educator and public official: b. Oneida County, Idaho, Jan. 16, 1879; d. San Antonio, Texas, Jan. 17, 1955. Although he spent the major portion of his life in the field of education, he gained national prominence as secretary of agriculture (1925-29) under President Calvin Coolidge, and as minister to Egypt (1930-33) under President Herbert Hoover.

After graduating from the Utah State Agricultural College in 1904, Jardine taught in the agronomy department of the college until 1906. In the following year he was appointed assistant United States cerealist in charge of dry-land grain investigations, a position he held until 1910 when he accepted a post as agronomist at the Kansas State College of Agriculture. He was

named dean of agriculture in 1913 and president of the university in 1918.

His career as educator was interrupted in 1925 when President Coolidge, in his second term, appointed him secretary of agriculture. In this capacity, Jardine expanded the Department of Agriculture by establishing a cooperative marketing division as a research bureau to aid in the organization of cooperative-farm projects. He gained national prominence in his opposition to the McNary-Haugen farm relief bill and for his support of a program providing for the development of farmer-owned commodity cooperatives which were to be governed by a Federal Farm Board.

After President Coolidge's term expired, Jardine remained in Washington as a representative of the Federated Fruit and Vegetable Growers Association. On July 11, 1930, President Hoover appointed him minister to Egypt, where he remained until shortly after the election of Franklin D. Roosevelt. After a brief period as state treasurer of Kansas, he was elected president of the Municipal University of Wichita in 1934, and remained there until his resignation in 1949. He was the author of numerous papers and bulletins on various subjects in the fields of agriculture, economics, and education.

JARVIS. One of the Line Islands in the Central Pacific about 1,350 miles south of the Hawaiian group. Area, 2.2 square miles. Jarvis has no permanent population. The island is under the U.S. Department of the Interior. It has a small airfield and weather station.

JAVA. See INDONESIA.

JEHOVAH'S WITNESSES. This Christian body has been doing ministerial work since 1884 under the direction of the Watch Tower Bible and Tract Society with headquarters at 124 Columbia Heights, Brooklyn, N.Y. Each member is a minister who preaches publicly and from house to house. In 1955 there were 78 branches with 642,929 Witnesses in 159 lands.

The major activity for 1955 was a series of "Triumphant Kingdom" assemblies held in 13 major cities of the world. Beginning in June, these 5-day assemblies had a combined attendance of 403,682 and conducted the baptisms of 13,016 newly ordained ministers. The largest of these meetings was held in Nürnberg, West Germany, where 107,423 persons gathered in Hitler's Zeppelinwiese. The Watch Tower Society arranged to transport more than 4,500 American and Canadian delegates to the European series of assemblies, attended by delegates from more than 60 nations.

An extensive building program was carried on by the society during the year. New offices and printing plants were under construction in Toronto, El Salvador, Costa Rica, and Brooklyn, N.Y., where the society is constructing a 13-floor plant for the publication of *The Watchtower* and *Awake!* magazines. The cost of this construction during the year was approximately \$2,750,000.

The society's president is Nathan H. Knorr; vice president, Fred W. Franz; and secretary-treasurer, Grant Suiter.

N. H. KNORR,
President, Watch Tower Bible and Tract Society.

JET PROPULSION. See INDEX entry.

JEWELRY. Personal consumption expenditures for jewelry and watches reached \$1,606 million in 1954, the highest it had ever been. In 1955

total jewelry retail sales were expected to equal or surpass the previous year's figure, after a rather slow start at the first of the year. A slight loss in sales was noted by large chain jewelry stores, while a gain was noted in department store sales of fine jewelry and watches in 1955.

It is evident that costume jewelry is more popular now than at any time in history. Costume jewelry sales in 1955 gained 15% over the previous year. A boom was also being recorded in the sale of cultured pearls. Japan, which sends about 60% or 70% of its total output of high-grade cultured pearls to the United States, doubled its exports in 1955 over 1954. There was also a good increase in men's jewelry sales.

Diamond sales remain the best part of the United States jewelry business. Watches and clocks are second, followed by sterling flatware, filled and novelty jewelry, china and crystalware, sterling hollowware, plated silverware, and appliances.

The international diamond situation is excellent. Controlled sales of the DeBeers diamond syndicate in 1955 were expected to exceed the previous all-time high, established in 1952, of \$195 million.

Biggest news of the industry was General Electric's mid-1955 announcement that it had succeeded in producing synthetic diamonds. G.E.'s first stone was about the size of a grain of sugar and cost over a million dollars to make. There seemed little likelihood that the manufactured product would pose a serious threat to the jewelry market because the high cost of producing the synthetics (about twice today's market price for industrial diamonds) is too prohibitive to warrant measurable competition with the natural stones. (See also MINERALOGY.)

ORVILLE R. HAGANS,

Editor and Publisher, "American Horologist and Jeweler."

JEWISH AFFAIRS. In 1955 the world Jewish population was estimated at approximately 11,900,000. The division by continents was as follows: North America, 5,450,000; South America, 630,000; Europe, 3,442,000; Asia, 1,684,000; Africa, 660,000; and Australia-New Zealand, 58,000. The United States had the largest Jewish population, with approximately 5,250,000 Jews. The Jewish population of other countries was: the USSR, 2,000,000; Israel, 1,550,000; Great Britain, 450,000; France, 300,000; Argentina, 360,000; Morocco, 240,000; and Canada, 230,000.

The year's major event in the United States was the national observance of the American Jewish Tercentenary (Sept. 12, 1954-June 1, 1955), commemorating the arrival in New Amsterdam of the first group of 23 Jews in 1654. The theme of the observance was "Man's Opportunities and Responsibilities under Freedom."

Jewish organizations in the United States continued their programs in the areas of religion, education, social welfare and recreation, overseas aid (especially to Israel), Zionism, and fraternal, benevolent, and community relations. (For a discussion of the religious, educational, and cultural programs, see the section *Judaism* under RELIGION.)

Jewish welfare agencies were organized locally in federations and welfare funds for purposes of joint fund-raising, evaluation of needs, and coordination of local programs. These central local groups, which conducted their activities in

communities inhabited by 95% of the total Jewish population, were in turn associated in the Council of Jewish Federations and Welfare Funds. They reached an estimated total of over 1,000,000 contributors, and provided financial support to about 150 overseas and national agencies and to over 800 local agencies. In the larger and intermediate communities, networks of local agencies provided service on the operating level, while in the smaller communities the Jewish federation frequently provided more limited service directly.

Jewish federations supplied about \$31,400,000 in 1954 (\$31,500,000 in 1953) to local services. Health and hospital programs were the largest single category of local federation beneficiaries, receiving over 90% of the allocations in the largest cities (with Jewish population of over 40,000). Other allocations locally went to recreation, family and child care, Jewish education, care for the aged, refugee aid, and community relations.

The National Jewish Welfare Board (JWB) was the largest of the national service agencies in the field of recreation and welfare. It coordinated the programs of the 345 Jewish community centers throughout the United States in 216 cities, with a total membership of more than 550,000. The rise in center membership was due in a large measure to the broadening of the center program to include activities for youth and for the aged. In 1954-55 new center buildings were dedicated in Milwaukee, Savannah, Wilkes-Barre, East New York (New York City), Syracuse, Utica, Plainfield, N.J., Youngstown, and Philadelphia.

Six national agencies worked primarily in the field of community or intergroup relations. These were the American Jewish Committee, the American Jewish Congress, the Anti-Defamation League, the Jewish Labor Committee, the Jewish War Veterans, and the National Community Relations Advisory Council. The last-named served as a coordinating and clearance agency for programs in this area.

Extensive programs of aid to Israel and to Jews in other lands were conducted. Financial aid was channeled mainly through the United Jewish Appeal and the Israel Bond Drive. A major development in Israel programs supported by philanthropic funds was the resumption of large-scale immigration in 1954 resulting from the pressure for emigration of Jews from North Africa, especially Morocco, which was the scene of unsettled political conditions. To help Israel admit and resettle some 30,000 immigrants from North Africa in 1954, American Jews made available approximately \$119,000,000 in philanthropic funds, as well as sizable sums raised through the sale of Israel bonds.

The principal instrumentality for the disbursement of the funds was the Jewish Agency for Palestine, which expended I£ 94,200,000 in the fiscal year ending Sept. 30, 1954, compared with I£ 69,834,000 in the previous year. In the six-month period October 1954 through March 1955, expenditures were I£ 54,595,000. The Joint Distribution Committee (JDC), the greatest of the American relief agencies, spent \$20,600,000 in 1954, mainly for its "Maiben" program of service to sick, aged, and handicapped immigrants in Israel. JDC also appropriated \$3,100,000 in 1954 for relief, health, and educational programs in Moslem countries.

American Jews also extended moral support for Israel's cause. They believed it was within the framework of its legitimate national self-interest

* See THE AMERICANA ANNUAL, 1955, page 395.

for the United States to maintain a policy of continued friendship toward Israel and to work for the establishment of peace between Israel and the Arab countries. They urged the United States to sell arms to Israel in order to balance Egypt's increase in armed strength resulting from that country's purchase of arms from Czechoslovakia.

After more than two years of negotiations, the Committee for Jewish Material Claims on Austria and the Austrian government reached an agreement in June 1955 for the indemnification by Austria to its victims of nazism. Austria agreed to pay some \$21,000,000 over 10 years as compensation to Austrian persecutees living in other countries. This sum, it was estimated, would provide some benefits to 15,000 families, most of them in the United States, England, and Israel.

MORRIS FINE,

Editor, "American Jewish Year Book."

JORDAN, Hashemite Kingdom of the. An Arab constitutional monarchy in southwestern Asia, Jordan (known as Transjordan until 1949) is bordered on the west by Israel, on the north by Syria, on the northeast by Iraq, and on the east and south by Saudi Arabia. Its area, of which 90% is desert, is about 37,500 square miles, including the section of Palestine annexed on April 24, 1950. The population of 1,403,000 (July 31, 1954, est.) includes nearly 500,000 Arab refugees displaced as a result of the Palestine War in 1948. Over 80% of the people are Arab Moslems of the Sunni sect. There are about 90,000 Christian Arabs; 10,000 Moslem Circassians, Chechens, and Turkomans; and a few Iranian Bahais. The capital is Amman, with a population of 170,000 (1953 est.). Jerusalem (the Old City) and Nablus are important cities in West Jordan. 'Aqaba, on the Red Sea, is the country's only port. Well-known Biblical sites, such as Bethlehem, Hebron, and Jericho, are in Jordan territory, as are Jerash, one of the cities of the Roman Decapolis, Kerak, with its Crusader fort, and the remarkable ruins of the rock city, Petra, now part of Wadi Musa.

Government.—King Hussein I (b. Nov. 14, 1935; acceded to the throne under a regency, Aug. 11, 1952; enthroned May 2, 1953) rules under a constitution of the British type. The Legislature consists of a Senate (House of Notables) of 20 members appointed by the king for 8-year terms; and a House of Representatives of 40 members (20 from East Jordan and 20 from West Jordan, the annexed section of Palestine) elected for a maximum term of 4 years by direct vote of adult male citizens. The king delegates executive authority to a cabinet responsible to the House of Representatives (see below, *Principal Events, 1955*).

Education.—In 1954 there were 119,904 students enrolled in 776 primary and secondary schools operated by the government, by charitable and missionary groups, and (for the children of refugees) by the U.N. Relief and Works Agency (UNRWA). Jordan has a trade school, a teacher-training institution, two intermediate agricultural schools, and an agricultural college.

Defense.—The major Jordan military force is the Arab Legion, commanded since 1939 by the British officer, Lieut. Gen. John Bagot Glubb. The legion is financed by annual grants (£7 million in 1955-56) from the British government. Jordan has a small air force (augmented in March 1955 by a gift from Turkey of 3 military aircraft, and in August by purchases of planes in Britain) and a volunteer national guard (Desert Patrol) for frontier defense. In February 1955, Britain announced a grant of £350,000 for support of the national guard for the fiscal year 1955-56. Under terms of the Anglo-Jordanian Treaty of March 15, 1948, the British maintain airfields at Amman and Mafrq and a small military garrison at 'Aqaba.

Finance.—The unit of currency is the Jordan dinar (JD). Jordan is a member of the sterling bloc, and the dinar is valued at £1 or U.S.\$2.80. Government expenditures habitually exceed local revenues. Annual grants-in-aid since 1953 of £750,000 from the British Treasury, plus British loans and American aid, have permitted budgets to be approximately balanced. In 1954-

55 revenues amounted to JD16,599,986 and expenditures, JD16,896,329.

Development Program.—A Jordan Development Board, established in 1952, supervises a 5-year program of irrigation, agricultural development, road and railway construction, enlargement and improvement of the port of 'Aqaba, hydroelectric development, and industrial expansion. The United States provided about \$11,000,000 for technical assistance and \$13,000,000 for economic development during the period 1951-55; and Britain extended interest-free loans of £500,000 in 1953-54, £1,600,000 in 1954-55, and £1,750,000 in 1955-56. During 1955, Eric Johnston, special envoy of President Eisenhower, continued his efforts to secure Arab and Israeli agreement for a comprehensive development plan for the entire Jordan River area, and a World Bank mission conducted an economic survey to determine Jordan's eligibility for a development loan. In October, Saudi Arabia established a credit of £2,000,000 for the projected rebuilding of the Hejaz Railway south of Ma'an.

Production.—The majority of the people of Jordan are engaged in agricultural or pastoral occupations. The chief crops are wheat (225,000 metric tons in 1952), barley (92,500 tons), maize (24,600 tons), millet, sesame, beans, tobacco, animal fodder, figs, grapes, and olives. Goats (358,000 in 1952), sheep (226,000), and cattle (81,000) are significant in the economy. Drought during the summer of 1955 caused serious crop damage in some areas. Small operations exist for the mining of phosphates, manganese, kaolin, marble, and gypsum. The Dead Sea contains valuable mineral salts. Manufactures, conducted in some 400 factories and workshops, most of which are small, include cement, flour, olive oil, cigarettes, wine and spirits, soap, shoes, textiles, and furniture.

External Trade.—Exports (1953 est., JD2.3 million) include fresh vegetables and fruits, cereals, olive oil, raw wool, skins and hides, live animals, and phosphates. Most exports go to the neighboring states of Lebanon, Syria, Iraq, and Saudi Arabia. Imports (JD18.4 million in 1953) include sugar, cereals, cotton and cotton textiles, rice, petroleum products, automobiles, cement, tea, coffee, iron and steel, and various manufactured goods. Major suppliers are Great Britain (\$8,555,258 in 1954), Syria (\$6,166,947), and the United States (\$5,367,953). The balance of trade is consistently unfavorable.

Communication.—Jordan has about 2,200 miles of roads, of which 950 miles (1952) are all-weather roads. The principal roads link Amman with the major towns of the country and with the road systems of neighboring states. On Dec. 1, 1954, motor vehicles of all types numbered 7,045 privately owned and 661 government-owned.

A railway, which traverses Jordan's entire length and is part of the Hejaz Railway, extends from the Syrian border through Amman, Ma'an, and Naqb Nashtar to Qal'at Saman on the Saudi Arabian border. International air service terminals are located at Amman and Jerusalem. Jordan has national and international mail and telegraph service, and on Jan. 1, 1954, there were 6,536 government-owned telephones.

Principal Events, 1955.—The friction between Jordan and Israel, which resulted in serious frontier clashes in 1954, was somewhat reduced in 1955. Minor raids and reprisals from both sides of the frontier, however, continued to take their toll of life and property. On April 18, 1955, following the killing of an American student by a

Jordanian guard in the Jerusalem "no man's land," arrangements were made to prevent hostile acts in the Jerusalem area and to permit direct telephone communications between the senior officers of both sides. On August 4 these arrangements were extended to the entire frontier. Border clashes between Egypt and Israel (q.v.) in 1955 brought forth expressions of Jordanian support for the Arab cause against the Jewish state, but the Israel-Jordan border remained relatively peaceful.

Exploratory negotiations looking toward a revision of the Anglo-Jordanian Treaty of 1948, due to expire in 1963, were begun in London from Dec. 21 to 23, 1954, on the initiative of the Jordan government. On Feb. 9, 1955, however, it was announced that the two governments had decided the time was not appropriate to consider changes in the treaty.

In April a Jordanian delegation led by Wahid Salah, the foreign minister, attended the Asian-African Conference (q.v.), which went on record as supporting Jordan's admission to the United Nations. Cabinet dissension made itself evident during April and May in the government of Prime Minister Tewfik Abul Huda, and on May 29 the ministry resigned. The king requested Said al-Mufti, prime minister in 1950, but not currently a member of Parliament, to form a government. On the following day the new premier announced a cabinet composed of 5 former ministers and 6 persons entering the ministry for the first time.

On April 19, King Hussein was married at Amman to Princess Abd al-Hamid Dina, a cousin of the king and daughter of Sherif Abd al-Hamid al-Aoun of Saudi Arabia. Princess Dina, a graduate of Girton College, Cambridge, once served as lecturer in English literature at the University of Cairo.

A dispute in the cabinet over British proposals that Jordan join the Baghdad Pact (q.v.) and that the 1948 treaty be revised led to the resignation of Said al-Mufti on December 14. A new government, formed on the following day by Hazza al-Majali, a supporter of the pact, fell on December 19 after riots in Jerusalem, Amman, Jericho, and other cities, directed against the pact and against the West in general. Parliament was dissolved, and a new caretaker government, headed by Ibrahim Hashim, was sworn in on December 21, and the new prime minister announced that his government would not "bind itself to any treaties or obligations" until elections had been held for a new House of Representatives. Meanwhile, on December 14, Jordan was one of the 16 new countries elected to membership in the United Nations.

PAUL L. HANNA,

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JOURNALISM. The newspaper business in the United States rode the wave of general economic prosperity and enjoyed the greatest degree of public support—in dollar volume—in its history. Total revenue from circulation sales and advertising space exceeded \$4 billion.

Newspaper Statistics.—The 1,765 daily newspapers had an aggregate sale of 55,072,480 copies (*Editor & Publisher International Year Book*), and 8,428 weekly papers claimed a total circulation of 17,396,936 (*National Directory of Weekly Newspapers*). In the daily field, there were 317 morning papers (a decline of 10 from 1954) with total circulation of 21,705,436 (a

gain of 1.3%); 1,448 evening papers (a decline of 10 from 1954) with total circulation of 33,367,044 (a gain of 1%); and there were 544 Sunday papers with total circulation of 46,176,450 (a gain of ½%). A total of 211 weekly newspapers, published in communities of 20,000 or less population, had a paid circulation of more than 5,000. Highest on this list was the LaGrange (Ill.) *Suburban Life* with 19,100.

Despite the establishment of many new less-than-daily edition newspapers in rapidly expanding suburban areas, there was a net loss of 121 weeklies, as compared with 1954. Still the largest newspaper in daily and Sunday categories was the *New York News*, with slightly more than 2 million sales weekdays (morning) and nearly 4 million sales on Sundays. The paper with the largest circulation in the evening was the *Philadelphia (Pa.) Bulletin* (over 700,000).

Approximately one fourth of the nation's dailies were published on five-day schedules, eliminating either Saturday or Monday, and Sunday, because of slim advertising revenue on those days.

The prevalence of the 7-cent weekday and 20-cent Sunday editions accounted for the record circulation receipts of \$1,256,075,000 by daily and Sunday papers. The 3-cent paper went the way of 1- and 2-cent papers under the pressure of need for greater revenue to meet expenses of labor, newsprint, and capital investment. As the price of newsprint rose above \$130 a ton and average wages for newspaper employees came nearer to \$100 a week, the nickel price for a daily paper also began to disappear rapidly.

New Ventures and Casualties.—New York, Boston, Chicago, and San Francisco were the only cities having four or more newspapers of general circulation. Los Angeles dropped from this list with the demise of the *Los Angeles News*. A major casualty in New York was the *Brooklyn Eagle* (130,000 circulation), which went out of business during a strike begun by the Newspaper Guild and supported by members of the craft unions. More than 600 employees lost their jobs. The publisher said he could not pay the \$135-a-week scale demanded for guild members of top experience.

In Jackson, Miss., a group of local business men pooled assets of approximately \$1 million and put the daily-Sunday *State-Times* into business in a completely new plant and in competition with two papers merged under one ownership—the *Clarion-Ledger* (morning) and the *Jackson Daily News* (evening), with a combined Sunday edition. The *State-Times* achieved a circulation of more than 28,000 in six months and published a large volume of advertising. Not so fortunate as new ventures, also in state capitals, were the Montgomery (Ala.) *Examiner* and the Tallahassee (Fla.) *Capital Post*, both of which failed for lack of adequate capital and popular support. The Meadville (Pa.) newspapers combined into a single morning operation and the Williamsport (Pa.) dailies abandoned the morning field to concentrate on evening editions. The Gary (Ind.) *Post-Tribune* and the Fort Worth (Texas) *Press* added Sunday editions, and the latter changed to tabloid-size format. More than a dozen papers added a ninth column to their pages, while scores of others reduced their page widths (in eight columns) by from one half inch to a full inch to conserve newsprint.

Sales Promotion and Advertising.—In their efforts to boost sales, newspapers started a puzzle craze among readers. Crossword puzzles, a rage

in the 1920's, zoomed back into sensational popularity under the impetus of sizable monetary rewards. Puzzles based on historical, geographical, and Biblical information were also resorted to. As a consequence, summertime circulation slumps were overcome.

Advertising lineage placed in daily newspapers was 10% greater than the 1954 figure, second highest in history. Space was bought to the tune of \$2,750 million, which represented nearly one third of the country's total advertising budget. The bill for one agate line in all evening papers was \$182.62, or about \$3 more than in 1954. The Chicago *Tribune* reported that advertisers had purchased more than \$61 million worth of space. An average of 375 papers showed advertising content of 60% and news content of 40%. Largest regular edition of any newspaper was that of the New York *Times*—500 pages on Sunday, September 11. The Lansing (Mich.) *State Journal* celebrated its 100th anniversary with a 336-page edition on April 28.

Ownership Transfers.—Owners of the Augusta (Ga.) *Chronicle* acquired the Augusta *Herald* for \$1,500,000; Samuel I. Newhouse paid \$6,250,000 for the St. Louis (Mo.) *Globe-Democrat* and \$18,700,000 for the Birmingham (Ala.) News Company; the Knight family bought the Charlotte (N.C.) *Observer* for \$7 million; and Robert S. Howard obtained the Chester (Pa.) *Times*

for \$2,500,000. Owner Eugene Meyer gave \$500,000 worth of stock in the Washington (D.C.) *Post and Times-Herald* to employees.

Other Business Developments.—The Philadelphia *Bulletin* invested more than \$10 million in a new plant, including 64 press units; two Chicago papers initiated a \$26 million improvement program; and the employee-community-owned Cincinnati *Enquirer* paid off \$1 million of a \$7 million debt seven years ahead of schedule.

Court Actions.—The Kansas City (Mo.) *Star* was found guilty by a jury of pricing advertising and circulation in restraint of trade. The U.S. Supreme Court refused to upset a \$175,000 jury verdict in favor of Quentin Reynolds, author, against Westbrook Pegler, columnist, in a libel case. (See also CENSORSHIP.)

Associations.—The American Newspaper Publishers Association re-elected Richard W. Slocum (Philadelphia *Bulletin*) as president; the American Society of Newspaper Editors elected Kenneth S. MacDonald (Des Moines *Register and Tribune*) as president; and the American Newspaper Guild re-elected Joseph F. Collis (Wilkes-Barre *Record*) as president.

JEROME H. WALKER,
Executive Editor, "Editor & Publisher."

JUDAISM. See JEWISH AFFAIRS; RELIGION—Judaism.

JUGOSLAVIA. See YUGOSLAVIA.

JUVENILE DELINQUENCY. See Index entry.



KANSAS. Central state, United States; admitted to the Union, Jan. 29, 1861. The "Sunflower State" ranks 13th in area and 29th in population (1955) among the 48 states.

Area and Population.—Area: 82,276 square miles (land, 82,108; inland water, 168), divided into 105 counties. Population: (1950) 1,905,299; (est., July 1, 1955) 2,021,000. Urban places with 1950 populations above 10,000 are as follows:

Arkansas City.....	12,903	Kansas City.....	129,553
Atchison.....	12,792	Lawrence.....	23,351
Chanute.....	10,109	Leavenworth.....	20,579
Coffeyville.....	17,143	Manhattan.....	19,056
Dodge City.....	11,262	Newton.....	11,590
El Dorado.....	11,037	Ottawa.....	10,081
Emporia.....	15,669	Parsons.....	14,750
Fort Scott.....	10,335	Pittsburg.....	19,341
Garden City.....	10,905	Salina.....	26,176
Great Bend.....	12,665	Topeka (capital).....	78,791
Hutchinson.....	33,575	Wichita.....	168,279
Independence.....	11,335	Winfield.....	10,264
Junction City.....	13,462		

Executive.—Chief state officers in 1955:

Governor: Fred Hall (Republican)

Lieutenant Governor: John McCuish

Secretary of State: Paul R. Shanahan

Treasurer: Richard T. Fadely

Attorney General: Harold R. Fatzer

Supt. of Public Instruction: A. F. Throckmorton

Constitution and Judiciary.—The present constitution went into effect in 1861. The Supreme Court comprises seven justices; chief justice in 1955 was W. W. Harvey.

Legislature.—The Legislature (Senate, 40 members; House of Representatives, 125) meets annually commencing the second Tuesday in January. (See also below, *Principal Events, 1955*.)

Finances.—State treasury receipts (1954–55 fiscal year), \$366,619,175.90; expenditures, \$360,750,979.85; treasury balance, \$191,727,385.80. The state became debt-free on July 1, 1955.

Taxation.—State tax revenue (1954–55 fiscal year): \$160,183,143.34, including \$126,761,370.64 from a 2% general sales tax and selective sales and gross receipt

taxes; \$2,097,448.15 from licensing; \$12,865,258.44 from individual income taxes; \$3,776,634.26 from corporate income taxes; and \$6,136,429.83 from property taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 170 national banks had \$1,179,620,000 in assets, \$953,380,000 in demand deposits, and \$143,150,000 in time deposits; the state's 434 other banks had \$951,870,290.30 in assets, \$531,656,499.59 in demand deposits, and \$154,068,991.20 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$95,847,684 (\$266.86 per pupil) for public elementary and secondary education in the 1953–54 school year comprised \$68,971,610 from local school districts, \$23,615,870 from the state, and \$3,260,204 from the federal government. Expenditures for construction and improvements totaled \$39,875,000. Teachers' salaries (1954–55) averaged \$3,099 (elementary school teachers, \$3,366; high school teachers, \$3,810).

KANSAS SCHOOL STATISTICS, 1953–54

Type of school	No.	Teachers	Students
Public elementary (1–8).....	3,050	12,578	284,791
Public secondary (9–12).....	604	5,793	93,531
Private and parochial elementary and secondary.....	231	1,156	28,956
Public and private junior colleges	22	464	5,226*
State teachers colleges.....	3	398	5,372*
Colleges and universities.....	18	2,357	23,444*

* 1954–55 figures.

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) in the 1954–55 fiscal year totaled \$37,967,310.48, including \$24,334,102.72 for old-age assistance, \$5,241,065.18 for dependent children, and \$489,804.53 for the needy blind; a

monthly average of 63,920 persons received public assistance. Operating expenditures for health and welfare institutions totaled \$11,928,323; for correctional and penal institutions, \$3,075,893.

KANSAS WELFARE INSTITUTIONS

Type of institution	No.	Pop.*
Hospitals for mentally deficient and epileptic	2	1,919
Hospitals for the mentally ill	3	4,420
Sanatoriums for the tubercular	2	318
Schools for the blind	1	111
Schools for the deaf (May 1955)	1	226
Homes for dependent children	1	104
Soldiers and sailors homes	1	299
Training schools for delinquent boys	1	125
Training schools for delinquent girls	1	82
Reformatories for males	1	438
Reformatories for females	1	65
Prisons	1	1,628

* As of June 30, 1955, unless otherwise indicated.

Labor Force.—Nonagricultural employment of wage and salary workers in 1954 averaged 542,300, against 546,400 in 1953. There was an average of 36,200 unemployed wage and salary workers in 1954 to whom the state paid \$12,361,706 in unemployment compensation.

Manufacturing.—Establishments numbered 3,200 in 1955, and in 1954 employed an average of 132,517 workers who received \$562,034,308 in salaries and wages. Expenditures for new plant and equipment in 1953 totaled \$58,714,000. Earnings of production workers in manufacturing averaged \$78.48 for an average work week of 41.8 hours in 1954 and \$78 for 41.5 hours during the first half of 1955.

KANSAS MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
All manufactures	137,572	\$567,027	\$1,000,724
Transportation equipment	54,095	247,323	335,434
Food and kindred products	23,435	84,432	172,919
Chemicals and allied products	10,924	45,311	137,118
Petroleum and coal products	5,028	23,776	63,093
Stone, clay, glass products	4,486	18,170	43,130
Fabricated metal products	5,618	24,729	36,256
Paper and allied products	2,293	8,838	18,455

¹ Average per year. ² Value of products less cost of material, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—Mineral production in Kansas established a new record in 1954, 8% greater in value than the previous high of 1953. Kansas is the second largest producer of helium. The state stood 9th in value of its mineral output in 1953, with 2.87% of the United States total. An average of 18,400 workers were employed in mining and quarrying in 1954.

KANSAS MINERAL PRODUCTION, 1954¹

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.) ²	8,600,000	\$ 21,500,000
Clays ³	323,000	437,000
Coal	1,293,000	5,200,000
Helium (cu. ft.)	37,576,000	571,700
Lead	3,300	897,600
Natural gas (1,000 cu. ft.)	400,000,000	45,000,000
Natural gasoline (bbl.)	3,200,000	9,000,000
Petroleum (bbl.)	119,200,000	330,000,000
Petroleum gases (bbl.)	2,300,000	4,500,000
Salt	900,000	7,450,000
Sand and gravel	9,000,000	5,900,000
Stone ⁴	8,700,000	11,300,000
Zinc	14,650	3,252,300
Other minerals		1,460,000
Total		\$446,468,600

¹ Preliminary. ² Excluding natural cement, value for which is included in "Other minerals." ³ Excluding clays sold or used for cement. ⁴ Excluding that used in making cement or lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$412,621,000, and for the full year 1954 comprised \$492,265,000 from livestock and livestock products, \$450,442,000 from crops, and \$8,638,000 from government payments.

Receipts from principal crops and livestock in 1954 included: wheat, \$352,335,000; cattle, \$305,404,000; dairy products, \$65,167,000; hogs, \$58,626,000; eggs, \$35,956,000; sorghum grain, \$31,977,000; and corn, \$22,848,000.

The state's 120,167 farms in 1954 (50,015,438 acres; harvested cropland, 21,432,132) had an average of 416.2 acres and \$34,757 in value of land and buildings per farm. There were 89,936 farms with telephones and 111,650 with electricity. Livestock on farms on Jan. 1, 1955, included 4,341,000 cattle, 898,000 hogs, 609,000 sheep, and 11,917,000 chickens (not including commercial broilers). During the week of Sept. 26–Oct. 2, 1954, there were 200,345 family and hired workers engaged in farming.

KANSAS CROP STATISTICS

Crop (and unit of production)	Average 1944–53	1954	Est. 1955
Apples (1,000 bu.)	366	206	220
Barley (1,000 bu.)	5,022	9,868	12,384
Corn (1,000 bu.)	67,224	39,558	30,856
Hay (1,000 tons)	2,978	3,291	3,344
Oats (1,000 bu.)	24,098	36,238	32,202
Potatoes (1,000 bu.)	896	259	330
Sorghum grain (1,000 bu.)	29,927	47,894	31,878
Soybeans (1,000 bu.)	3,967	2,448	3,400
Wheat (1,000 bu.)	204,022	176,208	128,385

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954–55 fiscal year totaled \$55,124,117, and newly completed construction and reconstruction aggregated 1,134 miles.

Highways and roads on June 30, 1955, totaled 125,449 miles (57,710 surfaced). Registered motor vehicles numbered 1,008,972 on Dec. 31, 1954, including 758,923 passenger cars. There were 17 railroads (1955) operating 8,732.35 miles and there were 5 regularly scheduled airlines and 173 airports and airfields (70 public, 96 limited, and 7 military).

Communications media (1955) included 45 AM and 2 FM radio stations and 6 VHF operating television outlets; 52 daily newspapers (circulation, 1,610,494) and 298 other newspapers (circulation, 384,316); and (Jan. 1, 1955) 169,715 business and 532,203 residential telephones.

Principal Events, 1955.—It was a cold day on Jan. 10, 1955, when Fred Hall, Republican of Dodge City, was inaugurated governor of Kansas on a "do-something" platform. Kansas politics have been far from cold since. Despite differences with some members of the state legislature, Governor Hall pushed through much of his program. A right-to-work bill, which Hall opposed, perhaps generated the most heat. Although the legislature passed this measure to prohibit the closed shop, there were insufficient votes to override the governor's veto.

Major bills enacted into law provided a special allocation of \$6.5 million for high school aid and nearly \$6 million for construction at higher institutions; imposed regulations for small loans; created a state Water Resources Board and a state Park Authority; expanded the highway patrol by 45 men; required higher license fees for trucks, in lieu of the ton-mile tax; increased tax levies for the educational and eleemosynary building funds; and remodeled the chambers of the House of Representatives to include automatic vote recorders. Kansas' Supreme Court held that the legislature's repealer of the motion picture censorship law was improperly passed.

The most publicized political tussle of 1955 developed over the governor's dismissal of Eugene W. Hiatt, state purchasing director, and the latter's appeal to the Civil Service Board. Before the board had time to act, Governor Hall removed two of the three members for neglect of duty and then filled the vacancies. The reconstituted board found no single charge to be "of sufficient importance to justify such drastic action" as Hiatt's removal, but ruled that "sufficient friction has developed in the department so that the good of the state would not be served were Mr. Hiatt reinstated in his former position."

Construction continued in 1955 on the Kansas Turnpike from Kansas City via Topeka and Wichita southward to the Oklahoma line, expected to be ready for use in October 1956, and on a 12-story state office building, to be completed early in 1957.

Drought conditions prevailed in the central and western areas of Kansas. Below-normal production of wheat and corn resulted, although barley and oat yields were above average.

On May 25 tragedy struck Udall, a south-central Kansas community of nearly 600 residents. A tornado tore through the town, leaving in its wake 77 dead, some 200 hospitalized, and the town virtually destroyed. Within two weeks rebuilding of the town had been begun.

(See also FISH AND WILDLIFE SERVICE; RECLAMATION.)

Principal Events by: NYLE H. MILLER,
Secretary, Kansas State Historical Society.

KAROLYI, Count Mihály, Hungarian political leader: b. Budapest, Hungary, March 4, 1875; d. Vence, France, March 18, 1955. Descended from an aristocratic Magyar family that dates back to the 13th century, he led a stormy political career, punctuated by alternate periods of eminence and exile, during which he became president of the first Hungarian Republic.

Count Károlyi entered public life in 1905 when, as a member of the Liberal Party, he was elected to the Hungarian Parliament. In 1909 he became president of the Hungarian Agricultural Society, and worked to establish an agrarian party of the center. Coming under the influence of the writings of Karl Marx, he resigned his post to become leader of the radical wing of the Independence Party. In this capacity he headed the parliamentary opposition before and during World War I against Count István Tisza, the prime minister, who severely wounded him in a duel in 1913. Intent on breaking up the Austrian-Hungarian entente, he negotiated secretly with the French government and visited the United States to arouse American-Hungarian opinion against the Austrian-Hungarian government. In France at the outbreak of the war, he was interned briefly, but was released on the condition that he return to Hungary and advocate the swift conclusion of a separate peace with the Allies.

Shortly before the termination of hostilities, Count Károlyi founded the National Council, a body composed of his personal adherents and leftist elements. On Oct. 30, 1918, the National Council, with the aid of several companies of army troops, staged a bloodless revolution which culminated in the mysterious assassination of Károlyi's old enemy, Count Tisza, and the appointment of Károlyi as prime minister by King Charles IV. On November 8, the new prime minister met Gen. Louis Franchet d'Esperey, commander of the Allied expeditionary force at Salonika, to negotiate an armistice for Hungary.

With the collapse of the empire, the Hungarian People's Republic was proclaimed on Nov. 16, 1918, and full powers were delegated to Károlyi's cabinet. On Jan. 11, 1919, he was formally installed as president of the new republic.

Failing to achieve unity, however, he was forced to relinquish the reins of government on March 21, 1919, to the disciple of Lenin, Béla Kun, who headed a united front party composed of Communists and Socialists. In July 1919 he fled the country. He was later convicted *in absentia* of high treason.

During World War II, Károlyi emerged as the leader of the Free Hungarian Movement in London, and from 1944 to 1946 he served as organizing secretary of the Hungarian Council in Great Britain. In November 1945 he was elected to the Hungarian Parliament despite his absence, and on May 7, 1946, after 27 years of exile, he returned to Hungary. On July 2, 1947, he was appointed minister to France, but on June 2, 1949, he resigned his post on the grounds of age. His affiliations with Hungary were severed for the last time in October 1949 when his plea for a revision of the death sentence in the trial of László Rajk, former Communist foreign minister, was rejected and condemned by the Hungarian government. Károlyi's autobiography, *Fighting the World*, was published in 1926.

KASHMIR (JAMMU AND KASHMIR). This former native state of India (area, 84,471 square miles; pop., 4,370,000, est. 1954), bordered by India, Pakistan, Tibet, and the Sinkiang Province of China, has continued in dispute between the Republic of India and Pakistan since the partition of India. Its people are predominantly Moslems, except in Jammu. Srinagar (pop., 207,787 in 1941) is the capital and seat of government; the city of Jammu is the winter capital. In Azad Kashmir (Free Kashmir), the Pakistani-controlled area, Muzaffarabad is the seat of government.

Under an elected ruler (Yuvraj Karan Singh, sworn in Nov. 17, 1952), and a Constituent Assembly, headed by Bakshi Ghulam Mohammed, leader of the Kashmir National Conference, Indian Kashmir is administered as a republic. Up to January 1955 the Indian government had expended some \$100 million on development work, including the opening in the period 1953-55 of 500 new primary schools, and improvements in 1954-55, facilitating the trucking of Kashmir timber exports to India over the Banihal Pass. In addition, \$5 million had been expended on a hydroelectric power project, opened in 1955 on the Sind River at Gandarbal. Some 193,000 peasant farmers have received grants of land under a state redistribution system.

In Azad Kashmir, 23% of total revenue was allocated to education in 1954-55; facilities include 20 high schools, 13 middle schools, and 180 primary schools (opened in 1954-55), with an aggregate pupil enrollment of about 125,000. The government spent Rs.650,000 in 1954-55 on development projects; an additional Rs.400,000 was allocated to construction of new roads.

A 4-day conference was begun at New Delhi on May 14, 1955, between the Indian Prime Minister Jawaharlal Nehru and the then Pakistani Prime Minister Mohammed Ali, soon after the occurrence of fighting at the Jammu border village of Nekowal, where on May 7, six Indian soldiers, two Pakistani policemen, and six Indian civilians were killed. An investigation of the incident was undertaken by observers of the United Nations. The prime ministers agreed that final demarcation of the cease-fire boundary should be completed within three months, and that the number of border forces and the arms carried by them should be reduced. Though described as "cordial and full," the discussions produced no substantial advance toward a plebiscite (the subject of two United Nations resolutions passed on Aug. 13, 1948, and Jan. 5, 1949,

and to which both India and Pakistan subscribed) to determine the final allegiance of Kashmir. On Dec. 10, 1955, while visiting Srinagar, USSR Communist Party Secretary Nikita Khrushchev backed India's claims to the disputed state.

KEFAUVER, ESTES, United States senator: b. Madisonville, Tenn., July 26, 1903. A leading contender for the 1952 Democratic presidential nomination, he announced his candidacy for the office in 1956 at a press conference held in Washington on Dec. 16, 1955.

Educated at the University of Tennessee (B.A., 1924) and Yale Law School (LL.B., 1927), Kefauver was admitted to the Tennessee bar in 1926 and practiced law in Chattanooga. He was a member of the U.S. House of Representatives from 1939 to 1949, when he became a senator. In 1950-51, as head of the Senate Crime Investigating Committee, he held televised hearings on syndicated crime which attracted national attention. Although he won a number of lightly contested primary elections in 1952, he secured only 275½ votes for the presidential nomination on the third ballot at the Democratic National Convention.

In 1954 Kefauver was re-elected to the Senate. Early in the following year he opposed administration policy on China, attempting unsuccessfully to amend the Senate resolution authorizing the use of force in defense of Nationalist territory to exclude Quemoy and Matsu islands, and voting against ratification of the United States-Nationalist China mutual defense treaty. As chairman of the Senate Antimonopoly Subcommittee, he held hearings on the Dixon-Yates contract on June 27-July 13, 1955, in which he criticized particularly the role played by Adolphe H. Wenzell, whom he charged with violation of conflict-of-interest laws. With other senators, he visited the USSR in September.

With Levin Jack, Kefauver wrote *Twentieth-Century Congress* (1947). He also edited *Crime in America* (1951), an account of the Senate crime investigations.

KEITH, Sir Arthur, Scottish anthropologist: b. Old Machar, Aberdeen, Scotland, Feb. 5, 1866; d. Downe, Kent, England, Jan. 7, 1955. A militant disciple of Charles Darwin, he was internationally recognized as one of the foremost authorities on the origins of man.

Educated at Aberdeen University, University College of London, and Leipzig University, Keith became an expert on the reconstruction of prehistoric man from bone fragments or fossil remains. He held a wide variety of important positions during his lifetime. Besides being curator of the museum and director of laboratories of the Royal College of Surgeons from 1907 to 1933, he was secretary of the Anatomical Society of Great Britain (1899-1902), president of the Royal Anthropological Institute (1912-14), secretary (1922-26) and treasurer (1926-29) of the Royal Institution, and president of the British Association (1927). From 1917 to 1923 he was Fullerton professor of physiology at the Royal Institution, and from 1930 to 1933 he was rector of Aberdeen University. From 1933 until his death he was master of the Buckston Browne Research Farm, a surgical experimental station in Downe, Kent, owned by the Royal College of Surgeons. He was knighted in 1921 for his contributions to anthropology.

Sir Arthur dedicated much of his life to corroborating Darwin's theory of evolution, maintaining consistently that the evidence for its

validity was overwhelming and undeniable. His social views were often the subjects of controversy. He maintained, for example, that the concept of immortality could not be supported scientifically. In 1931, echoing the opinion of Herbert Spencer and other neo-Darwinists, he declared that war is a condition of progress. "Nature," he said, "keeps her human orchard healthy by pruning. War is her pruning hook." He also asserted that racial prejudice was important to a nation's vitality.

His published works include *Introduction to the Study of Anthropoid Apes* (1896); *Human Embryology and Morphology* (1901; 6th ed. 1949); *Ancient Types of Man* (1911); *The Human Body* (1912); *Antiquity of Man* (2d ed. 1925); *Engines of the Human Body* (2d ed. 1925); *Nationality and Race* (1920); *Religion of a Darwinist* (1925); *Concerning Man's Origin* (1927); *New Discoveries Relating to the Antiquity of Man* (1931); *Darwinism and Its Critics* (1935); *Essays on Human Evolution* (1946); *A New Theory of Human Evolution* (1948); *An Autobiography* (1950).

KELLY, Grace (Patricia), American actress: b. Philadelphia, Pa., Nov. 12, 1929. A relative newcomer to the screen, on March 30, 1955, she received the Motion Picture Academy "Oscar" for best actress of 1954 for her performance in *The Country Girl*. On Jan. 5, 1956, her engagement to Prince Rainier III of Monaco was announced.

Grace Kelly, the second daughter of John B. Kelly, a former Olympic oarsman and wealthy Philadelphia businessman, was educated at the Ravenhill convent school and the Stevens School in Germantown, Pa. On graduation, she enrolled in the American Academy of Dramatic Arts, where she studied acting for two years. During this period she worked as a photographer's model, did television commercials, and acted in several television plays and summer-stock productions. Her Broadway debut came in 1949, when she appeared as the daughter in August Strindberg's *The Father*, which starred Raymond Massey.

Her first Hollywood assignments were a bit part in *Fourteen Hours* (1951), starring Paul Douglas, and a leading role in *High Noon* (1952), starring Gary Cooper. Aware of her limitations as an actress, she returned to New York for further study with Sanford Meisner at the Neighborhood Playhouse. Nevertheless, she

Grace Kelly in a scene from *The Country Girl*. Her role won her the 1955 Academy Award for best actress.

PARAMOUNT PICTURES CORPORATION



KENTUCKY

was signed to a seven-year contract by Metro-Goldwyn Mayer, and was given a feature role in *Mogambo* (1953). Her performance won her an Academy Award nomination for the best supporting role of that year. There followed major roles with Ray Milland in *Dial M for Murder* (1954); with James Stewart in *Rear Window* (1954); with Bing Crosby in *The Country Girl* (1954); with Stewart Granger in *Green Fire* (1954); with William Holden in *The Bridges of Toko-ri* (1955); and with Cary Grant in *To Catch a Thief* (1955).

KENTUCKY. South Central state, United States; admitted to the Union, June 1, 1792. The "Bluegrass State" ranks 36th in area and 20th in population (1955) among the 48 states.

Area and Population.—Area: 40,395 square miles (land, 39,864; inland water, 531), divided into 120 counties. Population: (1950) 2,944,806; (est., July 1, 1955) 2,948,000. Urban places with 1950 populations above 10,000 are as follows:

Ashland.....	31,131	Louisville.....	369,129
Bowling Green.....	18,347	Madisonville.....	11,132
Covington.....	64,452	Middlesborough.....	14,482
Fort Thomas.....	10,870	Newport.....	31,044
Frankfort (capital).....	11,916	Owensboro.....	33,651
Henderson.....	16,837	Paducah.....	32,828
Hopkinsville.....	12,526	Richmond.....	10,268
Lexington.....	55,534		

Executive.—Chief state officers in 1955:

Governor: Lawrence W. Wetherby (Democrat)
Lieutenant Governor: Emerson Beauchamp
Secretary of State: Charles K. O'Connell
Treasurer: Pearl F. Runyon
Attorney General: J. D. Buckman, Jr.
Supt. of Public Instruction: Wendell P. Butler

Constitution and Judiciary.—The present constitution went into effect in 1891. The highest court, the Court of Appeals, comprises seven justices; chief justice in 1955 was Brady M. Stewart. Among other actions in 1955, the court declared the Highway Authority Act unconstitutional.

Legislature.—The General Assembly (Senate, 38 members; House of Representatives, 100) meets in even-numbered years commencing the first Tuesday after the first Monday in January.

Finances.—State treasury receipts (1954-55 fiscal year), \$233,639,761.95; operating expenditures, \$217,137,921.56; net nonguaranteed indebtedness, \$67,325,915.

Taxation.—State tax revenue (1954-55 fiscal year): \$161,209,238.33, including \$81,682,912.91 from selective sales and gross receipt taxes; \$18,682,912.91 from licensing; \$33,232,891 from individual income taxes; \$10,590,815.27 from corporate income taxes; and \$12,901,516.18 from property taxes. The state has no general sales or poll tax.

Banking.—As of June 30, 1955, the state's 89 national banks had \$757,199,000 in assets, \$551,421,000 in demand deposits, and \$140,601,000 in time deposits; the state's 282 other banks had \$1,211,811,536.25 in assets, \$671,148,029.94 in demand deposits, and \$424,130,614.97 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 15, inclusive. Operating expenditures of \$75,540,126 (\$144.86 per pupil) for public elementary and secondary education in the 1953-54 fiscal year comprised \$40,036,266.78 from local school districts, \$31,726,852.92 from the state, and \$3,777,006.30 from the federal government. Expenditures for construction and improvements totaled \$10,989,-

407. Teachers' average salaries approximated \$2,550.

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$38,748,136, including \$23,533,421 for old-age assistance, \$13,940,425 for dependent children, and \$1,274,290 for the needy blind; a monthly average of 107,778 persons received public assistance. Operating expenditures for health and welfare institutions totaled \$875,534.14; for correctional and penal institutions, \$2,252,437.95.

KENTUCKY WELFARE INSTITUTIONS

(As of June 30, 1955, unless otherwise indicated)

Type of institution	No.	Pop. *
Hospitals for mentally deficient and epileptic.....	1	782
Hospitals for the mentally ill.....	4	7,700
Sanatoriums for the tubercular.....	6	750
Schools for the blind.....	1	150 ¹
Schools for the deaf.....	1	335 ²
Hospitals for crippled children.....	3	212 ³
Homes for dependent children.....	1	209 ⁴
Training schools for delinquent boys and girls.....	1	499 ⁵
Reformatories for males.....	1	2,472
Reformatories for females.....	1	67
Prisons.....	1	962
Prison farms.....	3	... ⁶

¹ September 1955. ² Oct. 1, 1954. ³ Sept. 12, 1955. ⁴ April 30, 1955. ⁵ Comprises 350 boys and 149 girls. ⁶ Part of prison and reformatory for males.

Labor Force.—The labor force in August 1955 numbered 1,015,000, including 245,000 agricultural workers. Nonagricultural employment in August 1955 numbered 702,400, and for the 12 months ending June 30, 1955, averaged 582,400. There were 67,300 unemployed workers on Aug. 15, 1955, and \$36,622,547 in unemployment benefits was paid during the 12 months ending June 30, 1955.

Manufacturing.—Establishments numbering 2,269 in 1954 employed 149,738 workers who received \$553,438,000 in salaries and wages. In 1953 value added by manufacture was \$1,213,002,000, and investment in new plant and equipment amounted to \$109,007,000. Earnings of production workers in manufacturing averaged \$66.17 for an average work week of 39.8 hours in 1954 and \$71.81 for 41.2 hours during the first half of 1955.

MAJOR KENTUCKY MANUFACTURES, 1954

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ²
<i>All manufactures.....</i>	<i>149,738</i>	<i>\$553,438</i>	<i>\$1,213,002</i>
Food and kindred products.....	25,045	98,401	287,552
Tobacco manufactures.....	11,356	37,049	146,776
Chemicals and allied products.....	10,066	48,159	137,719
Nonelectrical machinery.....	11,519	52,824	127,783
Fabricated metal products.....	11,586	49,567	73,563
Primary metal industries.....	6,940	33,313	66,849
Apparel and related products.....	17,508	37,372	56,436
Electrical machinery.....	13,376	52,448	55,844
Lumber and products.....	8,598	20,083	37,450
Furniture and fixtures.....	5,706	19,548	28,304

¹ Average per month. ² Figures are for 1953. Value of products less cost of materials, supplies, fuel, electric energy, and contract work.

Mining.—In 1953 Kentucky ranked third among the states in production of coal and fluor-spar. It stood 10th in the value of minerals produced in that year with 2.66% of the United States total. Employment in mining in 1954 averaged 37,590 persons who received \$137,818,000 in wages. Production of the state's two leading minerals in 1954 yielded 58,821,115 tons of coal (\$293,105,572) and 13,910,980 barrels of petroleum (\$40,063,363.20).

KENTUCKY SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (1-8).....	4,106 ¹	13,949	482,069
Public high (9-12).....	512 ¹	6,808	115,596 ²
Private and parochial elementary and secondary schools.....	271	2,211	66,721 ³
Public and private vocational schools.....	12	...	...
Junior colleges.....	14	...	3,740
Colleges and universities.....	20	...	26,654

¹ Of this number, 377 are combined elementary and secondary schools. ² In addition there are 1,064 ungraded students. ³ September 1954.

KENTUCKY MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	711,209	\$ 3,118,352
Coal.....	65,060,478	302,871,877
Fluorspar.....	47,244	2,100,493
Iron, pig ¹	790,206	
Natural gas (1,000 cu. ft.).....	71,405,000	15,638,000
Natural gasoline (bbl.).....	843,000	2,394,000
Petroleum (bbl.).....	11,518,000	33,520,000
Petroleum gases (bbl.).....	4,196,000	4,993,000
Sand and gravel.....	3,052,155	2,899,932
Stone ²	7,429,505	9,268,237
Zinc.....	489	112,470
Other minerals.....		4,825,376
Total.....		\$381,741,737

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement or lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$216,971,000, and for the full year 1954 comprised \$255,495,000 from livestock and livestock products, \$303,496,000 from crops, and \$6,374,000 from government payments.

Receipts from principal crops and livestock in 1954 included: tobacco, \$250,340,000; cattle, \$84,109,000; dairy products, \$68,365,000; hogs, \$50,717,000; and eggs, \$27,926,000.

The state's 193,487 farms (18,034,380 acres; harvested cropland, 4,541,381) in 1954 had an average of 93.2 acres and \$8,096 in value of land and buildings per farm. There were 50,086 farms with telephones and 173,483 with electricity. Livestock on farms (Jan. 1, 1955) included 1,861,000 cattle, 1,129,000 hogs, 688,000 sheep, and 11,229,000 chickens (not including commercial broilers). During the week of Sept. 26–Oct. 2, 1954, there were 303,348 family and hired workers engaged in farming.

KENTUCKY CROP STATISTICS

Crop (and unit of production)	Average 1944–53	1954	Est. 1955
Apples (1,000 bu.).....	315	381	60
Corn (1,000 bu.).....	75,945	66,433	81,713
Hay (1,000 tons).....	2,262	1,953	2,533
Popcorn (1,000 lb.).....	19,161	13,760	16,900
Potatoes (1,000 bu.).....	2,496	1,445	1,749
Soybeans (1,000 bu.).....	1,768	2,048	2,376
Strawberries (1,000 crates).....	268*	63	262
Tobacco (1,000 lb.).....	442,376	502,972	388,665
Wheat (1,000 bu.).....	5,068	5,400	4,020

* Average, 1949–53. (Source: U.S. Dept. of Agriculture.)

Tourists.—The Kentucky Chamber of Commerce estimated in 1955 that income from tourists in the state had reached an annual rate of \$523 million. To encourage even larger tourist expenditures, the state was getting ready in late 1955 to spend \$3,500,000 toward further expansion of its park system, on which \$9,150,000 had already been spent in the previous eight years.

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954–55 fiscal year totaled \$66,999,000, and newly completed construction and reconstruction aggregated 763 miles.

Highways and roads on June 30, 1955, totaled 63,000 miles. Registered motor vehicles numbered 902,858, including 718,574 passenger cars. There were 36 railroads which in 1953 had 3,824 track miles, and in 1955, 9 regularly scheduled airlines and 37 airports and airfields (16 commercial and municipal, 3 military, 14 private, and 4 other).

Communications media included (1954) 57 AM and 14 FM radio stations and 4 operating television outlets; (1955) 30 daily newspapers (circulation, 697,429) and 153 other newspapers (circulation, 358,510); and (Jan. 1, 1955) 152,643 business and 423,362 residential telephones.

Principal Events, 1955.—Kentucky underwent some marked changes in 1955. Politically the ad-

ministration which had been in power for 12 years was handed a setback when A. B. ("Happy") Chandler defeated Judge Bert T. Combs in the Democratic primary of August 6. Campaign issues centered largely around the question of taxation, with a marked opposition to the sales tax being expressed in the heavy vote. Chandler went on to win the largest vote majority in the history of the Kentucky governorship when he defeated Edwin Denney, the Republican candidate, in the general election of November 8. He took office on December 13, committed to more adequate schools and roads, more effective state institutions, and economy in government. In the general election, voters also ratified two constitutional amendments. One lowered the voting age from 21 to 18 years, and the other exempted household goods from property taxation.

Kentucky schools showed an appreciable increase in enrollment, and the problem of retaining adequately trained teachers in the state almost reached the point of frustration. Neighboring states, which are able to pay teachers larger salaries, drain from Kentucky teachers who are trained in its own colleges.

Possibly the most exciting school issue in 1955 was that of desegregation, which was expected to take place in most parts of Kentucky without too much confusion or resistance. In cities like Louisville and Lexington it may possibly occur by the end of 1956. By late 1955, 24 of the state's 224 school districts had been desegregated.

In the field of agriculture, with burley tobacco growers voting to decrease acreage, allotments of acreage for Kentucky's principal crop were reduced. The growing season was favorable, and the quality of tobacco was high, although the poundage was light.

Industry showed further evidences in 1955 of gaining on agriculture. Measured by income, Kentucky was no longer a predominantly agrarian state. Industry has expanded particularly around areas where water and an abundance of power are available. The Ohio Valley area of Kentucky was continuing to experience an almost phenomenal industrial growth. At Louisville, for example, the Ford Motor Company had completed its new plant to make that city a major automobile center. Also, eastern Kentucky had recovered somewhat in 1955 from its serious economic setback. Coal production stood at 58,821,115 tons for both eastern and western fields in 1954. Moreover, further state employment was being promised in a modernization of the arterial highways of the state.

Principal Events by: THOMAS D. CLARK,
Professor of History, University of Kentucky.

KENYA COLONY AND PROTECTORATE. See
BRITISH EAST AFRICA.

KHRUSHCHEV, Nikita Sergeyevich, Soviet political leader: b. Kalinovka, Ukraine, Russia, April 17, 1894. As first secretary of the Central Committee of the Communist Party, he is one of the most powerful men in the USSR. During 1955 he was a frequent spokesman for his country, and the tenor of his speeches served as a barometer of East-West relations.

The son of a miner, Khrushchev joined the Communist Party in 1918, and by 1935 had risen to the post of first secretary of the Moscow Oblast (Region) Committee. Except for a short period in 1947, he was first secretary of the Central Committee of the Ukrainian Communist Party from 1938 to 1949, and in World War II served as a lieutenant general in command of a Ukrain-

ian guerrilla army. In the decade after the war he enjoyed a spectacular political ascent. After resuming his former post with the Moscow committee in 1949, he was named a secretary of the Central Committee of the Communist Party, and on Sept. 13, 1953, became first secretary, the first formal successor to Joseph Stalin in that post. He is also a member of the Presidium of the Supreme Soviet.

After Premier Georgi M. Malenkov's resignation on Feb. 8, 1955, it was Khrushchev who nominated Marshal Nikolai A. Bulganin (q.v.) for the premiership. He accompanied Bulganin to Yugoslavia (May 26–June 3), where the outcome of their discussions with Marshal Tito was the resumption of normal relations between the two countries, and he was present at the Geneva Conference (q.v.). With Bulganin, he made a goodwill tour of India, Burma, and Afghanistan (November 18–December 18), during which he made a number of speeches criticizing very sharply the policies of the Western powers. On December 29, in a speech before the Supreme Soviet, he attacked President Dwight D. Eisenhower, describing his Christmas message of hope for the freedom of the Soviet satellites in eastern Europe as "crude interference."

KONEV, Ivan Stepanovich, Soviet army officer: b. Ladeino, Archangel Region, Russia, Dec. 27, 1897. One of the Soviet Union's foremost military leaders in World War II, he was named supreme commander of the eight-nation European Communist bloc, officially established on May 14, 1955, in Warsaw, Poland, as a counterforce to the North Atlantic Treaty Organization.

Konev spent his youth as a lumberjack in the Archangel Region, and in 1916 was conscripted into the army. With the outbreak of the Russian Revolution in 1917, he participated with the Bolsheviks in the March and October insurrections. Following their victory in November 1917, he politically organized his native district, and took part in the suppression of anti-Bolshevik uprisings.

Konev enlisted in the newly created Red Army in 1919, and served in campaigns against Admiral Kolchak's White Russian troops on the eastern front and against the Semenov-Japanese forces in the Far Eastern Republic. In 1921 he was elected to the 10th Congress of the Communist Party of the Soviet Union. Following a two-year period at the Frunze Military Academy in Moscow (1925–27), he served as an officer of the Red Army for eight years before returning to the academy, where, in 1934, he completed a special faculty course with highest honors. In the meantime he had been elected to the All-Union Central Executive Committee, serving from 1931 to 1934. He was a divisional commander from 1934 to 1938.

When Germany invaded the Soviet Union in 1941, Konev was in command of the tank forces on the Moscow front. After his recapture of Kalinin in December 1941, he was named commander in chief of the Moscow front armies, and in August 1942, with Marshal Georgi Zhukov, he launched the great Soviet counteroffensive west of Moscow. In August 1943 he was elevated to the rank of army general and appointed commander of the Steppe Front Troops which liberated Orel, Belgorod, and Poltava in quick succession. In the winter campaign of 1943–44 he led the 2d Ukrainian Front Troops, which invaded Germany and Czechoslovakia, and units of which eventually met the United States forces at the Elbe River. For his military achievements, he

was named marshal of the Soviet Union in February 1944. After the war, Marshal Konev was appointed Soviet representative to the Allied Control Council for Austria, and from 1946 to 1948 he commanded the Soviet occupation forces in that country.

Konev is considered third in rank in the military hierarchy of the Soviet Union, preceded only by Marshal Zhukov, defense minister, and Marshal Alexander M. Vasilevsky, first deputy defense minister.

KOREA. Projecting from the Asian mainland toward Japan, which lies about 120 miles across the Korea Strait, the Korean peninsula has an area of 85,248 square miles and a coastline of some 5,400 miles. It borders for 11 miles on Siberia, and for approximately 800 miles on Manchuria. Its western shore is washed by the Yellow Sea, and its eastern by the Sea of Japan. The mountainous northern half of the country, endowed with rich mineral resources, timber, and water power, has most of the heavy industries, mines, and hydroelectric power plants. The less rugged south is predominantly agricultural, with light industries.

Accurate current census figures for Korea as a whole are not obtainable. According to 1949 estimates, roughly two thirds of the 30 million population resided south of the 38th parallel. The estimated population of Seoul, the capital, was 1,446,000; of Pusan, 474,000; and of Pyongyang, now the northern capital, 500,000. As of July 1, 1954, the population of South Korea was officially estimated at 21,687,000.

SOUTH KOREA

Government.—To implement the Cairo Declaration on Korea's independence, and to receive the surrender of Japanese troops after V-J Day, Soviet forces occupied Korea north of the 38th parallel and United States forces the south in 1945. The crystallization of this temporary arrangement into a permanent division of the racially homogeneous and economically integrated nation resulted in a devastating war that began on June 25, 1950, and ended in a stalemate on July 27, 1953.

The foreign ministers of the United States, the USSR, and the United Kingdom, meeting in Moscow in December 1945, put Korea under a four-power trusteeship for "a period of up to five years." This agreement failed to be implemented because of a United States–Soviet deadlock on Korean representation.

Finally the United States took Korea's case to the United Nations. On Nov. 14, 1947, the U.N. Temporary Commission on Korea was created by the U.N. General Assembly to facilitate the establishment of a Korean national government through general elections. The Soviet Union boycotted the commission and kept it from entering North Korea. The Interim Committee of the General Assembly authorized the commission to observe the election of May 10, 1948—held in South Korea alone—of 200 legislators for 2-year terms. Thus a Constituent Assembly was created which, on July 12, adopted a constitution providing for a unicameral National Assembly and for a president with wide powers, and on July 20 elected Dr. Syngman Rhee to that office for a 4-year term. With the formal proclamation of the Republic of Korea on Aug. 15, 1948, United States military government in South Korea ended.

In the 1950 election, National Assembly membership was increased to 210. In July 1952, President Rhee, seeing no chance for his re-election by a hostile assembly, forced that body to amend the constitution to provide for the creation of a bicameral National Assembly and the election of the president and vice president by direct popular vote. The new legislature was to consist of a House of Representatives whose members would serve 4-year terms, and a House of Councillors whose members would serve 6-year terms, one third being elected every two years.¹ Dr. Rhee was re-elected by popular vote on

¹ Despite the president's request, the National Assembly has not enacted legislation for election of councillors.

Aug. 5, 1952, and began his 2d term on August 15.

The third assembly election was held on May 20, 1954, to fill 203 seats, no provision having been made for 7 constituencies in territory south of the 38th parallel which the 1953 armistice agreement had assigned to the Communists. President Rhee's Liberal Party secured 114 seats, and some opposition candidates withdrew from the race for reasons of personal safety.

The structure of the government was altered once again by a law passed by the assembly on Jan. 22, 1955, and promulgated by the president on February 7. The stated purpose of the law was "to determine the principles of the administrative organization of the Government in order that the affairs of state may be performed uniformly and efficiently." The increased powers which elimination of the premiership by the constitutional amendment of Nov. 29, 1954,² had given the president were expanded by this law, which allows him to "suspend or repeal administrative orders or dispositions of the Cabinet Ministers in case such orders or dispositions are deemed improper or illegal." The former ministries of Social Affairs and Public Health were combined into a Ministry of Health and Welfare, while a new Ministry of Rehabilitation (Reconstruction) was established with "jurisdiction over matters concerning overall plans for industrial and economic rehabilitation, and administration, coordination and implementation of these plans."

Education.—The Korean War caused havoc in the educational system. Schools and their facilities were destroyed, and teachers were scattered or killed. Although instructors are being trained and schools are being rebuilt, these steps take time. Meanwhile, some schools are still conducted in shacks, textbooks are scarce, and many students cannot even afford paper and pencils. Libraries are almost nonexistent, and some institutions are supported solely by tuition fees. Over 80% of secondary school costs are borne by parents. Yet the desire for education is intense.

With the help of UNESCO, the U.N. Korean Reconstruction Agency (UNKRA), and other organizations, some rehabilitation is in progress. A national textbook printing plant capable of producing 30 million books a year was completed in September 1954. UNKRA has allocated materials for building and repairing more than 3,800 classrooms in 1,100 schools. Emphasis is placed on training the technicians and skilled craftsmen needed in economic reconstruction. In 1954 there were about 2,703,500 pupils in 4,082 elementary schools; 431,600 students in 810 middle schools; approximately 40,000 graduates from 271 high schools; and 66,400 students in 13 universities, 31 colleges, 7 junior colleges, and 15 vocational and specialized schools; 1 private and 17 national normal schools were engaged principally in training elementary school teachers.

Religion.—There are no accurate statistics on the adherents of various faiths in Korea. Confucianism and Buddhism predominate over Chuntoism (Chondo-kyo), Christianity, and Tankun-kyo (the religion of Tankun, mythical founder of Korea). According to the 1953 *Korean Year Book*, there are approximately 2,460 Presbyterian churches with 700,000 members, 625 Methodist churches with 120,000 members, 190 Baptist churches with 59,700 members, and 150 Roman Catholic churches with 300,000 members.

² This amendment bill, forced through the assembly despite the lack of a two-thirds majority vote, also permitted Dr. Rhee (but no subsequent president) to run for re-election for life; authorized national referendums on "national crisis" legislation and future constitutional amendments; called for the election of half the members of the House of Councilors every three years, and gave that house the right to confirm the appointment of the chief justice, the prosecutor general, and other government officials; authorized nonconfidence votes by the House of Representatives against individual ministers, requiring immediate resignation (instead of the previous right to force the resignation en bloc of the State Council by a nonconfidence resolution); reduced government control over national resources and the economic system and encouraged a free enterprise system; and established the constitutional legality of court-martial procedures.

Economic Conditions.—Korea is basically an agricultural nation. In 1944 production of major food crops totaled 149,803,176 suk (1 suk = 5.119 bushels), of which 93,305,830 suk were produced in the south. About 75% of the nation's industrial production and 85% of its mineral production were credited to the north. This complementary economic system was disrupted by the division of the country in 1945, and the subsequent war left the economy in chaos.

Because of favorable weather conditions, South Korea harvested bumper crops in 1953 and 1954, but a prolonged drought in the spring of 1955 curtailed the food supply. In 1954, 157,000 metric tons of wheat and 270,000 metric tons of potatoes were produced. The 1954 rough rice crop was estimated at 2,143,252 metric tons (2,019,425 in 1953). The fish catch totaled 248,864 metric tons in 1954, as compared with 258,045 metric tons in 1953, and in the first four months of 1955 it declined 21% below that of the same period of 1954.

The index of industrial activity (1949 = 100) rose from 143 in 1953 to 151 in 1954. In the same period the output of cotton yarn increased from 13,320 to 20,830 metric tons. Coal production rose from 867,000 metric tons in 1953 to 891,000 metric tons in 1954, but that of tungsten declined from 7,741 to 2,831 metric tons because of the termination of the United States purchase agreement on March 31, 1954. Although the output of electric power increased from 732 million kw.-hr. in 1953 to 898 million kw.-hr. in 1954, the consumption of power by industries and homes is still rationed.

Korean foreign trade has been declining. In 1954, exports amounted to \$24.2 million, and imports to \$93.9 million, as compared with \$39.6 million and \$153.6 million, respectively, in 1953. For the first 4 months of 1955, exports totaled \$4,641,700, and imports \$22,444,400.

The price of rice, the principal food, has more than doubled since June 1954. The general wholesale price index (1948 = 100) rose from 4,132 in June 1954 to 8,602 in June 1955. Although average wages in Seoul increased 87% over 1954, the cost of living also rose. In June 1955 the cost-of-living index (1948 = 100) stood at 11,432, as compared with 5,322 in June 1954.

Largely because of increased government overdrafts and expanding bank loans, the money supply rose from 33.3 billion hwan in April 1954 to 47.6 billion hwan in April 1955. (For a discussion of the hwan-dollar exchange rate, see below, *United States-South Korean Relations*.) In the fiscal year 1955 the net budgetary deficit was 28.96 billion hwan.

The budget for the fiscal year 1956, as passed by the National Assembly on July 31, 1955, amounted to 169.87 billion hwan. Major allocations were as follows: Ministry of Home Affairs, 23.18 billion hwan; Ministry of Education, 23.44 billion; national defense, 91.12 billion. Revenue was estimated at 147.79 billion hwan. The State Council later decided that the budget should be revised to meet President Rhee's emergency measures.

Relief and Rehabilitation.—In the fiscal year 1955, \$307.4 million was made available for economic rehabilitation programs in Korea—\$280 million from the United States and \$27.4 million from the United Nations. The actual amount of aid goods brought in during the year, however, was valued at \$205.1 million.

According to the International Cooperation Administration (ICA), \$460 million in United

States aid was slated for South Korea in the fiscal year 1956. This sum included \$180 million for direct forces support, \$272 million for defense support, and \$8 million for technical cooperation. At the date of writing, the U.S. Department of Defense had not published figures on expenditures for Korean military forces in the fiscal year 1956, but in the preceding fiscal year military aid reportedly amounted to over \$420 million.

Political Developments.—There were a number of cabinet changes during 1955. The most important was occasioned by the resignation on July 30 of Pyun Yung Tae, foreign minister since 1951. He was replaced by Cho Chung Hwan.

Opposition parties do not thrive in Korea. The Korean Democratic Nationalist Party had been a major political force since the early days of United States occupation, but it gradually became impotent after the launching (1951) by President Rhee of the Liberal Party, of which he is chairman. Nevertheless, an undercurrent of opposition in the National Assembly and among the public remained. On Sept. 19, 1955, a new organization, the Democratic Party, was formed by 34 assemblymen, the entire Korean Democratic Nationalist Party membership, and other dissidents. Some 1,700 sponsoring delegates from different parts of South Korea met at the Municipal Theater in Seoul to inaugurate the party, whose main planks are denunciation of all forms of totalitarianism, support for a republican form of government with representatives elected in a free atmosphere, and cabinet responsibility.

On September 20, the new party's Central Committee elected Song Kyung Won chairman and Pak Sun Chon vice chairman. Members elected to the Supreme Committee were Shin Ik Hi, former speaker of the National Assembly; Chough Pyung Ok, former minister of home affairs; Chang Myun, former premier; Kwak Sang Hoon, vice speaker of the assembly; and Paek Nam Hoon.

United States—South Korean Relations.—After nearly two months of discussions in Washington, United States and South Korean officials agreed to change the official exchange rate to 500 hwan to \$1, effective Aug. 15, 1955. The agreement stated that this would be "the rate for all foreign exchange transactions of the Government of the Republic of Korea and its agencies," and would "be applicable to United States aid furnished for the importation of goods and services into Korea," with minor exceptions. Two months later the rate in the open market reportedly rose to 1,200 hwan to \$1.

A serious dispute over the taxation of foreign businessmen in South Korea occurred during 1955. On May 19, the Ministry of Finance complained that of 103 foreign firms known to be doing business in the country, 69 had applied for and received licenses, 4 had applied for licenses which were not granted, and 30 had not even filed. Moreover, only 9 firms had registered with the Seoul District Court in accordance with law. On June 17, the ministry warned that exit visas would be denied to all such delinquents. On August 27, the American Chamber of Commerce in Korea charged the South Korean government with holding as "a virtual prisoner" one of its members whose company allegedly owed \$140,000 in retroactive taxes. Two days later all foreign business firms closed their doors in a one-day protest.

On August 30, the chamber appealed to the United States ambassador and sent to its Washington headquarters an urgent message, which

was forwarded to the secretary of state on September 7. The message scored the "arbitrary imposition" of "exorbitant sums labeled tax but not implied by Korean tax laws and assessed with caprice," and complained that "approximately forty members are held as individual hostages for their corporations." The Ministry of Commerce and Industry declared on September 3 that "all foreign individuals or companies" could "leave Korea as quickly as possible with the understanding that payment of taxes due will be waived." Subsequent talks were held, and on November 21 a compromise settlement was reached.

(See also JAPAN.)

NORTH KOREA

The Korean Democratic People's Republic was set up in North Korea in September 1948. After elections held independently of the U.N. Temporary Commission on Korea, it proclaimed itself the government of all Korea. It is headed by Kim Il Sung as premier and Kim Doo Bong as chairman of the Presidium of the 572-member Supreme People's Assembly.

For the most part, trends in North Korea remain the subject of rumor, unverified reports, and propaganda. It is reported that in 1954 there were 3,670 people's schools, 1,253 high schools, 78 technical and junior colleges, and 16 universities and colleges, and that universal compulsory education will be enforced in 1956.

The Pyongyang radio has claimed that over 20,000 chungbo (1 chungbo = 2.45 acres) of wasteland have been reclaimed, that the mining industry has overfulfilled its production target by 29%, and that by the end of July 1955 the machine industry had met its production target by 107%. It is stated that since the armistice 230 factories have been or are being rehabilitated, and that 60 new ones have been built.

Despite these claims there are apparently some difficulties. *Minju Chosun* said editorially on Oct. 6, 1955, that some factories "are still having difficulty in the fulfillment of production quotas because of a lack of strong leadership on their part." According to the Soviet newspaper *Izvestia*, grain production in 1954 increased only 3% over 1953, and coal output was only half the 4 million metric tons of 1949.

Rehabilitation in North Korea has been backed by the Communist bloc of nations. In September 1953, the Soviet government "assigned gratuitously" 1 billion rubles (\$250 million) for the rehabilitation of the North Korean economy. The Communist Chinese government promised to grant North Korea 8 trillion yuan (equivalent to 800 million new yuan, or \$338 million) for economic rehabilitation under the terms of a 10-year economic assistance agreement signed on Nov. 23, 1953. Other nations, among them Poland, Czechoslovakia, Rumania, Bulgaria, and East Germany, reportedly have furnished various goods and services. North Korea has published no figures on the amount of military aid received.

POST-ARMISTICE DEVELOPMENTS, 1955

The Korean Armistice Agreement signed on July 27, 1953, provided that a political conference be called to work out the reunification of Korea. A conference was held at Geneva, Switzerland, on April 26–July 21, 1954, but it ended in a deadlock on the subject of free elections. Meanwhile, the truce has been maintained, however precariously, despite numerous charges of

violations. On Nov. 29, 1955, the U.N. General Assembly adopted a United States-sponsored resolution expressing a desire to continue the armistice agreement and requesting that the question of Korean unification and independence be taken up again at its 11th session in 1956. (See also UNITED NATIONS.)

Troop Withdrawals.—Apparently both the United Nations and Chinese Communist commands are trying to build up Korean forces so that their own troops can be withdrawn. This will eventually restore the situation which existed in Korea before the Korean War. It is impossible to ascertain the accurate strength of the North Korean forces, but the U.N. Command has charged that the Communists are building up their air force illegally. Meanwhile the South Korean Army reportedly totaled some 661,000 men, including 20 active and 10 reserve divisions, as of June 1955. There were about 13,000 men and 40 ships in the navy. The small South Korean Air Force received its first F-86 Sabre Jet planes in June 1955.

By the end of 1955 the U.N. Command had greatly reduced its forces in Korea. In January the 1st Royal Thailand Battalion sailed for home, leaving only one company behind. Canada withdrew the Queen's Own Rifles Battalion in March, leaving only one destroyer and an ambulance field unit. The last Philippines units left in May, and those of Belgium in June. Greek forces completed their withdrawal in September. There remained only two United States divisions and a skeleton British Commonwealth division. The Chinese Communists announced the withdrawal of 6 more divisions from North Korea in October, bringing the total withdrawal to 19 divisions since the autumn of 1954.

U.N. Command.—On April 1, 1955, retiring Gen. John E. Hull turned over his posts as commander in chief of the U.N. Command and of the U.S. Far East Command to Gen. Maxwell D. Taylor, whose posts of commander of U.S. Forces, Far East, and of the U.S. Eighth Army were assumed by Gen. Lyman L. Lemnitzer. On June 30, General Taylor succeeded Gen. Matthew B. Ridgway as U.S. Army chief of staff, and General Lemnitzer assumed General Taylor's dual command role. Gen. Isaac D. White then succeeded General Lemnitzer in his subsidiary command posts.

The Korean Communications Zone was inactivated at the end of June 1955, the U.S. Eighth Army assuming logistical responsibilities for United States and United Nations forces, and the South Korean Second Army for Korean supply requirements. On July 25, it was announced that Eighth Army headquarters would be returned to Korea from Japan.

Dispute over the Neutral Nations Supervisory Commission.—The Neutral Nations Supervisory Commission (NNSC), which was created by the armistice agreement as a subsidiary to the Military Armistice Commission (MAC) to inspect military activities at 10 Korean ports of entry and to investigate alleged violations in other specified areas, has had a controversial career from the outset. It has often been deadlocked between the Polish and Czechoslovak members on the one hand and the Swedish and Swiss members on the other.

On Jan. 27, 1955, the Swedish and Swiss governments sent identical notes to the United States and Communist Chinese governments, asking that they consider terminating the NNSC, or at least reducing the personnel of the four na-



UNITED PRESS

South Koreans (behind fence) demonstrate against presence of Czech and Polish members of U.N. truce team, which was protected by U.S. soldiers in August 1955.

tions represented on it. On March 2, Washington endorsed abolition, but Peking, on March 5, favored the more "acceptable" alternative. On August 29, the MAC agreed to reduce the number of ports of entry to 6, withdrawing inspection teams from Chongjin and Hungnam in North Korea and Kangnung and Taegu in South Korea. The remaining teams were each cut from four to two members.

Meanwhile, on August 6, the South Korean government, which had long considered the Polish and Czechoslovak members as spies, ordered the NNSC to leave Korea before August 13. It staged a series of violent demonstrations against the Communist truce inspectors, especially at Inchon and Kangnung, where United States troops protected them.

On August 10, U.S. Secretary of State John Foster Dulles noted: "Under the terms of the Korean Armistice Agreement there is an obligation upon the U.N. Command to give protection to the members of these teams. That is an obligation which we expect to carry out, and we do not believe that it is an obligation which the South Koreans ought to try to challenge by force, as they are now seeming to do." A few hours before the August 13 deadline, President Rhee announced that it would no longer be in effect, but insisted that he was not abandoning his objective. Demonstrations against the Polish and Czech members continued, but on December 10, Rhee asked that they be halted.

YONGJEUNG KIM,
President, Korean Affairs Institute.

KRESS, Samuel Henry, American businessman and art collector: b. Cherryville, Northampton County, Pa., July 23, 1863; d. New York, N.Y., Sept. 22, 1955. Founder and chairman of S. H. Kress & Co., one of the largest department-store chains in the United States, he was also prominent as a collector and donor of great art works.

Educated in the public schools of Slatington, Pa., Kress became a teacher in 1880. In 1887 he acquired a small stationery and novelty store in Nanticoke, Pa., and in 1890 a wholesale stationery and toy business in nearby Wilkes-Barre. Following in the footsteps of Frank W. Woolworth, he opened his first five-and-ten-cent store in Memphis, Tenn., in 1896. Four years later, after he

had established 11 other stores, he moved to New York, which became the chain's headquarters. By 1955 the organization he had founded was operating 264 stores in 29 states and Hawaii and employing over 22,000 persons. In 1954 its sales totaled \$169,416,847.

Relinquishing the presidency of the company to a younger brother, Claude, in 1924, Kress turned to art collecting. He became particularly interested in Italian art of the 13th to the 18th century and began spending large sums in the acquisition of paintings, sculptures, velvets, and brocades, which collectively came to constitute one of the largest private art collections in the world.

Kress' philanthropy was no less spectacular than his purchases. In 1929 he established the Samuel H. Kress Foundation, which by 1955 had acquired nearly 2,000 art treasures valued at \$75 million, and had donated hundreds of paintings and sculptures to the Metropolitan Museum of Art in New York, the National Gallery of Art in Washington, and other museums. The foundation also allocated funds for medical science, including a sum exceeding \$8 million for post-graduate medical education to the New York University-Bellevue Medical Center in 1949.

In 1939, Kress gave 375 paintings and 18 pieces of sculpture, mostly Italian, to the National Gallery of Art, then being erected. Valued at \$25 million, these included *The Adoration of the Shepherds* by Il Gorgione, *Allegory* by Titian, *Madonna and Child* by Giotto, and works by Giovanni Bellini, Andrea Mantegna, Fra Filippo Lippi, and Fra Angelico. By the time of his death, Kress had donated over 600 paintings and sculptures to the gallery. He was president (from 1945) and trustee of the National Gallery and trustee (from 1936) of the Metropolitan Museum of Art. In his will he left the larger part of his estate to the National Gallery and to charity.

KRISHNA MENON, V(engalil) K(ishnan), Indian diplomat: b. Calicut, India, May 3, 1897. India's chief delegate to the United Nations and Prime Minister Jawaharlal Nehru's personal adviser on international affairs, he is an advocate of self-determination and neutrality for the peoples of Asia and Africa and of "peaceful coexistence" of the East and West, as well as a severe critic of Western policy in Asia.

A graduate of Presidency College, Madras (B.A., 1916), he went in 1924 to England, where he studied at the University of London (B.S., 1927, London School of Economics; M.A., 1930, University College; M.Sc., 1934, London School of Economics) and was admitted in 1934 to the bar at the Middle Temple. Meanwhile, he worked vigorously for a free India, serving from 1929 to 1947 as secretary of the India League and writing prolifically on Indian independence.

During World War II, Krishna Menon served as Nehru's unofficial spokesman in Great Britain, and in 1946 he became the Indian leader's "personal representative" at large. As such, he visited a number of European countries to arrange for the establishment of diplomatic relations after India became independent. When the subcontinent was partitioned in 1947, Nehru appointed him high commissioner for India in Great Britain, a post he held until 1952, when he became a member of and spokesman for the Indian delegation at the U.N. General Assembly. It was his resolution on the repatriation of war prisoners which broke the deadlock in negotiations between Com-

munist China and the U.N. Command in Korea and paved the way for the conclusion of an armistice. In 1953 he was elected to the Indian Council of States.

Since then, Krishna Menon has been Nehru's unofficial ambassador at large, in which capacity he attended the 1954 Geneva Conference and the 1955 Asian-African Conference (q.v.). In April 1955, Communist Chinese Premier Chou En-lai invited him to Peking to discuss the Formosa question. Soon after the Peking talks of May 11-21, he visited London (June 3-8), where he met with Prime Minister Sir Anthony Eden and Foreign Secretary Harold Macmillan; and Washington (June 14), where he conferred with President Dwight D. Eisenhower and Secretary of State John Foster Dulles. With U.N. Secretary General Dag Hammarskjöld, he is credited with having influenced Communist China to release imprisoned United States airmen. In November, at the tenth session of the U.N. General Assembly, he devised a compromise which enabled France to resume its seat in the assembly.

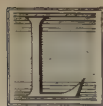
KURIL (KURILE) ISLANDS. A chain of some 30 large and numerous smaller islands and reefs, extending from the tip of the Kamchatka Peninsula of Siberia to within a few miles of the coast of Hokkaido, Japan. Area, 5,700 square miles; pop. (1940), 17,549. In 1945 the Soviet Union took over the islands under the Yalta agreement. Since 1947 the Kurils have been part of the Sakhalin Oblast of the Russian Soviet Federated Socialist Republic. Russian settlers largely displaced the Japanese, who were repatriated. Chief occupations are whaling, fishing, lumbering, sulfur mining, and hunting. Under the Japanese Peace Treaty of 1951, Japan renounced all claim to the Kurils, although the islands were not specifically assigned to the USSR.

KUSCH, Polykarp, American physicist: b. Blankenburg, Germany, Jan. 26, 1911. Winner with Willis E. Lamb, Jr. (q.v.), of the 1955 Nobel Prize in physics, he was cited "for the precision determination of the magnetic moment of the electron."

Taken to the United States in 1912, Kusch was naturalized in 1922. He was educated at the Case Institute of Technology (B.S., 1931) and the University of Illinois (M.A., 1933; Ph.D., 1936). Since 1937, with the exception of several years at Westinghouse (1941-42) and the Bell Telephone Laboratories (1944-46), he has taught and done research at Columbia University, where he became a full professor in 1949.

Both Kusch and Lamb carried on experiments on atomic structure at Columbia under I. I. Rabi, also a Nobel Prize winner. The results of their independent but related work, published in 1947, showed that the electron theory advanced by the English physicist, P. A. M. Dirac, for which he received the Nobel Prize in 1933, did not agree with the experimental evidence. Kusch was able to measure with great accuracy, by passing atomic beams through a magnetized vacuum (the molecular beam method), the magnetic moment or strength of electrons moving around nuclei of hydrogen atoms. His measurements showed that the magnetic moment was 0.125% greater than the value predicted by Dirac. The experiments of Kusch and Lamb have brought about important modifications in theoretical physics by extending knowledge of the structure of the atom.

KUWAIT. See ARABIA.



LABOR. Throughout 1955 American labor enjoyed steady employment, record earnings, and high purchasing power. Business gains and a favorable outlook for 1955 lessened employer resistance to bargaining for wage increases (immediate or deferred), income guaranties, and more liberal fringe benefits.

"The American Federation of Labor and Congress of Industrial Organizations," a single federation headed by AFL President George Meany, was formed in a joint convention of the AFL and CIO at New York City, in December. This merger closed a 20-year breach in labor's ranks. The new constitution recognizes both craft and industrial unions.

Membership in the 199 national and international unions with headquarters in the United States was estimated by the Bureau of Labor Statistics at about 18 million, at the beginning of 1955. This figure, based on union reports to the bureau and bureau estimates, was distributed as follows: AFL, 10.9 million; CIO, 5.2 million; and the 58 national or international independent unions, 1.8 million. The 18 million total included more than a million workers outside the continental United States, chiefly in Canada.

Most labor-management contracts negotiated in 1955 provided for wage increases. Industrial wage increases approached 10 to 12 cents an hour. Secretary of Labor James P. Mitchell stated in September, compared with 5 to 9 cents in 1954. At U.S. Steel Corporation, the CIO Steelworkers won a 15-cent-an-hour increase. The United Mine Workers (Ind.) announced a \$2-a-day raise for soft-coal miners.

Supplemental unemployment benefit plans were included in about 100 settlements through September, commencing with June agreements reached by the CIO Auto Workers with Ford and General Motors. The UAW-CIO contract with the Ford Motor Company, one of the most significant collective bargaining settlements in recent years, represented a compromise over the union's guaranteed annual wage proposal. The union's preparations for the 1955 negotiations began more than 4 years earlier.

Approximately two thirds of a group of 556 settlements concluded in the first 6 months of 1955 which also increased pay rates likewise changed one or more supplementary benefits, the Bureau of Labor Statistics found. Health and welfare plans were modified or initiated most often. Over a million workers were affected by pension plans inaugurated or amended. Gains were also made through collective bargaining on union security, vacations, and holidays.

In the 84th Congress, the minimum hourly wage under the Fair Labor Standards Act was raised to \$1, effective March 1, 1956; and pay raises were granted to federal classified and postal field-service employees. In the state legislative sessions, Utah enacted a "right-to-work" law. Fair employment practice laws were adopted by three states, and state workmen's compensation and unemployment insurance systems were substantially improved.

Organized labor continued to be critical of the Republican administration and Congress. It also criticized National Labor Relations Board appointments and policies.

American labor was alert to developments abroad. In discussions preliminary to the 38th International Labor Conference, the American delegation was successful in urging International Labor Organization (q.v.) investigation of enforced

labor. At the Fourth World Congress of the International Confederation of Free Trade Unions, the AFL, CIO, and United Mine Workers (Ind.) joined in support of strengthened regional programs which offer a challenge to communism in underdeveloped areas of the free world.

Labor and the Economy.—By the beginning of 1955, employment and production in the United States appeared to have regained about one half of the 1953–54 loss, according to the Congressional Joint Committee on the Economic Report. By June 1955, gross national product reached a seasonally adjusted annual rate of \$384.8 billion, compared with \$364.5 billion for 1953, the previous most prosperous year. In June, the Federal Reserve index of industrial production was 139% of the 1947–49 average. Steel production and demand continued high, and the coal industry's outlook improved.

Unemployment had receded, by early 1955, approximately 23% below May 1954. From 2.8 million in February, Bureau of the Census estimates (seasonally adjusted) fixed unemployment at 2.1 million in September, 96% of 1947–49. This was about 1 million below the previous year and represented 3.2% of the civilian labor force. When the year opened, 44 major employment areas were classified by the Bureau of Employment Security (q.v.) as having "substantial labor surplus," that is, showing as unemployed 6% or more of the workers covered by unemployment insurance. By the end of September, such areas numbered 26.

Nonfarm employment, the Bureau of Labor Statistics estimated, rose by 1.6 million to 49.3 million in the first half year; by September, the 50.3 million (in a 64.7 million civilian labor force) was 60,000 above the September peak reached in 1953. Factory jobs rose each month. Total accessions exceeded separations; quit rates increased substantially over mid-1954; and lay-offs dropped.

The factory workweek, at 41.0 hours in September 1955, was 1.3 hours above the September 1954 figure and higher than in any other post-war September except in 1952. Gross weekly earnings (including overtime and other premium pay) averaged \$77.90 in September (compared with \$71.86 a year earlier), an all-time peak.

The Consumer Price Index in June (114.4) showed the first monthly change of more than 0.1% since December 1954. In September, factory workers possessed greater buying power than ever before—7.8% higher for single workers in comparison with September 1954, and 7.1% greater for family workers. The take-home pay of the single factory worker, after Social Security and federal income tax deductions, was \$64.23 a week in September (in 1947–49 dollars), up \$4.68 over the year before. Comparable figures for the factory breadwinner with 3 dependents were \$71.55 and \$4.77. (See also COST OF LIVING; INCOME; INDUSTRIAL PRODUCTION; LABOR FORCE, WORLD.)

Labor Union Developments.—On December 5, in joint convention at New York City, the AFL and CIO merged to form the American Federation of Labor and Congress of Industrial Organizations. The constitution, following closely an historical merger agreement signed by AFL and CIO presidents on Feb. 9, 1955, relies on voluntary mutual efforts by affiliates to solve jurisdictional conflicts. State and local central bodies will have two years in which to arrange mergers. The CIO had been formed in 1935 by a group of AFL



George Meany (left), president of the AFL-CIO, which merged on Dec. 5, 1955, and Walter Reuther, head of the labor organization's Industrial Union Department.

unions, holding its first convention in 1938. (See also AMERICAN FEDERATION OF LABOR; CONGRESS OF INDUSTRIAL ORGANIZATIONS.)

The no-raiding pact, signed by AFL and CIO leaders on Dec. 16, 1953, as a foundation for efforts toward unity, was ratified by 108 affiliated unions. Exceptions were, notably, the AFL Teamsters and three CIO unions—the Lithographers, Shipbuilders, and Mechanics Educational Society of America.

A trend toward mergers among smaller unions in 1954 was followed in 1955 by other manifestations of agreement. AFL Machinists and Iron Workers settled past differences. Among examples of joint bargaining, the CIO Steelworkers and AFL Aluminum Workers concluded successful negotiations with Alcoa, as did also the CIO Packinghouse Workers and the AFL Meat Cutters, jointly, with Armour.

Organized labor in the United States continued its firm stand against communism. Throughout the year, AFL and CIO executive bodies scanned proposed jurisdictional changes and organizing activity closely, to prevent any Communist-dominated groups from gaining admittance. Four unions, expelled with 7 others from the CIO in 1949–50 for Communist ties, exist as unaffiliated unions, but their combined membership is approximately one third of the 850,000 to 900,000 estimated for all 11 when they were expelled.

Labor-Management Relations.—Man-days idle in 1955 (28.0 million) from work stoppages were below postwar years other than 1951 and 1954.

Wage increases were won through collective bargaining in basic steel and steel products, aluminum, farm implements, autos and auto parts, electrical equipment, petroleum, rubber, interstate trucking, local transit, textiles, construction, mining, dockloading, and other industries.

Wage increases of 9 to 11 cents an hour were reported for over a third of the 2,300,000 workers covered by 556 contracts negotiated in the first half of 1955 and studied by the Bureau of Labor Statistics. Deferred increases were contained in at least 76 of these contracts, affecting about 1 million workers. A substantial number of the contracts gave extra increases to skilled workers.

The CIO Steelworkers, at U.S. Steel Corpora-

tion, obtained a wage increase averaging about 15 cents an hour. (See also IRON AND STEEL.) Extra wage increases for skilled workers, higher annual improvement factor wage increases, as well as improved pension and welfare benefits and a more liberal escalator clause, were provided in the agreements concluded by the CIO Auto Workers with Ford and General Motors. (See also AUTOMOBILES.) The UMW (Ind.) announced the first increase for soft-coal miners in three years, a \$2-a-day raise (part on Sept. 1, 1955, and the rest on April 1, 1956), bringing the basic daily rate to \$20.25.

The CIO Auto Workers gained a form of the guaranteed wage in the Ford agreement of June 6 and the generally similar General Motors agreement of June 13, providing for employer contributions of 5 cents a man-hour toward supplemental unemployment benefits. Hourly rated workers with at least one year's seniority, will, if laid off, be guaranteed payments (not earlier than June 1, 1956) which, with state unemployment insurance benefits, would give them a maximum of 65% of their weekly straight-time take-home pay (after taxes) for 4 consecutive weeks and 60% for the next 22 weeks. The UAW-CIO settlement with Allis-Chalmers guaranteed 65% for 26 weeks. The CIO Steelworkers signed agreements with the American Can Company and the Continental Can Company to bring combined unemployment benefits for workers with 3 years' seniority up to 65% for 52 weeks. By the end of September 1955, about 1 million workers in various industries were covered by such plans, most of them negotiated by the UAW-CIO.

Implementation of these plans was conditioned on favorable rulings in major employing states, to permit a worker to receive both state unemployment insurance and company supplemental benefits—a ruling given first in Michigan and next in Massachusetts and Connecticut. The U.S. Department of Labor ruled that employer contributions to supplemental unemployment benefit funds, such as that negotiated between the CIO Auto Workers and Ford, may be excluded in computing "wages" for purposes of overtime pay, under the Fair Labor Standards and Public Contracts acts. The U.S. Internal Revenue Service informed Ford and General Motors that such contributions are deductible for income tax purposes, as business expenses.

For the first time, contracts between the CIO Auto Workers and General Motors and Allis-Chalmers granted the full union shop.

Some of the larger work stoppages, in terms of workers concerned, area affected, or period of time, involved the AFL "nonoperating" railroad unions and the Louisville and Nashville Railroad system; CIO Communications Workers and Southern Bell Telephone and Telegraph; AFL Hotel and Restaurant Employees and several Miami, Fla., area hotels; CIO Textile Workers and New England cotton and rayon mills; AFL Teamsters and southern New England truckers (later, west coast truckers); CIO Auto Workers and International Harvester (also, Kohler Corporation); the independent Mine, Mill and Smelter Workers and Phelps Dodge, Kennecott, and American Smelting and Refining; and the CIO Electrical Workers and Westinghouse.

Labor Legislation.—New federal laws concerning labor had these effects:

The increase in the minimum wage payable under the Fair Labor Standards Act, from 75 cents to \$1 an hour (March 1, 1956) directly affects some 2 million workers, mostly in the South.

Half a million postal field-service employees received a 6% salary increase, starting March 1, 1955, and through job reclassifications would obtain an additional 2.1% within 180 days after that date. A retroactive 7.5% increase was also given to about 1 million federal classified employees, as well as to employees of the legislative branch. (See also CIVIL SERVICE.)

Amendments to the Railroad Retirement Act, administered by the Railroad Retirement Board, resulted in increased benefits for about 80,000 wives of retired railroad employees and about 7,000 survivors (principally aged widows) of deceased railroad workers.

In addition, a renewed Mexican farm labor agreement gave the Department of Labor authority to carry on its program of services to immigrant farm laborers for 3½ years beyond Dec. 31, 1955.

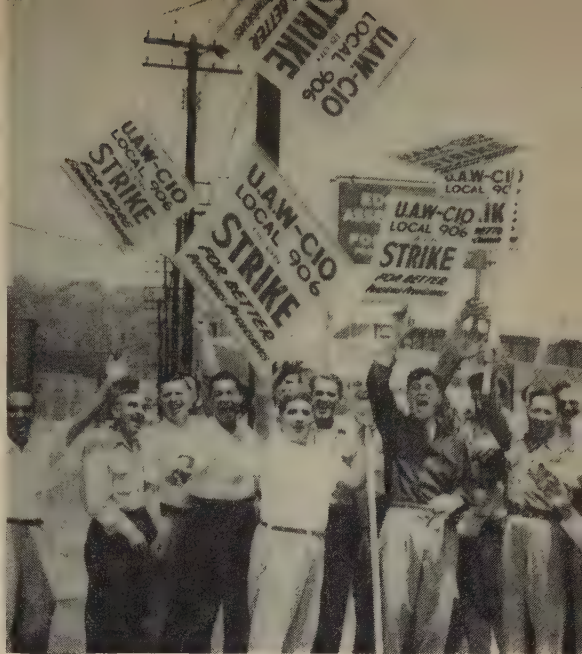
Organized labor characterized the record of the 84th Congress as "generally disappointing," although recognizing at the same time the "constructive" minimum wage and federal pay legislation. The Labor Management Relations Act of 1947 (Taft-Hartley Act) was not changed. Labor had also unsuccessfully backed extension of the Fair Labor Standards Act to additional employee groups and liberalization of federal old-age and survivors insurance requirements. "Once labor is united," AFL President George Meany declared on Labor Day, "we are resolved to intensify the political activities of labor." Organized labor called for federal assistance in solving problems presented by unemployment in chronically depressed areas, shifting industry, and automation.

Department of Labor.—At the Department of Labor, the assistant secretaryship left vacant by the resignation of Harrison Hobart in 1954, remained unfilled. Amid objections from labor, Newell Brown, New Hampshire director of employment security, was confirmed by the Senate on Aug. 2, 1955, as administrator of the Wage and Hour and Public Contracts Divisions (q.v.). Ewan Clague, nearly a year after his appointment had expired, received Senate confirmation, on July 30, 1955, for a third 4-year term as commissioner of labor statistics.

State Legislation.—At least 8 of the 45 state (and 3 territorial) legislative sessions adopted laws in 1955 governing labor relations. Ohio and Rhode Island made arbitration awards enforceable in state courts. Utah was the only additional state to adopt a "right-to-work" law, but union restrictions were added to the state labor relations act in Kansas; South Dakota strengthened its antipicketing and "right-to-work" laws; and Texas outlawed picketing by minority unions. Unions were prohibited, in New Hampshire and Wisconsin, from contributing to political campaigns.

Maximum basic weekly unemployment insurance benefits were increased in 32 states. Idaho, New Mexico, and Wyoming adopted minimum wage laws for the first time. Michigan, Minnesota, and Pennsylvania enacted mandatory fair employment practice laws. Workmen's compensation benefits for one or more types of disability were raised in 35 states, as well as in Alaska and Hawaii.

The U.S. Senate Subcommittee on Welfare and Pension Funds (83d Congress) reported in January 1955, after a 6-month investigation of a small number of plans and existing sources of regulation. It found corrective legislation needed and immediate strengthening of state and federal



WIDE WORLD

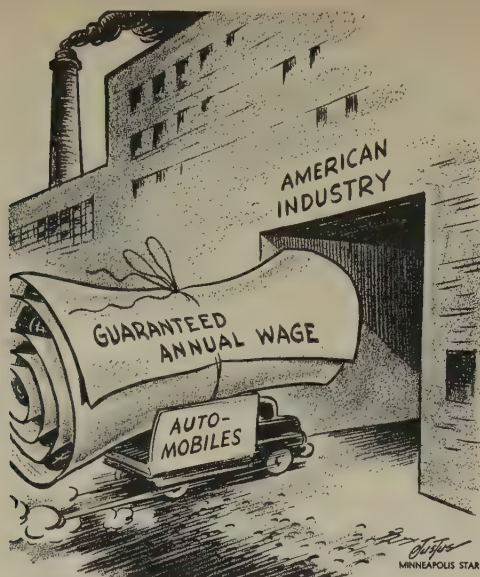
Employees of Ford Motor Company plant, Edgewater, N.J., celebrate 3-year labor-management agreement, June 6, 1955, which included guaranteed unemployment pay.

administrative controls. The 84th Congress continued the inquiry. Both the AFL and the CIO unanimously approved programs to safeguard welfare funds and called for legislative action to obtain public disclosure of fund operations. This type of provision was contained in a new Washington state law. At least 12 million workers are covered by some type of health and insurance or pension plan under collective bargaining agreements.

Labor and the Law.—The National Labor Relations Board (q.v.) elaborated on its 1954 jurisdictional standards regarding radio stations (*Lynett et al.*, Feb. 24, 1955), transit companies (*Rollo Transit*, Dec. 16, 1954), and other establishments; prescribed conditions for taking restaurant cases (*Bickford's, Inc.*, Dec. 16, 1954); and reaffirmed its policy of nonjurisdiction over hotel cases (Aug. 26 and Oct. 10, 1955, announcements).

Other significant rulings were made in the following cases during 1955—*Campbell Soup Co.* (January 18): for decertification purposes, craft employees may not be severed from an existing production and maintenance unit. *Clayton and Lambert* (February 8): welders do not form a separate and distinct craft for severance purposes. *Conrado Forestier* (March 4): the board's jurisdictional standards will be uniformly applied in all United States territories as in the 48 states. *Sand Door* (August 26): a "hot cargo" clause does not legalize a union's action in directly requesting employees to refuse to handle goods designated as unfair. *W. L. Mead, Inc.* (August 27): employees who went on strike although their contract required arbitration, violated the Taft-Hartley Act, even though the contract did not have a no-strike clause.

The U.S. Supreme Court dealt with the following noteworthy labor cases, among others, in 1955—*Westinghouse Salaried Employees v. Westinghouse Electric Corp.* (March 28): the Taft-Hartley Act does not give federal courts



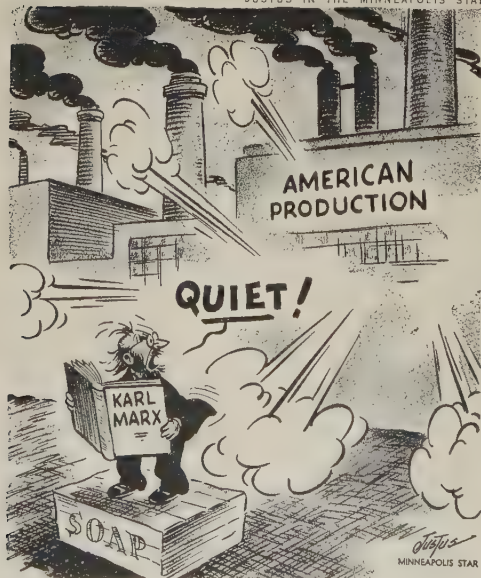
JUSTUS IN THE MINNEAPOLIS STAR

"DELIVERING THE BLUEPRINTS?"

jurisdiction over a union's suit for wages allegedly owed its members under a collective bargaining contract. *Weber et al. v. Anheuser-Busch, Inc.* (March 28): a state may not invoke a state antitrust law to enjoin picketing reasonably coming under the Taft-Hartley Act. *Amalgamated Clothing Workers et al. v. Richman Brothers* (April 4): federal courts may not interfere in state court proceedings in matters subject to the Taft-Hartley Act, except upon NLRB request following an unfair labor practice complaint. *Whitin Machine Works v. NLRB* (April 11): the court, refusing to review a lower court ruling, upheld the NLRB's decision that a union is entitled to receive from an employer wage data essential to bargaining, including names and wage rates of employees in the bargaining unit.

"SPEECH SPOILER"

JUSTUS IN THE MINNEAPOLIS STAR



Important U.S. Supreme Court decisions in 1955 on Fair Labor Standards Act coverage included *Joyce Agency, Inc.* (February 28) and *Vollmer and Co.* (June 6).

The federal district court at Washington, D.C., in *Covington Mills et al. v. Mitchell* (April 4, 1955), ruled invalid a wage determination by the secretary of labor fixing a single minimum wage throughout the cotton, silk, and synthetic-textile industry, under the Walsh-Healey Public Contracts Act. The federal court of appeals reversed this decision on December 1. (See also *Law*.)

For further references, see the Index entry, *Labor*.)

ILSE S. ADDICKS, *

Bureau of Labor Statistics, U.S. Department of Labor.

LABOR FORCE, World. The year 1955 was a good year for workers in most parts of the world. Industrial production was greater than in 1954 in many countries. Unemployment decreased and economic conditions in most countries were at least as good as in 1954. There remained, of course, perplexing problems, with unemployment still typical of some countries and chronic underemployment characteristic of others.

The need for moving workers from country to country led to the adoption by the International Labor Conference of a Recommendation on the Protection of Migrant Workers. Other ILO actions covered vocational rehabilitation and penal sanctions.

Technical assistance programs to improve skills in the labor force, employment placement services, and standards of labor relations, were continued in 1955 at a high level.

ILO Action in the Manpower Field.—Manpower problems claimed much of the attention of the 38th International Labor Conference in June 1955. Delegates from governments, employers, and workers and from the International Labor Organization (q.v.) meet each year to consider important labor problems and to recommend international labor standards to the 70 member nations.

The 38th conference adopted a Recommendation on the Protection of Migrant Workers in Underdeveloped Countries and Territories. The suggested labor standards in the instrument cover conditions faced by migrant workers in their outward and return journeys, including transportation, food, lodging, medical care, and placement in jobs. For the period of employment in the new country, the recommendation covers housing, wages, working conditions, trade union activities, social security provisions, and factors affecting the material, intellectual, and moral welfare of workers. For those workers who would remain in the new country, it sets forth standards for their stabilization and for their ultimate absorption into the new country.¹

The unanimous adoption of a Recommendation on Vocational Rehabilitation of the Disabled was another important ILO action in 1955. The instrument spells out basic standards for coordinated processes for medical, psychological, social, educational, and vocational services designed to meet the individualized needs of disabled persons. It includes principles and methods of voca-

¹ This action did not cover all people who migrate, but was focused on substantial movements of workers to or from underdeveloped countries. As with all ILO instruments, adoption by member countries is not obligatory, but the standards suggested will be of material assistance to those facing the problem of substantial migratory movements.

tional guidance, vocational training, and occupational placement. It suggests methods of administering these services, and of their coordination with medical services for disabled persons. It also describes ways of improving employment opportunities for disabled persons and of encouraging both employers and trade unions in promoting such opportunities.

In the United States, the President's Committee on Employment of the Physically Handicapped has done a noteworthy job in promoting the use of handicapped workers. With the federal and state agencies cooperating, the committee and its state and local affiliates assisted in placing 214,235 handicapped workers in employment in the 12-month period ending July 1, 1955.

The ILO Conference also adopted a convention calling upon member nations to abolish, wherever they may still exist, penal sanctions for breaches of contracts of employment. This convention, which member nations may voluntarily ratify, called for countries which do so to end penal sanctions within one year from the date of ratification. It condemned penal sanctions as "contrary to the modern conception of the contractual relationships between employers and workers and to the personal dignity of the rights of man."

The ILO placed the issue of forced labor on the agenda of its 1956 conference. U.S. Secretary of Labor James P. Mitchell, in his speech before the ILO, condemned forced labor and urged the ILO to "take advantage of every power, every resource, and every facility at its command to assure that effective action is taken against this form of bondage." This action follows a long series of developments in both the ILO and in the U.N. Economic and Social Council, looking toward a full fact-finding process and ultimate banishment of forced labor wherever it might exist.

Migration.—One problem in the utilization of the world labor force is the existence of too many workers in some countries and not enough in others. To alleviate this situation, a number of international agencies, both governmental and private, are active in promoting, financing, and giving technical assistance in the field of migration. Among the governmental organizations are the ILO, the Intergovernmental Committee for European Migration, the Organization for European Economic Cooperation, and the High Authority of the European Coal and Steel Community.

One of the most active of these organizations is the Intergovernmental Committee for European Migration (ICEM), supported by the United States and 23 other countries with a budget of \$46.5 million for the year 1955. During 1954, 119,000 migrants were moved through ICEM facilities. In 1955, 67,171 migrants from European countries had been moved by August 15 and the anticipated total for 1955 was estimated at slightly over 120,000. In the more than 3½ years of ICEM's existence, slightly more than a fourth of the 350,000 migrants moved in the program went to Australia; with Canada, the United States, Argentina, and Brazil receiving most of the others. In 1955 the largest number came from Italy.² (See also REFUGEES AND DISPLACED PERSONS.)

² ICEM also has working relationships with 11 voluntary agencies in which it provides funds which these agencies use as revolving loan funds for individual migrants. In 3 years, under such arrangements, more than 50,000 migrants have left Europe, chiefly for North American countries.

Technical Assistance.—Technical assistance in the manpower field continued through 1955 at a high level, especially in underdeveloped countries, largely through the auspices of United Nations agencies, the United States government, and the Colombo Plan.

A major portion of the United Nations technical assistance program in the manpower field was administered by the ILO. The projects cover a range of functions, including training programs, employment exchange services, vocational rehabilitation of the disabled, and assistance in labor statistics.

At a late summer period, the ILO reported 61 full-time experts in the manpower fields, 49 instructors, and 80 persons studying under fellowship grants in various aspects of this program.

The United States, through the International Cooperation Administration, in cooperation with the U.S. Department of Labor and other agencies, has conducted a varied program of technical assistance. It includes sending consultants in labor fields to foreign countries and bringing teams, trainees, and prominent citizens to the United States. These visitors study problems in their technical fields and are given an opportunity to meet Americans in all walks of life. In the fiscal year ending July 1, 1955, the U.S. Department of Labor serviced 652 foreign visitors under this program.

In Southeast Asia, the Colombo Plan, an organization of countries for the exchange of technical assistance through a sharing of skills in many fields, completed its fifth year of existence. (See COMMONWEALTH OF NATIONS.) Basically, the arrangement has provided for exchanging experts and sending young people for training to other countries. Since 1950, the Colombo Plan countries have exchanged 392 experts and provided training facilities for 2,676. Although the plan embraces many functions other than manpower, many activities have been directed toward improving workers' skills and providing for better utilization of the labor force.

Labor Force Situation by Area. *Western Hemisphere.*—The year 1955 saw a steady and consistent improvement in production and business in the United States. In September the U.S. Department of Commerce released figures showing that the civilian labor force totaled 66,882,000, including 64,733,000 employed and 2,149,000 unemployed. Those employed comprised 7,875,000 agricultural and 56,858,000 nonagricultural workers. The unemployment total was at its lowest point since the autumn of 1953. As the year approached an end there was every prospect for a continuation of the high employment trend, although, of course, there were still areas where employment was down, but the number of these was decreasing. (See also BUREAU OF EMPLOYMENT SECURITY; LABOR.)

In Canada, unemployment, after reaching almost 8% of the labor force in the spring of 1955, decreased by July to only 150,000 or 2.6%. This appeared to complete a readjustment in the economy and to be the end of aggravating difficulties which started in the fall of 1953, and which in general followed economic trends in the United States.

In most of the Latin American countries little change occurred in employment levels during 1955, as compared with 1954. Problems of unemployment persisted in some countries, notably Cuba and Panama. Public works programs were among measures aimed at easing such situations. In Cuba, the recently established Bureau of La-

bor Statistics released its first report on employment, and Census Bureau plans went forward for the regular collection of unemployment data, with technical assistance from the United States.

Shortages of skilled workers continued in such countries as Brazil, where industrialization has progressed rapidly. Chronic underemployment in agriculture and handicraft industries continued in large areas, notably among Indian populations of the Andean plateau across Bolivia, Peru, and Ecuador. At the same time, shortages of agricultural workers were reported in scattered areas.

Europe.—In Europe, the year 1955 was in many respects the best of the postwar years. In the first six months, for example, industrial production was running 10% higher than in the first half of 1954. In all countries except Italy and Denmark (and in Denmark the situation was not serious) unemployment was consistently below 1954 levels. Of course, there were trouble spots in 1955, with pockets of unemployment in particular industries and with seasonal unemployment still a vexing situation in some countries. Underemployment, especially in the countries of southern Europe, was troublesome.

A status of virtually "full employment," with some labor shortages, prevailed in 1955 as it did in 1954, in the Scandinavian countries, the Netherlands, England, France, Luxembourg, and Switzerland. Of the countries with difficult unemployment problems in 1954, substantial improvement took place in 1955 in Austria, Belgium, and Germany.

In Austria, measures taken in 1954 for economic improvement apparently helped to reduce unemployment to 75,000, or only 3.6% of the labor force, by June 1955. This compared with 119,600 and 142,200, respectively, in June 1954 and 1953.

In Belgium, the number of insured unemployed had dropped to 82,800, or 4% of the labor force, by August, as compared with 140,300 in August 1954. This reflected a consistent improvement in the unemployment situation since the peak postwar unemployment in 1953.

In Germany, unemployment dropped to the lowest point in the postwar period, with 495,000 registered unemployed in September, or 2% of the labor force. Except for the perennial problem of seasonal fluctuations, the Federal Republic had reached a point approaching full employment.

Ireland, Italy, and Greece continued to have unemployment and underemployment problems. In Ireland, chronic unemployment has been a problem for some years, ranging from 6% to almost 10% of the labor force. Some improvement was noted in 1955, however, with unemployment decreasing to 27,400 in August, representing 5.8% of the labor force.

Unemployment in Italy continued at about 2 million, or 10% of the labor force, in the early months of 1955, with underemployment estimated at various figures up to another 2 million workers. The economy in recent years has succeeded each year in absorbing the number of workers representing approximately the natural increase in the working population, but has not improved sufficiently to make a dent in the net total of unemployed and underemployed.

Unemployment and underemployment in Greece were apparently no worse than in 1954, but the problem of surplus manpower and the possibilities of more emigration are still matters of serious concern to Greek officials.

Iron Curtain Countries.—In 1955 full em-

ployment and scarcity of manpower for the desired industrial expansion were reported for the planned economies of the USSR and its European satellites. Press reports in these countries indicated that manpower resources among the agricultural population appeared to be drying up, especially in the Soviet Union where large numbers of city workers were recruited for agricultural work. They were especially needed for the program of reclamation of waste lands in central Asia. Other labor force shifts were reductions in armed forces, ranging from a claimed 640,000 in the Soviet Union to 9,000 in Albania, and release of white collar workers for production jobs.

Asia and Africa.—Chronic unemployment and underemployment continued to be serious problems in most countries of Africa and Asia, although no notable deterioration in this situation was observed in 1955. At the same time, shortages of skilled and managerial personnel, the lack of adequate educational facilities in many countries, and resistance to worker mobility for traditional, religious, and racial reasons continued to retard industrial development.

In Japan, deflationary policies, aimed at maintaining or improving the country's dollar exchange position, have adversely affected some industries. Registered unemployment was slightly less than 700,000 in July 1955, compared with a labor force of around 40 million. However, actual unemployment was estimated by trade union observers to be about double this amount. The figure might run to 6 million, according to NIKKIEREN, the Japanese Employers' Association, if the underemployed were included. The situation was considered sufficiently serious to play an important role in the government's proposals to develop an overall 6-year economic plan, with a target of full employment by the end of the fiscal year 1960.

Unemployment continued to be a problem of major concern in the Philippines. A public works program was developed in 1955, and a number of measures were proposed to bolster the economy generally. Although statistics are lacking, it has been estimated that unemployment may have run as high as 15% of the labor force, with an additional portion underemployed.

India's second Five-Year Plan (see INDIA), covering the years 1956–61, has as its central objective the solution of the unemployment problem as quickly as possible while increasing consumption and investment.

In Israel, unemployment was reduced during the first half of 1955 to 2½% of the labor force. This continued the steady improvement in the economic situation since 1953.

Oceania.—In Australia production was high in 1955 and inflationary pressures were mounting. There was full employment, with labor shortages and higher turnover. In July, registered unemployment was only 2,410, a new low since 1953. In October, a number of import restrictions were imposed as a deflationary measure. New Zealand, as during all of the postwar years, continued to have full employment in 1955.

EWAN CLAGUE,
Commissioner of Labor Statistics, U.S. Department of Labor.

LABOR RELATIONS BOARD, National. See NATIONAL LABOR RELATIONS BOARD.

LABRADOR. See NEWFOUNDLAND.

LACQUERS. See PAINTS, VARNISHES, AND LACQUERS.

LACROSSE. See SPORTS, GAMES, AND SHOWS.

LAMB, Willis E(ugene), Jr., American physicist: b. Los Angeles, Calif., July 12, 1913. With Polykarp Kusch (q.v.), he was awarded on Nov. 2, 1955, the Nobel Prize in physics "for his discoveries regarding the hyperfine structure of the hydrogen spectrum." Earlier in the year he had received the Research Corporation Scientific Award for 1954.

A graduate of the University of California (B.S., 1934; Ph.D., 1938), Lamb was in 1938 appointed instructor at Columbia University, where he became a full professor in 1948. Since 1951 he has been professor of physics at Stanford University.

Before he began his experiments in atomic physics, the results of which were published in 1947, it was held that the energy of different levels or states of the hydrogen atom was identical. His research with microwave radiation showed, however, that there was a very slight difference in energy between two levels. This difference is now known as the Lamb shift. Lamb's studies of the atom and the similar experiments of Kusch mark an important advance in theoretical physics.

LAND BANKS, Federal. See Index entry.

LANGUAGE. See LINGUISTICS.

LAOS. See INDCHINA.

LATIN AMERICA. See INTER-AMERICAN AFFAIRS; articles on the Latin American countries; and the Index entry, *Latin America*.

LATIN AMERICAN ART. Argentina.—The Buenos Aires art galleries were very active during 1955 publishing books, monographs, and signed reproductions of Argentine art. Two important contributions were the three portfolios of silk screens by the painters Luis Seoane, Hector Basaldúa, and Rafael Alberti, and a collection of 18 lithographs of a nonobjective nature by Libero Badii, Antonio Fernández Muro, Sarah Grilo, Miguel Ocampo, Leopoldo Presas, Ideal Sánchez, Leopoldo Torres Agüero, and José María Lanús.

Bolivia.—In July 1955 the municipality of La Paz held the Third Salon of painting and sculpture. The two major prizes went to painter Enrique Arnal and sculptress Marina Nuñez del Prado. In August an exhibition of popular arts was organized as the country's first attempt to present in an organic form a spontaneous production of folklore.

Brazil.—From June to October 1955 the Museum of Modern Art of São Paulo held its Third International Biennial. The big prize was awarded to the French painter, Fernand Léger (q.v.). First prizes to a foreign painter and sculptor went respectively to Alberto Magnelli and Mirko, both Italians. Prizes to a Brazilian painter and sculptor went respectively to Milton Dacosta and Maria Martins.

Chile.—The Chilean painter Roberto Matta was presented by the Sidney Janis Gallery of New York City during January in an exhibit which was repeated at the Pan American Union in Washington, D.C., in February. The painter Enrique Zañartu held a one-man show at the Galerie du Dragon in Paris during the summer.

Colombia.—A recent government decree has established that all official buildings which cost at least half a million pesos should include a work of national art, either a painting or sculpture. The first step taken in compliance was creation of a mural by Pedro Nel Gómez at the Instituto de Crédito Territorial, Bogotá.

The Colombian painter, Alejandro Obregón, exhibited for the first time in the United States

at the Pan American Union in Washington in January. The progressive sculptor, Edgar Negret, was presented for the second time by New York City's Peridot Gallery in October.

Cuba.—During 1955 the new "Galerías Cubanas," which opened in Havana at the end of 1954, was very active. It is devoted to the promotion of the work of progressive Cuban painters and sculptors, and in March 1955 held a successful one-man show for the painter Cundo Bermúdez.

In the same month the Faculty of Social Sciences at the University of Havana held a large exhibit of paintings and drawings by Wifredo Lam; in April it presented the nonobjective oils and constructions of Luis Martínez Pedro and Sandú Darié; and in June it showed a series of ink drawings by Raúl Milán.

One of the most important events of 1955 was the creation of the National Institute of Culture by the Ministry of Education. One of the institute's first activities was the presentation of the ministry's collection of Cuban paintings and sculpture of the past decade at the new Palace of Fine Arts in Havana.

Dominican Republic.—In March 1955 the National Gallery of Fine Arts presented an exhibition of women painters, including Noemí Mella, Clara Ledesma, and Mounia André. The group known as "The Four" (Jaime Colson, Gilberto Hernández Ortega, José Gausachs, and Clara Ledesma) exhibited in June in the French Alliance Association in Ciudad Trujillo.

Ecuador.—The Pan American Union in Washington, D.C., presented during 1955 the work of two prominent Ecuadorian painters: in March, Manuel Rendon, who follows nonobjective expression; and in June, Oswaldo Guayasamin, who continues the indigenous trend. Later in May, Rendon held a one-man show in the Galerie de Berri in Paris, and Guayasamin participated in the Ecuadorian group show held in June-July in the Museum of Contemporary Art of Madrid, Spain, which also included works by Diógenes Paredes, Eduardo Kingman, and José Enrique Guerrero.

Guatemala.—The University of Guatemala presented in February a retrospective exhibit of the Guatemalan painter, Roberto Ossaye (1927-54), which was organized in memoriam by friends of the artist.

Mexico.—The Proteo Gallery in Mexico City inaugurated on March 17, 1955, its first salon of free art, with works by Mexican and foreign resident artists who consider themselves independent of political propaganda in their output. The exhibit included the Mexicans Rufino Tamayo, Carlos Orozco Romero, Pedro Coronel, Enrique Echeverría, José Luis Cuevas, Alberto Gironella, and Geles Cabrera. During July and August the same gallery presented a one-man show of small sculptures by Vicente Castillo Oramas.

In June exhibits were held in Paris of the Mexicans Rafael Navarro, who showed a selection of paintings at the Club des Quatre Vents, and José Luis Cuevas, whose drawings were successfully presented by the Galerie Edouard Loeb.

Panama.—A new progressive painter, Justo Arosemena, showed his work at the University of Panama, and later exhibited in Medellín and Bogotá, Colombia.

Peru.—Peru sent Mexico a large display of its art from pre-Columbian times. It was inaugurated on May 12, 1955, in the Palace of Fine Arts in Mexico City, and contained ceramics, textiles, jewels, colonial and 19th century paint-

ings, and the work of such contemporary artists as José Sabogal and Sérvulo Gutiérrez.

In Lima the Institute of Contemporary Art was inaugurated in July, and its opening exhibition presented works of Ricardo Grau, Sabino Springett, Fernando de Szyszlo, Sérvulo Gutiérrez, Jorge Piqueras, Joaquín Roca Rey, and others. The Peruvian sculptor, Joaquín Roca Rey, and architect Juan Pardo de Zela were awarded the first prizes in a contest held by the government of Panama for a monument to José A. Remón, late Panamanian president, which will be erected in Panama City.

Uruguay.—On July 28, 1955, the Torres García Museum, devoted to the work of the Uruguayan constructivist painter, Joaquín Torres García (1874–1949), was opened in Montevideo.

Venezuela.—In July 1955 the Museum of Fine Arts in Caracas presented a retrospective exhibition of 400 works by the Venezuelan expressionist painter, Armando Reverón (1889–1954).

The city of Valencia held an international exhibition of painting in September. First prize to a foreign artist went to the Frenchman Alfred Manessier, and first prize to a Venezuelan went to Pascual Navarro.

JOSÉ GÓMEZ-SICRE,
Chief, Visual Arts Section, Department of
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LATIN AMERICAN LITERATURE. Fiction.—The most significant literary events of 1955 took place in the field of fiction. Introduced to American readers in English translation were the short stories, *The Jewish Gauchos of the Pampas*, by the Argentine Alberto Gerchunoff, and a novel, *Born Guilty*, by the Chilean Manuel Rojas. Couched in an earthy idiom, Gerchunoff's tales have a delightfully folkloric flavor and are extremely touching in their mixture of pathos and humor. The life and landscape of the pampas is seen and experienced by the Jewish immigrants who created an uniquely new culture while trying to adapt themselves to the American environment. Known principally as a leading short story writer, Manuel Rojas surprised his readers with his powerful novel, which is rich in incident and deep in psychological penetration, and which faithfully mirrors the nature and society of his native land.

The novelette, *Pedro Páramo*, by the young Mexican short story writer, Juan Rufo, towers over all the numerous outstanding fictional productions of 1955. Availing himself of the most advanced narrative techniques and employing his typically lean and poetic language, Rufo tells the exciting saga of Pedro Páramo, a little despot in a remote rural area of Mexico, through the recollections of his son, mistresses, and other persons who loved, feared, or hated him.

Equally original was *La penúltima hora*, a novel in which the Colombian veteran, E. Caballero Calderón, dramatizes the final hours of the passengers in a plane which never reaches its destination. *La maldición*, a posthumous novel by the Mexican Mariano Azuela (1873–1952), which exposes the bureaucratic corruption of Mexico, was rather disappointing. On the other hand, *Las dos vidas del pobre Napoleón*, by Azuela's Argentine contemporary, Manuel Gálvez, was charmingly fresh and whimsical. It depicts the adventures and misadventures of a little man who decided to emulate Napoleon. Decidedly impressive were Manuel Mujica Lainez' *Los viajeros*; the novels, *La gota de mercurio*, by the Mexican Alejandro Nuñez Alonso; *El juramento*

and *La casa del ángel*, by the Argentines, Luis Horacio Velázquez and Beatriz Guido, respectively; and *El diablo sube el telón*, by the Colombian, Germán Beltrán, which was awarded the Espiral Prize. In short story writing, the young Chilean, Claudio Giona, showed considerable talent in *La difícil juventud*.

Nonfiction.—No work of nonfiction in 1955 surpassed in scope and erudition Daniel Cosío Villegas' *Historia moderna de México*, of which are available the first two of six volumes covering the crucial years 1867–1911. More popular in appeal is Germán Arciniegas' *Américo y el nuevo mundo*, a biography of Amerigo Vespucci.

More than a score of studies emphasized the Colombian crisis. Of these, Eduardo Santos' *Sociología política de Colombia* and Alfonso López Michelsen's *Cuestiones colombianas* were especially engaging.

Keen literary criticism in its widest relation to social phenomena found brilliant expression in *El humanismo y el progreso del hombre*, by the 96-year-old Colombian essayist, Baldomero Canín Sano; in *El heroísmo intelectual*, by the Cuban, José Antonio Portuondo; and in two brief but meaty books by the Mexican, José Luis Martínez, *Problemas literarios* and *La emancipación literaria de México*. More concerned with stylistics and the craft of fiction were *Apuntes de crítica literaria*, by the Venezuelan, Gloria Stolk, and Joaquina Navarro's perceptive *La novela mexicana realista*, dealing with the Mexican novel from 1880 to 1910.

Stimulating interpretations of contemporary writers were Aristóbulo Echegaray's attack on Ricardo Güiraldes in *Don Segundo Sombra, reminiscencia infantil de R. Güiraldes*; J. Ríos Patrón's *Jorge Luis Borges*; Fernando Lamberg's *Vida y obra de Pablo de Rokha*; and Pablo Stelingis' *La obra poética de Manuel Magallanes Moure*—recipient of the two most recent prizes awarded by the Sindicato de Escritores de Chile. The autobiographical *Tiempo de arena* reveals the formative years of the Mexican poet and diplomat, Jaime Torres Bodet.

Poetry.—The poetical output of 1955 bears an unmistakable neoromantic aura. Deep nostalgia and ever-present anguish almost always suffuse the most promising utterances. Of these, there came from Argentina, Julia Prilutzky Farny's *Este sabor de lágrimas*, Horacio Clemente's *Ventanales a la luna*, Dolores López Aranguren's *Laurel sin bronce*, and most especially, Alberto Girri's magnificent *Línea de la vida*. From Chile appeared Matías Rafide's *Itinerario del olvido* and Fernando de la Lastra's *Retorno al aire*. From Venezuela came Marco Ramírez Murzi's *Alta noche*; from Mexico, César Rodríguez Chicharro's *Eternidad es barro*; and from Colombia, Omer Miranda's *Isla en el corazón*.

In a more optimistic vein are César Tiempo's *Sábado pleno*, dramatizing with verve and playful humor his Buenos Aires ghetto; and Manuel F. Rugeles' *Canto de sur y norte*, a lyrical landscape of Venezuela, which won the National Prize.

ANGEL FLORES,
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College.

LATTER-DAY SAINTS. See CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS.

LATVIA. Independent since 1918, Latvia was forcibly annexed to the USSR in 1940, and re-annexed by force after World War II, thus being converted into the Latvian Soviet Socialist Re-

public. The United States does not recognize this annexation.

Area and Population.—Latvia's area is about 25,000 square miles; its population (est. 1954) is 2,100,000. An estimated one fourth of independent Latvia's population has been deported to the interior of the USSR. The deportees have been replaced by Russians and other peoples from the Soviet hinterland. Because the Latvians have been hostile to Soviet rule, the Soviet government is gradually destroying Latvia as a nation. By 1955, three fifths of the population of Riga, the capital (pop., 1952 est., 600,000), was Russian. In Latvia's second largest city, Liepāja (Libau) (pop., 1953 est., 100,000) Russians constituted one third of the inhabitants. Other major cities (with 1935 populations) are Daugavpils (Dvinsk), 45,160; Jelgava (Mitau), 34,099; and Ventspils (Windau), 15,671.

Religion.—The principal religions are Lutheran, Roman Catholic, and Russian Orthodox. As a result of Soviet persecution, only 85 of independent Latvia's 279 Lutheran pastors are believed to be conducting services.

Government.—Latvia has virtually no autonomy, all phases of its life being under Communist direction from Moscow. All key positions in the Latvian Soviet government are held by the 50,000 members of the Latvian Communist Party, many of whom are Russians. In 1955 *Pravda* attacked several local secretaries of the Latvian Communist Party for being dictatorial and for ignoring the suggestions of their subordinates.

Education.—In 1950 there were 232,000 students in primary schools; 20,000 in secondary schools; and about 15,000 in institutions of higher learning.

Economy.—The planned budget for 1955 called for a total expenditure of 1,656,421,000 rubles (\$414,105,250), of which 835,875,000 rubles were to be spent by the Latvian central government, and 820,546,000 rubles by city, town, and district authorities. The greater portion of the Latvian government's income had to be turned over to the central government of the USSR. Thus, the Latvian government was permitted to spend only 4.7% of its sales tax revenue, and 25% of its revenue from income taxes and machine-tractor station earnings.

The chief Latvian industries in 1955 were electrical machinery and railway car manufacture, machine-tool making, shipbuilding, and fishing. Latvian industry was at least twice its pre-World War II size, although real wages are lower than they were before 1939.

In 1955, Latvian agriculture was almost completely collectivized, with 1,513 collective farms, 50 state farms, and 120 state-owned machine-tractor stations. Livestock raising and dairying are the most important agricultural activities, accounting for 63% of collective farm revenue. In 1955 Latvian agriculture continued in the slump into which it fell in 1953. Milk production and vegetable harvests on collective farms were both lower than in 1954. Due to USSR insistence, about 10% of Latvia's arable land in 1955 was sown to Indian corn, a crop unsuited to the soil and climate.

Unrest.—No foreigners were permitted to travel in Latvia during 1955. A few nationalist guerrillas still operated in Latvian forests, but this resistance movement is decreasing because of lack of outside aid.

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LAW. Summary of Supreme Court Statistics.—The Supreme Court of the United States, during the term beginning Oct. 4, 1954, and ending June 6, 1955, handed down 79 opinions, of which 31 were unanimous or with concurrence only, and 48 were with dissents. Forty-nine cases involved the federal government and ten involved state governments. Justice Reed wrote the greatest number of dissents (24) and Justice Clark wrote the fewest (5). Justice Clark wrote the most opinions of the court (14), but was

closely followed by Chief Justice Warren (12). The total number of cases disposed of during the term was 1,361, with 205 cases remaining on the docket at the end of the term. On March 28, 1955, John Marshall Harlan, circuit judge from New York, became an associate justice of the Supreme Court, succeeding Justice Robert H. Jackson, who died in October 1954.

Business Regulation; Antitrust Laws; Fair Trade Laws.—The Supreme Court decided that both show business and professional boxing were within the scope of the federal antitrust laws, in spite of its contrary holding as to big-league baseball in 1953 (*Toolson v. New York Yankees*, 346 U.S. 356). In *United States v. Shubert* (348 U.S. 222) the government sued to restrain certain monopolistic practices in the business of producing, booking, and presenting legitimate theatricals. The defendants' contention that they were not engaged in "trade or commerce among the several states" was rejected by the court, which did not consider determinative the fact that show business, like baseball, was built around the performance of local exhibitions. The court reached the same conclusion in *United States v. International Boxing Club* (348 U.S. 236), attaching considerable significance to the government's charge that over 25% of the revenue from championship boxing bouts was derived from interstate operations through the sale of radio, television, and motion picture rights.

The Supreme Court granted review in two cases involving alleged monopolies by the duPont Company in connection with its control of the cellophane market and its control of the General Motors Corporation (*United States v. E. I. du Pont de Nemours & Co.*, 118 F.Supp. 41 and 126 F.Supp. 235).

State courts dealt with the validity of fair trade laws in several cases. The highest courts of Arkansas, Georgia, and Nebraska held that such laws, when applied to nonsigners of price maintenance agreements, violated the due process clauses of the respective state constitutions (*Union Carbide & Carbon Corp. v. White River Distributors, Inc.*, 275 S.W. 2d 455, Ark.; *Cox v. General Electric Co.*, 85 S.E. 2d 514, Ga.; *McGraw Electric Co. v. Lewis & Smith Drug Co.*, 68 N.W. 2d 608, Neb.). The Pennsylvania Supreme Court upheld the constitutionality of fair trade laws, even as applied to nonsigners (*Burche Co. v. General Electric Co.*, 382 Pa. 370).

In a business regulation decision growing out of the attempt by Louis E. Wolfson to gain control of Montgomery Ward and Company, the Illinois Supreme Court held that a statute allowing the election of corporation directors for staggered terms violated the state constitutional guarantee of the right to cumulate votes (*Wolfson v. Avery*, 126 N.E. 2d 701).

Communications; Transportation; Public Utilities.—In *Federal Communications Commission v. Alentown Broadcasting Co.* (349 U.S. 358) the commission had awarded a radio broadcasting license to an applicant in a city which had only one radio station. The commission decided that the city's need for a choice between locally originated programs was more important than other considerations urged by a rival applicant in a nearby town which already had three stations. The Supreme Court held that this action was within the allowable area of the commission's discretion. In *Storer Broadcasting Co. v. United States* (220 F.2d 204) the Court of Appeals for the District of Columbia Circuit held that the commission's rules establishing the maximum

number of radio and television stations which could be owned, operated, or controlled by the same interests were invalid under the "public interest" criterion of the Communications Act. The Supreme Court has agreed to review this case.

The Supreme Court decided three admiralty cases invalidating "release-from-negligence" provisions in towage contracts, by which towboat owners had tried to protect themselves from the consequences of negligence on the part of their own employees (*Bisso v. Inland Waterways Corp.*, 349 U.S. 85; *Boston Metals Co. v. Wind-ing Gulf*, 349 U.S. 122; and *United States v. Nielson*, 349 U.S. 129). The reason given for these decisions, which the court said followed a long-established judicial rule, was that such contracts were contrary to public policy. In another admiralty case, *Wilburn Boat Co. v. Fireman's Insurance Co.* (348 U.S. 310), the court refused to establish a federal rule governing marine insurance policies, holding that state law should apply.

In the field of public utility finance the court held, in *Securities Exchange Commission v. Drexel & Co.* (348 U.S. 341), that the commission had power to regulate the fees paid by a parent public utility holding company in connection with a reorganization plan filed by the company's subsidiary. In *Natural Gas Pipeline Co. v. Panoma Corporation* (349 U.S. 44) the court held that a state could not fix a minimum price to be paid for natural gas, after its production and gathering had ended, by a company which transported the gas for resale in interstate commerce. The Federal Power Commission won another contest with a state in *Federal Power Commission v. Oregon* (349 U.S. 435). The court held that the commission had exclusive jurisdiction to issue a license for a power project to use waters on lands constituting "reservations" of the United States located in Oregon, and that the permission of the state was not required.

Taxation.—The Supreme Court decided that the punitive portion of treble damages for federal antitrust violations, and exemplary damages for fraud, were "gross income" and thus subject to federal income taxation (*Commissioner of Internal Revenue v. Glenshaw Glass Co.*, 348 U.S. 426). The court noted that the case involved "instances of undeniable accessions to wealth, clearly realized, and over which the taxpayers have complete dominion," and stated that the fact the payments were extracted as punishment for unlawful conduct did not deprive them of their character as taxable income. The same holding was made as to "insider profits" recovered by a corporation under the Securities Exchange Act and the Investment Company Act (*General American Investors Co., Inc. v. Commissioner of Internal Revenue*, 348 U.S. 434). The "insider profits" provisions require directors and major stockholders of a corporation to turn over to it any profits that they may realize from certain dealings in its securities. In an estate tax case, *Commissioner of Internal Revenue v. Sternberger's Estate* (348 U.S. 187), the court disallowed a claim for a charitable deduction. The decedent's will left his property, in trust, to his wife and 27-year-old divorced and childless daughter during both their lives and the life of the survivor. Upon the death of the survivor, the property was to go to any living descendants of the daughter, but if no descendants of the daughter were alive at that time, all or part of the property was to go to charity. The court decided that the chance of charity's receiving any-

thing under this arrangement was too remote to allow an estate tax deduction for a charitable gift.

Society for Savings v. Bowers (349 U.S. 143) involved the question of immunity of federal government obligations from state taxation. The court invalidated an Ohio tax on the amount of capital, surplus, and undivided profits of certain banks (without deduction of the value of federal government obligations owned by them), finding that the incidence of the tax was on the banks and not on their depositors. The court pointed out that it was not bound by the contrary opinion of the Ohio Supreme Court as to the incidence of the tax.

Labor Law.—The Supreme Court decided two cases involving the power of state courts to act in labor disputes. In *Weber v. Anheuser-Busch, Inc.* (348 U.S. 468) the Missouri courts had enjoined a union's jurisdictional picketing as a violation of the state law against "restraint of trade." The Supreme Court reversed this ruling, holding that the Labor Management Relations Act (Taft-Hartley Act) pre-empted the field for the federal government as far as the strike tactics in question were concerned, and that state courts had no power to act. *Amalgamated Clothing Workers v. Richman Brothers Co.* (348 U.S. 511) was similar to *Anheuser-Busch* except that the highest state court had not yet made a decision. The employer had obtained an injunction in an Ohio court against certain union picketing, on the ground that it constituted a common-law conspiracy and a violation of state law prohibiting restraint of trade. The union then sued in a federal court, attempting to keep the employer from proceeding further with its state court action. This time the union lost, with the Supreme Court holding that the federal courts lacked power to interfere with such proceedings in the state courts. In another case involving the power of the federal courts under the Taft-Hartley Act, a labor union sued under a collective bargaining agreement to recover pay for a day's absence on behalf of 4,000 employees (*Association of Westinghouse Salaried Employees v. Westinghouse Electric Corp.*, 348 U.S. 437). The court held that the federal courts had no jurisdiction in this type of lawsuit, pointing out that employees have always been able to enforce their individual rights in the state courts.

The Supreme Court also decided two cases involving the Fair Labor Standards Act of 1938. In *Maneja v. Waialua Agricultural Co.* (349 U.S. 254) workers on a narrow-gauge railroad within a sugar plantation, and employees repairing farm implements were held to be "agricultural workers," and thus not entitled to receive overtime pay under the act. Employees working in a sugar-processing plant on the plantation, however, were held not to be within the agricultural workers' exemption. In *Mitchell v. C. W. Vollmer & Co., Inc.* (349 U.S. 427) the court decided that the Fair Labor Standards Act applied to the construction of a new canal lock in Louisiana, designed to serve as an alternate route for the Gulf Intercoastal Waterway, because this work involved the improvement of existing facilities of interstate commerce.

The lower federal courts also decided many labor cases. In *Union Manufacturing Company v. National Labor Relations Board* (221 F.2d 532) the Court of Appeals for the District of Columbia Circuit held that strikers who had not yet been discharged or replaced could vote in an NLRB election even though they had been guilty

of strike misconduct which would bar their reinstatement. In *National Labor Relations Board v. Associated Machines, Inc.* (219 F.2d 433) the Court of Appeals for the 6th Circuit held that an employer's sponsorship of a grievance committee was not a violation of the Taft-Hartley Act. In *National Labor Relations Board v. Babcock & Wilcox Co.* (222 F.2d 316) the Court of Appeals for the 5th Circuit upheld a nondiscriminatory rule prohibiting nonemployee union organizers from distributing literature on company premises. In a similar case, the Court of Appeals for the 10th Circuit allowed an employer to enforce a nondiscriminatory "no trespassing" rule against nonemployee union organizers who tried to solicit employees on the plant's parking lot (*National Labor Relations Board v. Seamprufe, Inc.*, 222 F.2d 858). The Supreme Court has agreed to review both of these cases.

According to a decision of the Court of Appeals for the 5th Circuit, which the Supreme Court has refused to review, the Federal Anti-Kickback law applies to union officials who extort money from employees, as well as to unions (*United States v. Alsup*, 219 F.2d 72, cert. denied, 343 U.S. 982). The Court of Appeals for the 2d Circuit, on the other hand (in a case which the Supreme Court has agreed to review), held that a union officer could not be prosecuted under the antibribery provisions of the Taft-Hartley Act, making it unlawful for "any representative of any employees" to accept money from an employer (*United States v. Ryan*, 225 F.2d 417). The court interpreted the word "representative" as applying to a union but not to an individual.

Torts; Workmen's Compensation.—The Supreme Court held that a suit under the Jones Act, for damages for the negligently caused death of a seaman, survived the death of the shipowners, despite the absence of express statutory language so providing (*Cox v. Roth*, 348 U.S. 207). In *Boudoin v. Lykes Brothers Steamship Co., Inc.* (348 U.S. 336) the court allowed recovery of damages when a seaman was attacked by a fellow crewman "of dangerous propensities and proclivities," on the theory that keeping such a person aboard a ship was a violation of the "warranty of seaworthiness."

In *Carroll v. Lanza* (349 U.S. 408) the court decided that the "exclusive remedy" provision in one state's compensation law was not binding upon the courts of another state in which the employment contract was performed and the injury occurred.

The Pennsylvania Supreme Court upheld the constitutionality of a law authorizing the submission of all small claims (\$1,000 or less) arising from automobile accidents to an arbitration board, with a provision that either party could appeal to the courts after the board had made its award (*In re Smith*, 381 Pa. 220).

The Court of Appeals for the District of Columbia Circuit decided that the United States was liable under the Federal Tort Claims Act for injuries caused by a federal employee's negligent regulation of air traffic at a federal airport (*United States v. Union Trust Co.*, 221 F.2d 62).

Criminal Law.—The Supreme Court upheld the constitutionality of a \$50 federal tax on persons engaged in the business of taking wagers, and its related criminal penalties, as applied to violations occurring in the District of Columbia (*Lewis v. United States*, 348 U.S. 419). The court held that the law was a valid exercise of the taxing power, and did not violate the defend-

ant's privilege against self-incrimination under the 5th Amendment.

In *United States v. Bramblett* (348 U.S. 503) the court held that a former congressman could be prosecuted for payroll padding, under a law applicable to false statements made to "any department or agency of the United States" (18 U.S.C. 1001). It was held that the quoted words were not limited to departments or agencies of the executive branch, and that they applied to the Disbursing Office of the House of Representatives.

In *Regan v. New York* (349 U.S. 58) the defendant, an employee of New York City, had signed a waiver of his rights under a state immunity statute and later refused to testify before a grand jury concerning his receipt of bribes. The court upheld his conviction for contempt, deciding that he was not deprived of his liberty without due process of law, in violation of the 14th Amendment, or of any other rights under the federal constitution.

The defendant in *Williams v. Georgia* (349 U.S. 375) was a Negro who was convicted of murder by an all-white jury in a Georgia court. In argument before the U.S. Supreme Court, the state conceded that the defendant had been deprived of his constitutional rights by the discriminatory method used in the selection of the jury. The state argued, however, that his objection was too late, having been made after his conviction had been affirmed by the Georgia Supreme Court. The Supreme Court of the United States, disagreed, and in view of the unusual facts involved remanded the case to the Georgia Supreme Court for reconsideration.

In a case involving the effect of the 14th Amendment on criminal procedure in state courts, the Supreme Court decided that a Michigan state judge who had served as a "one-man grand jury" investigating crime could not later preside over a case resulting in the conviction for contempt of two witnesses before him in the grand jury proceedings (*In re Murchison*, 349 U.S. 133).

In *Bell v. United States* (349 U.S. 81) the court held that the transporting of two women on the same trip and in the same vehicle for immoral purposes constituted only one violation of the Mann Act. *United States v. Provo* (350 U.S. 857) involved an infrequently used constitutional provision. The Supreme Court held, without opinion, that a lower federal court was right in dismissing an indictment for treason on the ground that oppressive trial delay, occasioned by the government's prosecuting the case in the wrong district, violated the defendant's right to a speedy trial under the 6th Amendment.

In *United States v. Costello* (222 F.2d 656) the Court of Appeals for the 2d Circuit decided that a grand jury indictment for tax evasion could be based solely on hearsay evidence if such evidence was "rationally persuasive." The Supreme Court has granted review.

The Supreme Court decided four cases involving convictions of members of Jehovah's Witnesses for violating the draft law. It reversed three convictions and affirmed one. The conviction in *Scirella v. United States* (348 U.S. 385) was upset because the Appeal Board's classification decision was based on a legally erroneous recommendation of the Department of Justice, which had stated that the registrant's willingness to use force in defense of "Kingdom Interests" and his brethren was inconsistent with his claim to be a conscientious objector. The error in *Sim-*

mons v. United States (348 U.S. 397) was the failure of the Department of Justice to furnish the registrant with a fair résumé of all the adverse information in the Federal Bureau of Investigation report which had been made in his case. In *Gonzales v. United States* (348 U.S. 407) there was procedural error in failing to furnish the registrant with a copy of the Department of Justice's recommendation to the Appeal Board. In *Witmer v. United States* (348 U.S. 375), however, the registrant had originally claimed exemption as a "farmer" and a "conscientious objector," and upon denial of these claims he had applied for classification as a "minister of the gospel." The court held that the Appeal Board had sufficient grounds to find that the registrant was insincere in his claim to be a "conscientious objector." (See also below, *Communism and Internal Security*.)

Communism and Internal Security.—The Supreme Court decided three cases dealing with charges of communism and the application of the 5th Amendment's privilege against self-incrimination.

In *Quinn v. United States* (349 U.S. 155) the defendant was convicted of contempt of Congress for refusing to say whether he was or had been a member of the Communist Party. He appealed his conviction on the ground that he had adequately invoked the privilege against self-incrimination. The fact was that, when questioned by a congressional committee, he had adopted as his own the statement of a previous witness, who had based his refusal to answer the same question on "the first and fifth amendments" and on "the first amendment to the Constitution, supplemented by the fifth amendment." The Supreme Court reversed the conviction, holding that after the defendant's reply it became incumbent upon the committee either to accept the apparent claim of privilege or to ask him whether he was in fact invoking the privilege.

In *Emspak v. United States* (349 U.S. 190), as in *Quinn*, the defendant refused to answer questions on the basis of "primarily the first amendment, supplemented by the fifth." Ten of the questions of the congressional committee related to the defendant's own membership and activities in the Communist Party and "front" organizations, while 58 others related to his acquaintance with other persons and their activities. The court reversed a conviction for contempt, holding that all the questions were "within the scope of the privilege."

In *Bart v. United States* (349 U.S. 219) the defendant refused to answer some of the questions of an investigating committee on the ground of self-incrimination and others because he claimed they were not pertinent. The committee did not specifically overrule his objections or direct him to answer. Holding that the committee had failed to lay the necessary foundation for a contempt prosecution, the court ordered acquittal.

In *United States v. Ullmann* (221 F.2d 760), which has been granted review by the Supreme Court, the Court of Appeals for the 2d Circuit upheld the constitutionality of a law requiring witnesses to testify concerning treason, sabotage, espionage, and conspiracy to commit any of these offenses, and granting them immunity from prosecution.

In *Peters v. Hobby* (349 U.S. 331) the Civil Service Commission's Loyalty Review Board, on its own initiative, held a hearing in the case of a

federal employee who had been twice cleared of charges of disloyalty by his own agency's loyalty board, and ordered his own agency to dismiss him. The Supreme Court cancelled the action of the board, on the narrow jurisdictional ground that it had acted beyond its authority under Executive Order 9835 establishing it, its power being limited to reviewing rulings which were adverse to employees. The court did not decide the constitutional issues raised by the employee, including his contention that his lack of opportunity to confront and cross-examine his secret accusers (confidential government informants) deprived him of liberty and property without due process of law. A similar case, *Parker v. Lester* (24 L.W. 2203), was decided in favor of a merchant seaman by the Court of Appeals for the 9th Circuit, which rested its decision squarely on the ground that failure to permit confrontation and cross-examination of accusers was an unconstitutional denial of due process.

Slochower v. Board of Education (306 N.Y. 532; 307 N.Y. 806), under review in late 1955 by the Supreme Court, was a holding by the Court of Appeals of New York that the state could lawfully dismiss a teacher in a publicly supported college for refusing to tell a congressional committee whether he had ever belonged to the Communist Party. *Black v. Cutter Laboratories* (278 P.2d 905), another case in which the Supreme Court has granted review, was a holding by the California Supreme Court that an arbitration award reinstating a Communist to a job in a plant making antibiotics for military and civilian use was void, being contrary to public policy. The Supreme Court agreed to review *Communist Party of the United States v. Subversive Activities Control Board* (223 F.2d 531), in which the Court of Appeals for the District of Columbia Circuit upheld the constitutionality of the Internal Security Act. This act, which was attacked by the Communist Party as violative of the 1st and 5th amendments, requires registration and filing of reports by Communist-action and Communist-front organizations and imposes various sanctions upon their members.

Aliens and Citizenship.—The Supreme Court decided five cases interpreting the Immigration and Nationality Act of 1952. In *United States v. Menasche* (348 U.S. 528) an alien had filed his declaration of intention to become an American citizen before the passage of the 1952 act. If applicable to him, the new law would have imposed a new requirement of physical presence in the United States which was not contained in the old law. Because of a "savings clause" in the 1952 act, the court held that the old law governed the case. A contrary result under the "savings clause" was reached in *Shomberg v. United States* (348 U.S. 540). This time the question was whether the alien's petition for naturalization or the government's deportation proceedings against him should take priority. The court held that the 1952 act's requirement that deportation proceedings should be completed first was controlling.

In *Shaughnessy v. Pedreiro* (349 U.S. 48) it was held that a deportation order issued under the 1952 act was subject to review by the federal courts. The court made this decision despite the fact that the law itself said that deportation orders of the attorney general were "final." The word "final," said the court, was ambiguous and should be construed as referring to finality in administrative procedure, rather than as cutting off the right of judicial review in whole or in part.

In *Marcello v. Bonds* (349 U.S. 302), the court held that it was permissible for the officer conducting deportation proceedings to be under the supervision of officials having investigative and prosecuting functions. In *Shaughnessy v. Accardi* (349 U.S. 280) the question was whether the Board of Immigration Appeals had properly denied an application for the suspension of a deportation order. The applicant claimed that the board had been influenced by a confidential list of "unsavory characters" drawn up by the attorney general, and thus had not exercised its own discretion. A federal district court had found, after a full hearing, that the board had reached its decision on the merits, "free from any dictation or suggestion," and the Supreme Court affirmed its decision.

Racial Discrimination.—Following up its 1954 decision in the school segregation cases, the Supreme Court handed down an opinion concerning the manner in which relief was to be accorded (*Brown v. Board of Education*, 349 U.S. 294). The court first noted that substantial steps to eliminate racial discrimination in public schools had already been taken in some of the states involved. It left to the various federal district courts the problem of considering whether the action of school authorities constituted "good faith implementation of the governing constitutional principles." (See also EDUCATION.)

Resorting to a rather unusual procedure in another racial discrimination case, the court vacated an earlier judgment and dismissed the case on the ground that certiorari had been improvidently granted (*Rice v. Sioux City Cemetery*, 349 U.S. 70). In this case, the widow of a Winnebago Indian had sued a cemetery for breach of contract for refusing to bury her husband. The Iowa Supreme Court dismissed her suit, upholding the validity of a contractual provision that "burial privileges accrue only to members of the Caucasian race." The U.S. Supreme Court had at first affirmed the Iowa decision without opinion (dividing evenly). At a rehearing, the court's attention was directed to a new Iowa law, passed after the commencement of the litigation, which outlawed restrictive covenants by cemeteries based on race or color. The court then decided, in view of this law, that the issues presented in the case were not of sufficient public importance to justify letting its decision stand.

In *Mayor of Baltimore v. Dawson* (350 U.S. 877) and *Holmes v. City of Atlanta* (350 U.S. 879) the Supreme Court held that racial segregation at public bathing facilities and golf courses was unconstitutional. In *Naim v. Naim* (197 Va. 80) the Virginia Supreme Court of Appeals held that the Virginia law against miscegenation did not violate either the due process or the equal protection clause of the 14th Amendment.*

Miscellaneous.—Ruling on a claim of "sovereign immunity," the Supreme Court decided in *National City Bank of New York v. Republic of China* (348 U.S. 356) that when an official agency of the Republic of China sued an American bank in American courts, the bank could interpose a counterclaim, up to the amount of the deposit sued for, based on defaulted treasury notes of the Republic.

In *Tee-Hit-Ton Indians v. United States* (348 U.S. 272) the court denied the claim of a clan

of an Alaskan Indian tribe for "just compensation" under the 5th Amendment when the federal government took timber from lands occupied by them. The court said that permissive Indian occupation of land did not constitute "ownership," and could be extinguished by Congress in its own discretion.

The Supreme Court invalidated the law of the Virgin Islands permitting nonresidents to get quick divorces, holding that the law was "designed for export" and hence was not concerned with a subject "of local application," as required by the Organic Act of the Virgin Islands (*Granville-Smith v. Granville-Smith*, 349 U.S. 1).

The court decided that a Kansas law banning "obscene, indecent or immoral" motion pictures was unconstitutional, indicating that it violated freedom of speech and of the press under the 1st Amendment (*Holmby Productions, Inc. v. Vaughn*, 350 U.S. 870).

The Court of Appeals for the District of Columbia Circuit held that the denial of a passport by the Department of State was subject to judicial review (*Shachtman v. Dulles*, 225 F.2d 938) because denial of a passport can "cause a deprivation of liberty that a citizen otherwise would have."

The New Hampshire Supreme Court decided that the exclusion of women from a municipal golf course at specified times during weekends and holidays did not violate the equal protection clause of the 14th Amendment or the state constitution (*Allen v. Manchester*, 111 A.2d 817).

In a ruling affecting offshore oil developments the Supreme Court refused to place a three-mile limit on Louisiana's seaward boundary into the Gulf of Mexico. The Department of Justice had sought to bar the state's claim that its boundary exceeded three Spanish leagues or 10½ miles (*United States v. Louisiana*, 350 U.S. 812).

The Supreme Court ruled that civilians could not be subjected to a court-martial for crimes committed when they were in military service. The court held that in drafting the 1950 Uniform Code of Military Justice, under provisions of which a civilian was to have been tried, Congress had invaded powers of the federal judiciary. It also maintained that safeguards are lacking in military trials which otherwise would be available to a civilian in a civil trial (*Toth v. Quarles*, 350 U.S. 11).

(For a discussion of major federal laws passed in 1955, see UNITED STATES—*The United States in 1955*; of major state laws, see articles on individual states; and for laws or legal decisions relating to special fields, see such articles as CIVIL LIBERTIES; HOUSING; LABOR; PUBLIC UTILITIES; SOCIAL SECURITY; TAXATION; TARIFFS; see also the Index entry, *Law*.)

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LAXNESS, Halldór Kiljan (real surname GUÐJONSSON), Icelandic writer; b. Reykjavík, Iceland, April 23, 1902. Citing his novels as "vivid epic writing, which has renewed the great Icelandic narrative art," the Swedish Academy of Letters awarded him the Nobel Prize in literature on Oct. 27, 1955.

As a child, Laxness was deeply influenced by the great romantic sagas of his forebears. At an early age, however, he manifested a restlessness of spirit which, according to an Icelandic critic, was representative of the youthful urban population of Reykjavík, cut loose from the country's traditional farm culture by World War I. By the

* The U.S. Supreme Court vacated judgment and remanded the case to the Virginia Court of Appeals on Nov. 14, 1955, because "inadequacy of the record" prevented proper consideration of the constitutional issue of the validity of the Virginia statute (350 U.S. 891).

time he was 17 years old, he had immersed himself in philosophy and religion and had embarked on extensive travels in search of a new and more compatible way of life.

After two years of wandering through Germany and Austria (1920-22), where he was deeply affected by the strife and suffering he witnessed, Laxness visited Paris, underwent a conversion to Roman Catholicism, and retired to a monastery in Luxembourg for a year and a half. There he wrote *Undir helgahnúk* (*Under the Holy Mountain*, 1924), which, with *Verfarinn mikli frá Kasmír* (*The Great Weaver from Kashmir*, 1927), depicts the author's tumultuous spiritual life.

In the late 1920's, Laxness' travels took him to Canada, then (1927) to the United States, where he tried unsuccessfully to establish himself as a writer in the motion picture industry. During this period he came under the influence of Communist ideology, expressed in his volume of satirical essays *Alþýðubókin* (*The Book of the People*, 1929). In 1930, after severely criticizing American life, he returned to Iceland, where, except for short visits to continental Europe and the Soviet Union, he has since lived.

In 1931, Laxness began a series of monumental novels about Icelandic life, each of several volumes, in which the peasant and villager emerge as heroes of mythical proportions, and the poet as a symbol of light in a dark world. These include *Pú víndviður hreini* (1931) and *Fuglinn í fjörunni* (1932; both tr. into Eng. as *Salka Valka*, 1936); *Sjálfstætt fólk* (2 vols., 1934-35; published in the United States as *Independent People*, 1946); and *Ljós heimsins* (*The Light of the World*, 4 vols., 1937-40). In these novels, Laxness combines vehement social criticism with a rich and suggestive lyricism which elevate his writing into the realm of great art.

A prolific author with a wide knowledge of a number of languages and cultures, Laxness spent the years of World War II translating Voltaire's *Candide*, Ernest Hemingway's *A Farewell to Arms*, and five Danish novels into Icelandic, and editing for publication a number of the longer sagas. At the same time, he completed a new trilogy, *Íslandsklukkan* (*The Bells of Iceland*, 1943); *Hjálfjósa man* (*The Fair Maiden*, 1944); and *Eldur í Kaupinhafn* (*Fire in Copenhagen*, 1946).

LEAD. The trend in smelter production of lead in the world and the United States is indicated in the accompanying table compiled by the U.S. Bureau of Mines (in thousands of metric tons).

Year	World	U.S.	% in U.S.	Year	World	U.S.	% in U.S.
1945...	1,136	403.2	35.4	1950...	1,640	458.2	27.9
1946...	1,057	306.7	29.0	1951...	1,600	376.1	23.5
1947...	1,320	400.0	30.6	1952...	1,760	428.6	24.4
1948...	1,382	363.1	26.3	1953...	1,820	424.3	23.3
1949...	1,580	431.7	27.3	1954...	1,920	441.5	23.0

United States.—Mine production of recoverable lead was 318,985 short tons in 1954 (342,644 in 1953). It was the smallest output since 1934. Production in the first 10 months of 1955 was 277,361 short tons. Refinery output, however, increased from 472,102 tons in 1953 to 492,000 in 1954. The gain was confined to lead recovered from imported ores and bullion, which increased from 139,879 tons in 1953 to 165,000 in 1954. Refined lead from domestic sources was about the same in both years. Supply declined from 1,380,917 tons in 1953 to 1,240,402 in 1954. The drop was due in part to the lower domestic mine production, but chiefly to the decline in imports, which fell from 552,308 tons in 1953 to 443,050 in 1954. Consumption declined from 1,201,604 tons in 1953 to 1,095,000 in 1954.

Canada.—The recoverable lead content of ores mined through July 1955 was 122,208 short tons, as compared with 128,770 in the same period of 1954 (218,495 tons for the full year). Refined lead output through June 1955 was 78,265 tons, as compared with 85,437 during the first 6 months of 1954 (166,005 for the full year). (See MINERAL PRODUCTION for output of major countries.)

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LEATHER. Approximately 40,000 production workers were engaged in the tanning and finishing of leather in the United States in 1955. Some 440 tanning and finishing establishments produced finished leather with an estimated value of approximately \$750 million for the full year.

U.S. LEATHER PRODUCTION

Category	Unit	1955 (8 months)	1954 (full year)
Cattle.....	hides	16,976,000	24,087,000
Calf and whole kip.....	skins	7,033,000	9,366,000
Goat and kid.....	skins	17,413,000	26,496,000
Sheep and lamb.....	skins	17,092,000	23,796,000

In addition, several million hides or skins of the horse, kangaroo, ostrich, pig, deer, elk, walrus, seal, alligator, and various reptiles are tanned into leather.

While upwards of 80% of the total quantity of leather produced is utilized in the manufacture of footwear, substantial quantities are required for other end-products ranging from wallets, handbags, luggage, and sporting goods to transmission belting, mechanical leathers, and upholstery for furniture and automobiles. Significant increases in the demand for leather were recorded in 1955 for garments and gloves, luggage and leather goods, upholstery, and various specialty items.

With footwear production for 1955 in the United States at an unprecedented level (see SHOE INDUSTRY), demand for virtually all types of leather was at a high level. Despite the high level of demand, both finished leather and leather-making raw materials were relatively stable in price during the course of the year.

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LEBANON. A member of the Arab League and the United Nations, Lebanon is a republic, 3,475 square miles in area, situated along the eastern coast of the Mediterranean Sea and bounded on the south by Israel and on the east and north by Syria. The Lebanon Mountains extend along the coast and leave but a narrow coastal plain. Between the Lebanon and the Anti-Lebanon ranges lies the fertile Bekaa Valley, above 3,000 feet in average elevation, which constitutes the "bread basket" of Lebanon.

Population.—The population of Lebanon in 1954 was estimated at approximately 1,400,000 (the last census having been taken in 1932), aside from 103,376 Palestinian refugees (September 1955), of whom 38,681 live in camps. Beirut, the capital, has an estimated population of about 425,000. Its modern harbor, its large free zone facilities, and its international airport have made it one of the most important entrepôt centers in the Middle East.

Government and Political Events, 1955.—Lebanon is a constitutional republic modeled on the French government and administrative system with legislative power vested in a unicameral parliament (Chamber of Deputies, 44 members). The president (Camille Chamoun, elected

in September 1952 for a term of six years) is elected by the House of Deputies. He appoints the prime minister and all the other members of the cabinet, who in turn become directly and collectively responsible to the House.

On July 9, 1955, the cabinet formed on Sept. 17, 1954, and headed by Sami Solh, was reshuffled, but remained in office until Sept. 13, 1955, when it resigned because of criticism of its domestic policies. On September 19 a new cabinet was formed by Rashid Karami (34), the youngest prime minister in Lebanon's history. The new cabinet is composed of eight deputies and two nondeputies.

Education and Religion.—Lebanon has a literacy rate of about 60% (official estimates place the rate at 80%), the highest in the Arab Middle East. In 1955 there were 1,862 schools, of which 1,031 were public and 831 were private. Public schools served 112,476 students, while private schools served 134,524 students. Beirut is the seat of all the universities in Lebanon: The American University of Beirut (with approximately 2,000 students of university level), the Université Saint-Joseph (Jesuit), and the Lebanese University (governmental), officially chartered on Feb. 6, 1953. In addition, there are the Lebanese Académie des Beaux Arts (private), the National Conservatory of Music, the Beirut College for Women, the American Near East School of Theology, and the French Ecole Supérieure des Lettres de Beyrouth.

The multisectarian character of the population is evidenced by groupings of Christians into Maronite, Orthodox, Latin, and Protestant communions, and Moslems into Sunnites and Shi'ites. There are also the Druses, historically an offshoot of heterodox Islam, and the Jews. Officially, the Christians are a bare majority; actually the combined Moslem population comprises a little over 50% of the whole.

Finance.—The 1955 budget provided for expenditures and receipts balanced at 134.7 million Lebanese pounds, compared with L£123.4 million in the 1954 budget (L£3.20 equals U.S.\$1 at the free rate). The percentage distribution of major expenditures in 1955 was 17.4% for national defense, 16.4% for public works, 12.6% for education, and 4.9% for public health. Two thirds of the revenue is derived from indirect taxation (customs duty) and one third, from direct taxation.

Foreign Trade.—Exports in 1954 amounted to 372,466 tons valued at L£105,582,000 (compared with L£88 million in 1953); imports totaled 1,078,737 tons valued at L£484,402,000 (compared with L£362 million in 1953). Chief sources of imports were Syria (22.4%), the United States (14.8%), and France (8%). Chief markets for Lebanese exports were Syria (14%), Saudi Arabia (11%), Egypt (8%), the United States (6%), and Jordan (5%).

Principal imports are wheat and flour, meat, textiles, chemicals, wood and paper, gold, metal, machinery, cars and spare parts, radios, refrigerators, house utensils, and arms. The principal exports are fruits, vegetables, animal products, biscuits, chocolates, beer, arak, hides, tobacco, textiles, gold, and diamonds. The trade deficit is covered by such invisible exports as emigrants' remittances and earnings from tourism and from gold and exchange operations.

Production.—Lebanese per capita income, perhaps the highest in the Arab Middle East, is estimated at \$250 annually. Chief sources of income are trade (\$300 million), agriculture (\$175 million), industry (\$120 million), construction (\$100 million), and services (\$100 million). Although it accounts for not more than one fifth of the total national income, agriculture is the principal occupation of about half the country's working population. Because of its rugged terrain, only a fourth of Lebanon's area is under cultivation. However, a wide variety of crops can be grown, ranging from bananas, sugarcane, and citrus fruits along the coast, to fruits of the temperate zone on the mountain slopes, where intensive terrace farming has been developed from ancient times, and cereal, grapes, and vegetables in the inland valleys. In recent years apple growing has become a major Lebanese industry, second only to grape cultivation. Cereal production covers only one third of the domestic need, but

fruits and vegetables are abundant for export.

On Aug. 26, 1955, the World Bank made a loan of \$27 million to the Litani River Authority to help finance the construction of a power and irrigation project on the Litani River, scheduled for completion in 1961.

Communication and Transportation.—Motor vehicles constitute the chief means of transport in Lebanon. In 1954 approximately 2,400 miles of highway, of which 2,200 are either asphalted or macadamized, served 18,687 passenger cars, 1,013 buses, and 3,536 trucks. The country has 3 railways operating on 475 miles of track (385 miles of standard- and 90 miles of narrow-gauge. Two domestic airlines (Middle East Air Lines and Air Liban) connect Lebanon with almost all the countries of the Middle East. The Beirut Airport is located at Khaldeh, three miles south of Beirut, and is considered one of the finest in the Middle East, serving 29 foreign airlines. In 1954 there were 24,368 telephones in operation throughout the country. During that year a new automatic telephone system was installed in Beirut.

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LEEWARD ISLANDS. Constituting a British colony, this group in the Lesser Antilles, lying north of the Windward Islands and thence extending northwestward to Puerto Rico, comprises four federated presidencies (area, 422 square miles; 1954 est. pop., 126,251, predominantly Negro).

Presidency	Square miles	Population	Capital
Antigua ¹	170.5	50,908	St. John's (13,500 ³)
St. Kitts-Nevis ²	152	53,598	Basseterre (13,000 ³)
Montserrat.....	32.5	14,145	Plymouth (2,000 ³)
British Virgin Islands.....	67	7,600	Road Town (700 ³)
Total.....	422	126,251 ⁴	

¹ The island of Antigua (108 square miles) and its dependencies: Barbuda (62 square miles) and Redonda (0.5 square miles). ² St. Kitts or St. Christopher (68 square miles), Nevis (50 square miles), and dependent Anguilla (34 square miles). ³ Estimated. ⁴ At December 1953 census, 122,884.

Antigua is the seat of government, and St. John's (the capital) the residence of the governor (Sir Kenneth W. Blackburne, appointed Sept. 14, 1950). A 23-member General Legislative Council includes a majority of 13 representative members chosen from the legislatures of each of the presidencies, which are also represented on a 14-member Federal Executive Council. Seats have been allocated to the Leeward Islands in the projected legislature of the British Caribbean Federation as follows: Antigua, 2; St. Kitts-Nevis and Anguilla, 2; and Montserrat, 1. (The plan of federation was rejected by the Virgin Islands.) The unit of currency is the British West Indian dollar (equals 58.33 U.S. cents). The British Treasury has allocated £2,884,230 toward the cost of various development and welfare programs. The Leeward and Windward Islands (q.v.) have a unified judiciary.

Antigua.—An administrator (Alec Lovelace) is assisted by an Executive Council and a 13-member Legislative Council over which he presides. Revenue in 1954 was BWI\$5,290,500; expenditure, BWI\$5,289,338.

There were 36 primary schools (30 government and 6 private) and 6 secondary schools (4 government grant-aided and 2 private). Enrollment was 12,226 (primary, 10,953; secondary, 1,273).

Severe drought, occurring for the second successive year, reduced the sugar crop to 11,083 tons (31,588 tons in 1953). Cotton is Barbuda's chief crop. Sugar, rum, and molasses are manufactured. Total exports in 1954 were valued at BWI\$2,598,343 (sugar, BWI\$2,131,429;

raw cotton, BWI\$238,291; molasses, BWI\$26,986); imports totaled BWI\$7,417,076. Coolidge Airfield, on a United States-leased base, is used commercially. British West Indian Airways, Pan American World Airways, and Air France serve the island.

St. Kitts (or St. Christopher) —Nevis and Anguilla.—Under a new constitution in effect from October 1952, an administrator (Hugh Burrowes) is assisted by a nominated Executive Council and a 14-member Legislative Council (including 8 elected members). Revenue in 1954 was BWI\$4,481,833; expenditure, BWI\$3,985,157.

There were 33 government primary schools (St. Kitts, 17; Nevis, 11; Anguilla, 5), and 1 private primary school. Total primary enrollment was 10,928 pupils. Five secondary schools (4 government and 1 private) had 805 pupils.

The chief product of St. Kitts is sugar (in 1954, 48,897 tons from 13,985 acres); of Nevis, sea-island cotton (373,013 pounds from 2,640 acres). Exports in 1954 had a total value of BWI\$8,779,072 (sugar, 47,001 tons, BWI\$7,764,623; sea-island cotton, 425,293 pounds, BWI\$357,815; molasses, 1,228,003 gallons, BWI\$161,024; and salt, 31,088 barrels of 300 pounds each, BWI\$80,833. Imports in 1952 totaled BWI\$9,971,678.

Sugar companies operate 36 miles of light railways on St. Kitts. Highways aggregate 79 miles: St. Kitts, 30 miles (24 miles surfaced); Nevis, 19 miles; and Anguilla, 30 miles. British West Indian Airways, and KLM (to Curaçao) serve the islands.

Montserrat.—Assisting the commissioner (Charlesworth Ross) are a 5-member Executive Council and a 9-member Legislative Council (including 5 elected members). Estimated local revenue in 1955 was BWI\$501,194; expenditure, BWI\$909,572.

Primary schools in 1955 numbered 14 (government, 12; denominational, 1; private, 1), and there was one government secondary school. Pupils on Jan. 1, 1955, totaled 3,494 (primary, 3,365; secondary, 129).

Exports in 1954 were valued at BWI\$520,554, including tomatoes, 76,245 pounds; cotton, 402,346 pounds; raw lime juice, 16,454 gallons; and lime oil, 85 pounds. Imports (mainly foodstuffs, textile goods, and hardware) were valued at BWI\$1,108,309 in 1954.

The island's road system consists of about 40 miles of asphalted public roads and 30 miles of secondary unsurfaced roads.

British Virgin Islands.—This group (area, about 67 square miles) lying east of the Virgin Islands of the United States (q.v.), comprises 11 inhabited islands (est. pop., 7,600), along with 25 uninhabited islands. On Tortola, the largest island (20 square miles; est. pop., 5,800) is Road Town, the capital and port of entry; other large islands are Virgin Gorda, Anegada, and Jost Van Dyke. Under a new constitution and elections ordinance, 6 elected members were returned in 1954 by 5 electoral districts to a reconstituted Legislative Council, the membership of which also includes 2 nominated nonofficials, and 2 officials, with the commissioner (Lieut. Colonel H. A. C. Howard) as president, and a nonofficial deputy president. Revenue in 1954 was BWI\$552,211; expenditure, BWI\$150,321. There are 12 primary schools (enrollment, 1,886), and 1 government secondary school (enrollment, 114).

The principal occupations are stock-raising, fishing, and the production of food crops (chiefly vegetables and fruits). (See also **BRITISH WEST INDIES**.)

LEGER, Fernand, French artist; b. Argentan, France, Feb. 4, 1881; d. Gif-sur-Yvette, France, Aug. 17, 1955. One of the leading spirits of modern art, he developed a highly individual style of painting which lyrically and dynamically reflects the machine age in which he lived.

After completing his studies at the *lycée* in Caen, Fernand Léger went to Paris in 1898 to devote himself to painting. From 1901 to 1903 he attended the École des Beaux-Arts and studied under Jean Gérôme and Gabriel Ferrier, coming later under the influence of Cézanne. After 1909, however, Léger's own character became more evident, and his intensity of form and heightening of color were demonstrated in his paintings, *The Nudes in the Forest* and *The Smokers* (1910), which he exhibited in 1911 with the Indépendants, a group pioneering in cubism, which was headed by Picasso and Braque.

During World War I, in which he served as an artillery engineer in the French Army, Léger made a complete break with impressionism. Fascinated by the precision weapons of modern warfare, he painted a number of pictures which glorified mechanized civilization. Among these

were *The Card Game* (1917), *The Disks*, and *The Town* (1919). Then Léger added the human figure in a mechanical society to his compositions (*The Mechanician*, 1920). His subsequent paintings became more and more static (*Big Lunch-eon*, 1921; *Mother and Child and Reading*, 1924), until his reaction against this diminution of movement in 1926. In 1929, with Amédée Ozenfant, he founded an atelier school, the Académie Moderne, where his teaching gained him a wide following. His work was exhibited comprehensively at the Museum of Modern Art in New York City in 1935.

With the fall of France in 1940, Léger fled to the United States, where his increased interest in his surroundings, the human figure in particular, was reflected in *The Cyclist* (1944). Returning to France after the liberation, his preoccupation with the human form was culminated in *The Pastimes* (1948-49). In 1952 he created the stained glass windows of the Church of the Sacred Heart at Audincourt in his native country. In 1953 nearly 50 years of his work was exhibited at the Museum of Modern Art; and in 1955 his monumental painting, *The Builders*, won first prize at the Third International Biennial in São Paulo, Brazil.

LEGISLATION. See **UNITED STATES—The United States in 1955**; articles on the countries and states; and the Index entry, *Congress, U.S.*

LEMONS. See **FRUITS**.

LETTUCE. See **VEGETABLES**.

LEVANT STATES. See **LEBANON**; **SYRIA**.

LIBERIA. A republic on the west coast of Africa, bounded by French West Africa and Sierra Leone. Area, about 43,000 square miles; pop. (est. mid-1954), 1,250,000. A small group of descendants of 19th century Negro colonists, chiefly from the United States, dwell along the coast. They form a ruling elite, and speak English, the official language. About 85% of the population are jungle tribesmen inhabiting the interior. Monrovia (35,000) is the capital and chief seaport.

Government.—The legislature comprises a 10-member Senate elected for a 6-year term and a 31-member House of Representatives elected for 4 years. The president is elected for an 8-year term and may be re-elected for succeeding 4-year terms. President William V. S. Tubman was re-elected in 1951 and 1955. The Tubman regime permits no effective opposition. Technical and financial aid in public administration, agriculture, education, health, and transport is provided by the United States and United Nations agencies.

Education.—About 10% of school-age children attend school, and over 90% of the population is illiterate. School enrollment in 1954 totaled 43,000. The government provides about 53% of school facilities, missions and private groups about 43%. The government operated 326 schools in 1954, including 5 high schools. Higher institutions include the University of Liberia and Booker Washington Institute.

Finance.—Receipts in 1953 totaled \$11,199,433; expenditures, \$12,446,820. The Liberian dollar equals the United States dollar. On Jan. 20, 1955, the Export-Import Bank of Washington announced a \$15 million credit to Liberia for the construction of highways to open up the hinterland.

Production.—Agriculture on an extremely primitive level characterizes the native economy. Chief subsistence crops are rice and cassava. Cash crops grown on a small scale include coffee, palm kernels, cacao, piassava, cotton, kola nuts, ginger, and chilies. Rubber is produced by the Firestone Rubber Company (which employs over 20,000 natives) and some Liberian planters; net exports totaled 38,400 metric tons in 1954. The Liberian Mining Co., Ltd. (controlled by the Republic Steel Corporation) extracts some 1.3 million tons of iron ore annually from the rich Bomi Hills de-

posit, 40 miles northwest of Monrovia. In 1955, preparations were under way by the Liberian American Minerals Company to exploit the iron ore deposits of the Putu Hills, about 200 miles east of the Bomi deposit. Gold and diamonds are extracted on a small scale. Manufactures, mainly handicrafts, include a rough cloth, leather goods, bricks, tiles, pottery, crude metalwork, and wood products.

Foreign Trade.—Exports in 1953 totaled \$30,-460,700; imports, \$18,588,900. Rubber provided 64.6% of export values; iron ore, 19%; palm kernels, 6.2%; and cash crops most of the remainder. Imports are mainly cotton goods, transport and other machinery, food, mineral fuels, and chemicals. The United States purchased 73.7% of 1953 exports and provided 67.1% of imports.

Transportation and Communications.—The nation's only railroad connects Monrovia and the Bomi Hills, about 40 miles away. Roads total some 800 miles, including 260 miles of all-weather roads. Motor vehicles numbered 2,777 in 1955; telephones, 621. Liberian National Airways provides domestic service to 11 inland towns with airstrips. Roberts Field, 50 miles east of Monrovia, is the main airport. Monrovia has the only telephone system. Communication with the rest of the country is mainly by radiotelephone.

Principal Events, 1955.—The elections of May 3 resulted in a victory for President William V. S. Tubman and his True Whig Party. Official returns gave the president 244,873 votes to only 1,182 for former President Edwin J. Barclay, candidate of the Independent True Whig Party. (Barclay, who held the presidency from 1930 to 1944, died on November 6, aged 73.) On June 22, Tubman escaped an assassination attempt in the pavilion of the executive mansion. Thirty persons, said to be implicated by the would-be assassin, were subsequently charged with treason and sedition. The accused included several prominent persons and political adversaries of President Tubman.

LIBRARIES. During the year 1955 the expansion of services in all types of libraries continued. Reports from public libraries showed a steady increase in book circulation and in the use of their services. Librarians of college and university libraries are being recognized as a part of the faculty, and school libraries are becoming the important material centers for teachers. The year also marked important progress in bringing librarians into closer professional contact with the book trade. The development of worthwhile reading habits beginning on the elementary school level and carrying over into adult life is becoming the concern of librarians and publishers alike.

International Developments.—The adequate exchange of publications and personnel between libraries in the United States and abroad continues to be studied by librarians. The U.S. Book Exchange is the foremost medium for the exchange of publications, and the Farmington Plan is particularly helpful to college and research libraries for acquiring publications from foreign countries. Northwestern University Library was given a special grant for securing materials from Africa in order to build up its collection in this field.

Under Fulbright, U.S. Army, State Department, and Institute of International Education auspices, many librarians from abroad visited libraries in the United States, while many Amer-

ican librarians lectured or studied in other countries. In the spring of 1955, 25 foreign librarians came to the United States for study and internships under project agreements between the United States Department of State and the American Library Association (ALA). One group consisted of Indian university librarians, and the other of public librarians from various countries. Thirty-three librarians from the United States attended the first International Congress of Libraries and Documentation Centers in Brussels, Sept. 11–18, 1955.

The Japan Library School, located at Keio University in Tokyo, completed five years of operation. By the end of August 1956 it is expected that the entire faculty will be Japanese. The ALA cooperated with the Ford Foundation and the University of Ankara in Turkey in establishing the University of Ankara Institute of Librarianship.

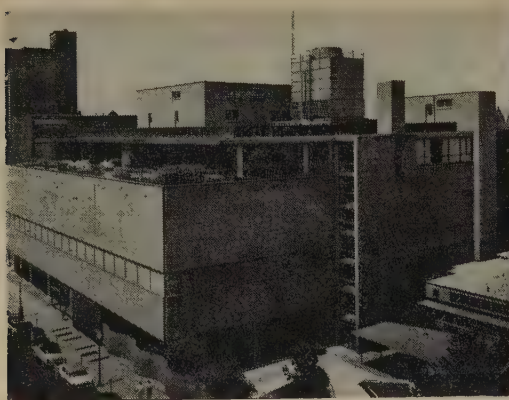
Many libraries celebrated the 10th anniversary of the United Nations by setting up special exhibits for both adults and children. Packages of outstanding foreign children's books, selected by the International Committee of the Children's Library Association of ALA's Division of Libraries for Children and Young People, are now available to public and school libraries. The CARE Children's Book Fund also provides a means for sending packages of American children's books to institutions and individuals in other countries. Both of these projects help promote international understanding. The International Youth Library in Munich, Germany, was the recipient of a bookmobile donated by the ALA Friends of Libraries Committee from a special fund.

Federal and State Legislation.—Efforts toward securing passage of the Library Services bill, which is sponsored by the ALA, continued during 1955. This bill (S.203 and H.R. 2840), which is designed to promote the further development of public library services in rural areas without such service or with inadequate service, was introduced in both Houses of Congress in January. Twenty-two interested citizens testified for the bill before the House Committee on Education and Labor, which reported it favorably out of committee in July. The bill will be presented early in the second session of the 84th Congress.

During 1955 librarians made a vigorous appeal to their state legislatures for additional funds for strengthening existing libraries and establishing good libraries where none exist. The keynote of the governors' messages to the 42 legislatures which convened in January 1955 seemed to be the expansion of state services, including those for libraries. Appropriations for many state library extension programs were increased for the biennium 1955–57.

Public Library Development.—The improvement and expansion of public library services continued to be the concern of librarians who wished to make their libraries the focal point for the education of adults. New services, such as special programs for retired citizens and the use of radio and television to publicize the resources of a library, were inaugurated in many communities; and older services, such as discussion groups and film programs, and the circulation of audiovisual materials, were strengthened.

The development of lifetime reading habits has been the concern of librarians and was the subject of a conference, sponsored by the Committee on Reading Development of the American



DICK NICKEL; U.S. INFORMATION CENTER, RANGOON

The new Cincinnati Public Library, which has a roof garden, and a United States Information Agency bookmobile parked near a Burmese jungle illustrate contrasts in present-day library facilities.

Book Publishers Council. The need for teachers and librarians to recognize their responsibility for instilling in children enthusiasm for books and reading, which would carry over into adult life, was emphasized in the report.

During the past five years grants from the Fund for Adult Education have enabled the ALA to experiment with various types of programs in the field of adult education. Among these has been the American Heritage Project, which was started in the fall of 1951 in six demonstration areas across the United States. Discussion of contemporary problems has enabled the members participating in the groups to obtain a better understanding of their responsibilities as citizens. During the four years of the project, the staff has trained a total of 1,153 discussion leaders, and 16,753 people have participated in 1,063 discussion groups.

The experience gained from the American Heritage Project, as well as from another program under which ALA made subgrants to libraries for individual and original adult education programs (also financed by the Fund for Adult Education), has resulted in the establishment of a new project called the Library-Community Project. This project, which the fund will finance for a two-year period, will work with four state library extension agencies on an experiment in the establishment of a soundly based and well-integrated program of adult education in four pilot libraries in Kansas, Maryland, Michigan, and Tennessee. The project staff will also provide consultant service in adult education to libraries all over the United States.

A conference was held in November 1954 by a group of educators and library administrators to discuss the training needs of librarians doing adult education work in libraries. A small conference of library adult educators was also held in 1955 to determine areas of need and to do long-range planning for these needs as they were pointed out in the *Survey of Adult Education Activities in Public Libraries and Library Extension Agencies in the United States*, published by ALA in 1954.

One of the most important activities being carried on by the Public Libraries Division of the ALA is the revision of the national standards for public libraries. These standards, which will be published in 1956, will be based on a regional library system as the key unit of service. This system will consist of a central library with any number of smaller community libraries, and

with the resources of each available to all. These library systems will be able to draw on the resources of the state library, as well as on college, university, and special libraries of the region or nation.

Selected statistics for the fiscal year 1954, issued by the Library Services Section of the U.S. Office of Education, indicate an increase in the number of books owned and circulated by public libraries in cities of 50,000 to 99,999, as well as an increase in operating expenditures, salaries, and the amount spent for books and periodicals. The tables show that the selected group of libraries (117) at the end of the fiscal year 1954 owned 12,894,000 books and had circulated 41,379,000 volumes. Total operating expenditures (excluding capital outlay) were \$12,611,000, with salaries amounting to \$8,569,000, and books and periodicals, \$1,967,000. For cities of 100,000 or more population, the selected group of public library systems owned, at the end of the fiscal year 1954, 55,565,923 books, and had circulated 163,887,844 volumes. Total operating expenditures were \$77,507,482, with \$56,491,430 for salaries and \$9,643,270 for books and periodicals.

Know Your Library Month, sponsored by the Libraries Division of the General Federation of Women's Clubs in cooperation with the Public Libraries Division of ALA, was celebrated by many public libraries during the year.

Several new large public library buildings were opened in 1955, including those at Cincinnati, Dallas, El Paso, Memphis, and San Diego. Those in Denver, Hartford, and Charlotte (N.C.) were undergoing construction. Among those opened in smaller towns were the libraries of Midland, Mich.; Lake Geneva, Wis.; Glenview, Ill.; and Lakewood, Ohio. New branch buildings have been opened in Birmingham, Los Angeles, Chicago, Seattle, New York (Manhattan), and Brooklyn. All have exemplified the latest development in library architecture, furniture, and equipment. The proceedings of the ALA Buildings Preconference Institute, held in St. Paul in 1954, were published by ALA under the title *Planning the Library Building*.

Among other publications of interest to public librarians is *The PLD Reporter*, which is issued at irregular intervals by the ALA Public Libraries Division. Designed to acquaint the reader with current practices in public libraries, the first four issues were concerned with book selection policies, Friends of the Library groups, television and its use, and the use of paper-bound books.

Other books of interest published by ALA were *Freedom of Book Selection*, which contains the proceedings of the preconference institute, held by the Committee on Intellectual Freedom in 1953; *Films for Public Libraries*, selected by a committee of the ALA Audio-Visual Board; *Charging Systems*, by Helen T. Geer; and *Handbook for Library Trustees*, by Marian Manly Winsor, published by the R. R. Bowker Company. A home-study course for trustees, consisting of ten lessons on the functions and responsibilities of trustees, is now available from the University of Chicago.

The selection of titles for the *Notable Books of 1954*, made by a special committee of the Public Libraries Division of ALA, was published in *Public Libraries* for March 1955 and the *ALA Bulletin* for February 1955. This ALA division continues to grow in strength, and currently has a membership of approximately 5,600.

Work With Children and Young People.—The library-initiated young adult discussion program, under the ALA American Heritage Project, completed three years of successful achievement in 1955. Discussion leaders were trained to conduct group discussion on the subject of "It's Our America" through public libraries in Ohio, Georgia, and the Boston area.

The Association of Young People's Librarians, a section of ALA's Division of Libraries for Children and Young People, received a grant of \$1,000 from the Norman Bassett Foundation for the compilation of a list of 100 adult books for young people. Through this grant it will be possible to distribute this list without charge to every public library in communities under 50,000 population and to libraries in large cities without a young people's librarian. *Distinguished Children's Books of 1954* and *Interesting Adult Books of 1954 for Young People* were compiled and distributed by the Children's Library Association and the Association of Young People's Librarians.

In July 1955 the Children's Library Association and the American Association of School Librarians cosponsored with the Children's Book Council and the School of Library Service, Columbia University, a two-day conference on the production and promotion of children's books.

School Libraries.—The evaluation of school libraries in relation to the total school program, as well as attention to the standards or criteria for developing and measuring school libraries, has been the concern of librarians and school administrators. The American Association of School Librarians is working on a revision of its school library standards, which will be based on well-thought-out objective evidence to substantiate the standards.

In the past, pressure has been brought to bear on schools concerning the materials found in their libraries. In order to combat this tendency the American Association of School Librarians drew up and adopted the School Library Bill of Rights, which is a reaffirmation of the ALA Library Bill of Rights, but directed specifically to the responsibilities of school librarians to provide a wide range of materials to develop the practice of critical reading and thinking. This Bill of Rights was endorsed by the ALA Council at the Philadelphia conference in July 1955.

In 1955 the U.S. Office of Education issued *School Library Standards, 1954*, which was prepared with the cooperation of the state departments of education, regional accrediting associations, and the ALA. The study digests standards of the ALA, those of three regional ac-

crediting associations, and individual state departments of education for elementary and secondary schools.

Part three of the *American School Library Directory*, covering the Middle Western states, was published by the R. R. Bowker Company in 1955. The February 1955 issue of the *ALA Bulletin* was again devoted to school libraries.

Librarians took part in a number of state conferences preceding the White House Conference on Education, held in Washington, D.C., Nov. 28-Dec. 1, 1955. (See also EDUCATION.) ALA sent an official representative to the conference, and several librarians attended as representatives from their own states.

A need for professionally qualified school librarians for schools of all types, as well as for adequate school library quarters, continues to be felt. Recruiting professionally qualified librarians is one of the great problems confronting administrators of all types of libraries.

College, University, and Research Libraries.—A marked trend toward the academic recognition of college and university librarians by appointing them as members of the faculty, is beginning to be emphasized. This has come about mainly through the realization of the important function the college library maintains in present-day instruction and research, and through the increasing recognition of the library and the librarians by educational associations and individual educators.

A selected group of liberal arts college libraries will be the recipients of subgrants to be administered by the Association of College and Reference Libraries from a \$30,000 grant given by the U.S. Steel Foundation. The bulk of this grant will be used to enhance the book collections and provide better teaching tools for the selected college libraries, and the remaining amount will be used to support research in problems of college libraries.

Two important retirements in the university library field are worthy of mention: that of Keyes D. Metcalf at Harvard University, and of Charles W. David at the University of Pennsylvania. Their successors are Dr. Paul W. Buck and Dr. Kenneth Setton, respectively.

A three-day conference on "The Practical Utilization of Recorded Knowledge" was scheduled for Jan. 16-18, 1956, at Western Reserve University. Problems facing librarians in the processing, dissemination, and utilization of the constantly increasing volume of recorded information in the fields of chemistry, law, medicine, metals, military decisions, patents, physics, and others were to be discussed by more than 30 experts. The School of Library Service at Western Reserve, which is developing a Center for Documentation and Communication Research, cosponsored this conference with other organizations.

The Association of College and Reference Libraries' Committee on Audio-Visual Work made a study during 1955 of the use of audio-visual materials in colleges and universities. Its purpose was to ascertain the extent to which services with educational films, filmstrips, recordings, and other aids have been developed in colleges and universities, and more especially the patterns of service which have been evolved in meeting the needs for these materials.

Many colleges and universities have built or are planning new library buildings for their campuses. Among those erected in 1955 were the buildings at Santa Barbara College, Goleta, Calif.; Idaho State College, Pocatello; Lynchburg

College, Lynchburg, Va.; Centenary Junior College, Hackettstown, N.J.; Queens College, Flushing, N.Y.; and Wisconsin Teachers College, Milwaukee. The Committee on Buildings of the Association of College and Reference Libraries held institutes during the year for interested librarians and architects.

The Service to Libraries Section of the U.S. Office of Education published, late in 1954, *Statistics of Libraries in Institutions of Higher Education, 1951-52*, which forms chapter six of the *Biennial Survey of Education*. Other important publications were *Serial Publications* by Andrew D. Osborne (ALA), *Who's Who in Library Service* (The Grolier Society Inc.), *Library Co-operation in the British Isles*, by Ralph T. Esterquest; and *The Development of Reference Services Through Academic Traditions, Public Library Practice and Special Librarianship*, by Samuel Rothstein. The last two were part of the ACRL's Monograph series. *The American Library Annual*, which brings together much-needed information of interest to the library world previously available only from scattered sources, was published by the R. R. Bowker Company. *Contents in Advance*, a monthly publication, which reproduces the contents pages of a selected number of United States and foreign library periodicals, is an interesting development in the publishing field.

With a membership of over 5,300 in 1955 and five chapters, the Association of College and Reference Libraries continued to publish its monograph and microcard series, and to collect and publish statistics pertaining to college and university libraries. Starting in January 1956, its official journal, *College and Research Libraries*, will be issued bimonthly instead of quarterly.

Personnel.—*The Library's Pay Plan—A Statement of Principles*, prepared by the ALA Board on Personnel Administration, was accepted by the ALA Council at its 1955 conference. The board now publishes bimonthly, *BPA Notes*, which gives news and information on various phases of personnel practices in libraries.

In 1955 a medium of exchange for employment information of interest to administrators and librarians was started through the pages of *Library Placement Exchange*, a privately printed service.

Education for Librarianship.—On March 1, 1955, 2,794 students were enrolled in 37 library schools, including two schools in Canada. These schools conferred 230 bachelor's degrees (fifth year), 1,196 master's degrees, and 5 doctoral degrees in the calendar year 1954.

The ALA Board of Education for Librarianship continued its program of re-evaluating previously accredited library schools, and made considerable progress toward greater cooperation in accrediting with regional associations. June 30, 1957, has been set as the terminal date for the current program of re-evaluating library schools, previously accredited under 1933 standards. Special studies of undergraduate programs in library science and of programs leading to advanced degrees in librarianship beyond the master's degree awarded for basic professional curriculum are being studied by the ALA Board on Education for Librarianship.

(See also AMERICAN LIBRARY ASSOCIATION; LIBRARY OF CONGRESS; and the following listings under SOCIETIES AND ORGANIZATIONS: American Association of Law Libraries; Association of Research Libraries; Canadian Library Association; Catholic Library Association; Educational Film

Library Association; and Special Libraries Association.)

HELEN T. GEER,

Librarian, Headquarters Library, American Library Association.

LIBRARY OF CONGRESS. On April 24, 1800, an act of Congress created a small parliamentary library to serve the nation's lawmakers; since then, through gifts, copyright deposits, purchases, and exchange, the Library of Congress has become one of the world's largest libraries, with collections universal in scope. By June 30, 1955, it contained more than 34,000,000 items, consisting of more than 10,500,000 books and pamphlets in every written language; 2,360,000 maps and other cartographic items; 2,040,000 volumes and pieces of music from the classics to folksongs and modern jazz; 2,600,000 photographic negatives, prints, and slides from Mathew Brady's Civil War pictures to this year's news photographs; 152,000 bound volumes of newspapers and hundreds of thousands of issues of newspapers from all over the world; 583,000 fine prints, by artists such as Joseph Pennell and James Whistler, as well as by modern masters; 459,000 phonographic recordings of music, poetry, speeches, and the like; 112,000 motion picture reels and, in the form of paper prints, more than 3,000 of the earliest American movies; 108,000 reels and strips of microfilm; more than 14,283,000 manuscripts relating to American history and culture, including papers of most of the presidents from Washington through Coolidge; and many other kinds of material, such as broadsides, microcards, photostats, and posters.

Because the library was established for the use of Congress, the needs of that body are served first, but the collections and services are available to other government officials, other libraries, scholars, and the public. During the fiscal year 1955, the Legislative Reference Service, which is the main research arm of Congress, answered more than 56,000 of the 76,000 inquiries from members and committees handled by the library. More than 751,071 readers were served by all departments of the library; 319,221 inquiries were answered for them; and they used 1,519,379 books and other items in the two library buildings and in the Law Library in the Capitol. Although the library is not primarily a lending library, about 250,000 books were lent, some through interlibrary loan to every state in the Union. The library also administers a national program of books for the blind that lends a million books a year; as one of the 28 regional libraries in this system, the library itself lent 67,810 "talking books" (recordings) and books in Braille and Moon type. Under contract to the Defense Department, the library furnished that agency with bibliographic data about vast quantities of current scientific and technical reports.

In two of its operations, the library annually turns funds into the U.S. Treasury, and in both it again set new records. The sale of its printed catalog cards to libraries throughout the country—some 10,000 subscribers who bought more than 23 million cards and technical publications—netted \$1,161,000. Fees for copyright registrations totaled \$881,000 for the 224,732 works registered in the Copyright Office during the fiscal year 1955 (see COPYRIGHTS).

Funds available for use by the library in this period were \$13,950,376, of which \$9,612,708 was appropriated directly by Congress and \$3,054,483 was transferred by other government

agencies; \$1,658,000 was derived from gifts and other sources.

To its holdings, the library added about a million items during the fiscal year 1955. An outstanding acquisition in the photographic field was the Brady-Handy Collection of the L. C. Handy Studios, which brought to the library 3,000 more Mathew B. Brady negatives and several thousand negatives made by his nephew, Levin C. Handy. Research materials in the Manuscripts Division were enriched by the papers of Kermit Roosevelt, James Rudolph Garfield, Peyton C. March, Ogden Mills, Nelson Trusler Johnson, and many others. Among the important materials relating to music that were received were the papers of Geraldine Farrar and papers and musical manuscripts of composers William Schuman and Richard Rodgers.

The library continued to publish its *Quarterly Journal of Current Acquisitions* and five accessions lists—the *East European Accessions List*, *Monthly Checklist of State Publications*, *Monthly List of Russian Accessions*, *New Serial Titles*, and *Southern Asia: Publications in Western Languages*. Its serial *Library of Congress Catalog* continued to reproduce the catalog cards the library prints for books, maps and atlases, motion pictures and filmstrips, music, and phonograph records; and a quinquennial cumulation, prepared for publication in the fall of 1955, recorded on 11,210 pages a million entries for books that were cataloged during 1950–54. The *Catalog of Copyright Entries*, also published serially in several parts, provided a comprehensive listing of materials registered for copyright during the year. Another major bibliographical tool published was the quinquennial cumulation of the *Armed Forces Medical Library Catalog* (1950–1954). Monographs published during the year included the *Catalog of the Jean Hersholt Collection of Hans Christian Andersen*; *Guide to the Special Collections of Prints & Photographs in the Library of Congress*; *Introduction to Asia: A Selective Guide to Background Reading*; *Scientific and Serial Publications: Soviet Union, 1945–1953*; and *Walt Whitman: A Catalog Based Upon the Collections of the Library of Congress*.

The library's series of concerts and literary readings continued, bringing to the Washington area the Budapest String Quartet and, as guests, such literary figures as Carl Sandburg, Lord Dunsany, and Thornton Wilder. It commemorated the centennial of *Leaves of Grass* with three lectures on Whitman by Gay W. Allen, Mark Van Doren, and David Daiches, and with a reading of Whitman's poetry by actor Arnold Moss. These programs coincided with a major exhibit of Whitman manuscripts, photographs, and memorabilia.

ELIZABETH E. HAMER,
Information and Publications Officer,
Library of Congress.

LIBYA. A federal monarchy situated on the northern coast of Africa. Area, about 679,358 square miles. Preliminary results of Libya's first census (August 1954) showed a population of 1,091,830, divided as follows: Tripolitania, 746,064; Cyrenaica, 291,328; and the Fezzan, 54,438. Bengasi (Benghazi), est. pop. 62,300, is the summer capital, and Tripoli (146,100) the winter capital. Libyans are mostly Arab Moslems, with about 40% nomads or seminomads. Some 100,000 Senussi Bedouins inhabit Cyrenaica. Europeans number about 60,000, mostly Italians

who dwell in Tripolitania. Native levels of living are extremely low. Per capita annual income is estimated at \$35. Libya obtains United Nations financial and technical aid in vocational training, public administration, education, agriculture, health, communications, and other fields.

Government.—An Italian colony before World War II, Libya was constituted an independent state on Dec. 24, 1951, under United Nations auspices. The legislature comprises a Senate of 24 members (8 from each province), with 12 appointed by the king and 12 by the provincial legislatures; and an elected House of Representatives of 55 members. The king may introduce or veto legislation and dissolve the lower house at his own discretion. Mustafa ben Halim took office as premier on April 12, 1954. Under a 20-year treaty signed in 1953, Britain maintains military forces in Libya in return for an annual payment to Libya of £3,750,000 (for the first 5 years). Under an agreement signed in 1954, the United States has the use of Wheelus Field, near Tripoli, as an airbase, and will contribute to Libyan economic development a total of \$43 million in annual payments over the period 1954–71.

Education.—Less than 20% of the school-age population attends school, and some 85% of the population is illiterate. In 1953 there were 291 primary and elementary schools (54,409 pupils); 15 secondary schools (2,715); 4 teacher training schools (766); and 3 technical schools (404). There are also private Koranic, Jewish, Greek, and Italian schools.

Finance.—The 1953–54 budget estimated expenditures at £4,788,880, shared by the federal and provincial governments; and revenue at £6,019,000. Revenue derives mainly from British, American, and French payments and contributions. The Libyan pound is equal to the pound sterling.

Production.—Resources are meager. Interior areas are chiefly barren desert. Much of the cash income comes from spending by foreign military forces. Tripolitanian coastal areas yield date palms, vegetables, wheat and other cereals, and olives (olive oil output in 1953, 4,000 metric tons). Barley is grown on the coastal belt of Cyrenaica. Truck garden and orchard products (chiefly citrus fruits) do well under irrigation. Esparto grass, almonds, and peanuts are also grown. Sheep raising yields wool and other animal products. Salt is virtually the only mineral exploited, 1953 output totaling 12,000 metric tons. The few industries include sponge and tunny fisheries, tobacco products, dyeing and weaving of wool and imported cotton yarn, carpets, leather products, bricks, castor oil, and sansa oil. Famine conditions in 1954–55 were alleviated by United States gift shipments of wheat totaling 45,000 tons.

Foreign Trade.—Exports in 1953 were estimated at £3,340,000; imports, £13,201,000. Chief exports were barley, olive oil, esparto grass, scrap metal (from World War II battlefields), and animals; chief imports: foodstuffs, fuels, tobacco, textiles, and metals and their manufactures. Italy took 42% of 1953 exports and provided 29% of imports.

Transportation and Communications.—The 2 small railways emanating from Tripoli and Bengasi total 244.4 miles. A coastal highway runs through Libya, linking Egypt with Tunisia. Most transport is by caravan. Motor vehicles in 1955 numbered 5,039. International airlines use airports at Tripoli and Bengasi. Telephones numbered 6,523 in 1955; radio receiver licenses, about 5,000 in 1953.

Principal Events, 1955.—Sharif Moheiddin el-Senussi, nephew of Queen Fatima, was executed on February 6 for the assassination of Sayed Ibrahim el-Shalhi, minister of the palace, on Oct. 5, 1954. On June 6, King Idris took a second wife in Cairo, the daughter of an Egyptian Bedouin chief.

A Franco-Libyan agreement was signed on August 10, providing for the withdrawal of

France's 400-man Foreign Legion contingent from the Fezzan within a year after the pact's ratification. France reserved the right to reactivate the French bases in time of war. At the same time agreements were concluded on joint supervision of the Tunisian-Libyan frontier, and on economic and cultural cooperation. A Soviet-Libyan agreement on the establishment of diplomatic relations and the exchange of ambassadors was announced in Tripoli on September 25. Libyan Premier Mustafa ben Halim revealed on November 16 that the United States and Britain had agreed to supply Libya with full equipment for one battalion, including armored cars.

Italy and Libya announced on November 25 that an agreement had been reached on the establishment of a mixed arbitration commission to replace the United Nations tribunal which had dealt with problems arising between Libya and Italy. On December 14, Libya, along with 15 other nations, was elected to membership in the United Nations.

LIECHTENSTEIN. A sovereign principality of central Europe between Switzerland and Austria. Area, 61 square miles; pop. (est. mid-1954), 14,000, chiefly of Germanic origin and of the Roman Catholic faith. Vaduz (2,772) is the capital. Prince Francis Joseph II (b. 1906) is the titular ruler. The legislature consists of a 15-member Landtag elected for four years. The chief of government is Dr. Alexander Frick, appointed in 1945. Budget estimates for 1955 were: revenue, 6,878,450 Swiss francs; expenditure, 7,749,740. In 1953, 2,433 pupils attended 14 elementary and 4 continuation schools. Chief occupations are farming and livestock raising. Manufactures include precision instruments, machine parts, textiles, and pottery. A customs union exists with Switzerland and Liechtenstein's foreign relations are conducted by Switzerland. The Paris-to-Vienna express passes through Liechtenstein. Telephones numbered 2,554 in 1955.

LIFE EXPECTANCY. See Index entry.

LIFE INSURANCE. Benefit payments made by legal reserve life insurance companies to United States families totaled approximately \$5 billion in 1954, of which \$2 billion went to beneficiaries as death benefits and \$3 billion was paid to living policyholders as matured endowments, annuity payments, surrender values, policy dividends, and the like.

In the United States, at the beginning of 1955, about 100 million persons owned \$334 billion of life insurance protection in legal reserve companies. This was 10% over the insurance owned one year earlier, and well over double the insurance owned 10 years earlier. By type, the insurance consisted of \$201 billion ordinary, \$94 billion group, and \$39 billion industrial. During 1955 the legal reserve life insurance owned by persons in the United States increased to around \$370 billion. Large as the total was, it was equal to only a little more than one year's personal income of the people of the United States. Life insurance premiums paid in 1954 amounted to 2.9% of the people's income.

In Canada, about 6 million policyholders owned about \$24 billion of life insurance at the beginning of 1955. This was made up of \$16.8 billion ordinary, \$5.5 billion group, and \$1.8 billion industrial. By the end of 1955, the total amount of life insurance increased to about \$26 billion. Here the total was equivalent to some-

thing over one year's personal income of the people, and the premiums paid were about 2.7% of that income.

Investments and Interest Earnings.—United States life insurance companies had \$87.6 billion in assets on July 31, 1955, while Canadian companies had some \$6 billion as of that date. The former are gaining at an annual rate of over \$6 billion, and the latter at a rate of about \$300 million.

For United States companies in 1955, most new funds continued to be invested in mortgages and corporate bonds. However, some changes occurred within those classifications. Net acquisitions of public utility bonds and notes, during the first 7 months of 1955, were little more than half as much as in 7 months of the year before. Industrial bond purchases leveled off, after previous sharp declines. City mortgage acquisitions in 1955, mainly on small homes, were close to the largest ever.

During 1955, life insurance companies continued to place substantial amounts in commercial real estate and common stocks. However, these two categories combined still accounted for less than 3% of all assets on July 31, 1955. In contrast, mortgages and corporate bonds accounted for 32% and 40% of assets, respectively.

Interest earned on assets of United States life insurance companies in 1954 expanded to 3.24% (after taxes and expenses)—the best rate in 12 years. Earnings were supported in 1954 to some extent by a backlog of investment commitments at higher rates. These helped to offset effects of the general decline in yields through early 1954. Since then, however, interest rates have again turned upward.

Other Insurance.—In the United States, in addition to the \$334 billion in force in legal reserve companies at the beginning of 1955, veterans and servicemen held about \$43 billion of National Service and United States Government life insurance. Further, under the Servicemen's Indemnity Act of 1951, each man in service is granted without charge an indemnity of \$10,000 (decreased by any National Service or United States Government insurance he may have) in event of death while on active duty. (See also VETERANS ADMINISTRATION.)

On Jan. 1, 1955, some \$13 billion of life insurance was in force in fraternal societies, assessment associations, and savings banks. Certain provisions of the Social Security Act provide survivor payments to specified members of the families of individuals covered under the act. Thus they form a foundation for further protection to many individuals. (See also GROUP INSURANCE; SOCIAL SECURITY.)

LEREOY A. LINCOLN,
Chairman of the Board, Metropolitan Life Insurance Company.

LIGHTING. See ELECTRICAL DEVELOPMENTS.

LIME. Statistics of the lime industry, given in the accompanying table in shoit tons, show that total sales were considerably lower in 1954 than in 1953. Total lime figures include dead-burned

	1952	1953	1954
Sales, total.....	8,073,078	9,674,183	8,688,326
Quicklime.....	6,190,254	7,632,083	6,669,621
Hydrated.....	1,882,824	2,042,100	2,018,705
Uses			
Agricultural.....	392,383	329,455	339,871
Building.....	1,191,263	1,166,240	1,130,607
Industrial.....	4,561,407	5,883,673	5,696,994
Refractory.....	1,928,025	2,294,815	1,520,854

(Source: U.S. Bureau of Mines.)

dolomite (refractory lime), which is used for furnace linings.

Incomplete figures for the first 8 months of 1955 showed a reversal of the downtrend, with a gain of about 23%, as compared with the like period of 1954. The largest gain was in refractory lime, used principally by the iron and steel industries. Other large gains were in the chemical and industrial uses, which have attained great importance. There is very little foreign trade in lime.

LIMES. See FRUITS.

LINEN AND FLAX. See TEXTILE INDUSTRY.

LINGUISTICS. Meetings.—Three linguistic institutes were held in 1955: one at the University of Chicago, one at Georgetown University, and one at the University of Michigan. The Summer Institute of Linguistics (for missionaries) operated its regular establishments in Oklahoma and North Dakota, as well as its more recent training facilities in Australia, Great Britain, and the Philippines. There was a round-table conference, devoted in part to teaching aids and similar topics, at the Georgetown University Institute of Languages and Linguistics. The Linguistic Society of America, the American Philological Association, and the Modern Language Association met in Chicago; and the American Oriental Society in Toronto.

Discussion and Research.—Interdisciplinary discussion currently holds the center of the stage. The newest addition to the growing literature of verbatim (or only slightly edited) proceedings is *Language in Culture* (Chicago 1954), a report on a conference of anthropologists and linguists held in Chicago in 1953, edited by H. Hoijer. Its first objective was to appraise the hypothesis stated by the late B. L. Whorf, among others, that "a people's perception and patterns of thought are in some way a resultant of the structure of the language they speak" (W. H. Goodenough, *Language*, 31:242). It is worth noting that two linguists participating in the Whorfian debate, C. F. Hockett and N. A. McQuown, have been added to the staff of the Center for Advanced Studies in the Behavioral Sciences in Palo Alto, Calif.

At Indiana University, the new Research Center for Anthropology, Folklore, and Linguistics has begun publication of a series of monographs with E. Sapir and M. Swadesh' *Native Accounts of Nootka Ethnography*. An issue of the *International Journal of American Linguistics* is devoted to elaborations and criticism of lexicostatistic dating, or the proposed technique of calculating the time of dialect divisions from measuring the effects of vocabulary replacement. (G. E. Hutchison gives a popular account in the *American Scientist*, 41:633-4, 1953.)

There has been considerable interest in the methods of language teaching, some of it directed especially toward the introduction of foreign languages in the lower elementary grades. Foundation support for intensive language teaching on the high school level has made some experimental summer teaching possible. One of the most interesting as well as disturbing reports is contained in the American Council of Learned Societies' *Newsletter* (vol. 6, no. 2, pp. 12-19), in which S. D. Hudson analyzes the council's \$250,000 program, supported by the Ford Foundation, to provide the bare reference necessities for a large number of Oriental languages. Progress is impressive, but the remaining gaps are vast.

Publications.—The year 1955 saw the publication of an important work on method, C. F. Hockett's *Manual of Phonology* (Baltimore). It deals chiefly with phonological typology and with the principles of phonologic analysis, pattern, acoustic phonetics, and functional load (the relation between contrast and segmentation). One of its permanent merits will lie in the fact that it takes typological generalizations on sound structure out of the domain of unconnected *aperçus*.

H. A. Gleason, Jr., has written an *Introduction to Descriptive Linguistics*, with a *Workbook* (New York), a much-needed solid manual of established procedures. B. Siertsema is the author of a thorough discussion of Hjelmslev's language theory, under the title *A Study of Glossomatics* (The Hague). P. Guiraud's *La Sémantique* (Paris) is concerned with meaning and meaning change. There is a collection of essays by M. West, *Learning to Read a Foreign Language* (London). J. H. Greenberg's *Studies in the Classification of African Languages* has now appeared in book form (New Haven).

Kassitenstudien, 1 by K. Balkan (New Haven) deals with the ancient Near Eastern language of the Kassites. Another important language from that area is studied by H. H. Paper in *The Phonology and Morphology of Royal Achaemenid Elamite* (Ann Arbor). E. Ullendorff surveys *The Semitic Languages of Ethiopia* (London). M. B. Emeneau presents a detailed study of *Kolami* (Berkeley and Los Angeles), a Dravidian language of southern India, and H. Penzl has published a *Grammar of Pashto* (Washington). The monograph series entitled *The Great Languages* has been continued with T. Burrow's *Sanskrit Language* (London). C. D. Buck, the dean of American linguistics, whose death occurred early in 1955, was able to see through the press a new and considerably changed edition of his *Greek Dialects* (Chicago). K. H. Jackson's *Contributions to the Study of Manx Phonology* (Edinburgh) is concerned with a virtually extinct Celtic language. From W. B. Lockwood we have *An Introduction to Modern Faroese* (Copenhagen), the little-known and orthographically ill-favored speech of the Faeroe Islands in the North Sea.

H. Kökeritz' *Guide to Chaucer's Pronunciation* is accompanied by a phonograph record. J. H. Sledd and G. J. Kolb are the authors of a study on Dr. Johnson's dictionary (Chicago), and a *Concise Dictionary of American Grammar and Usage* has been compiled by R. C. Whitford and J. R. Forster (New York).

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LIQUOR INDUSTRY. See DISTILLING INDUSTRY.
LITERATURE. See Index entry.

LITHUANIA. An independent republic since 1918, Lithuania was forcibly annexed by the Soviet Union in 1940, and reannexed by force after World War II, thus becoming the Lithuanian Soviet Socialist Republic. The United States does not recognize this annexation.

Area and Population.—Lithuania's area is about 25,000 square miles; its population (est. 1954) is 3,000,000, of whom close to a million may be recent importees (including police and military personnel) from other parts of the USSR to replace the large numbers of Lithuanians killed or deported to Germany and Siberia between the years 1940 and 1955. Because of Lithuanian hostility to Soviet rule, the USSR is gradually destroying Lithuania as a nation. In 1955, two thirds of the popu-

lation of Vilnius, the capital, was Russian, as was also three fifths of the population of Klaipeda and one third of the population of Kaunas, the other main cities. Principal cities are Vilnius (Vilna, Vilno) (pop., est. 1949, 160,000); Kaunas (Kovno) (est. 1949, 150,000); Klaipeda (Memel) (est. 1938, 47,000); and Shauliai (Siauliai) (est. 1939, 31,000).

Religion.—Because of Soviet persecution of the predominant Roman Catholic religion, by 1955 no more than 340 of Lithuania's former 1,600 Catholic priests were still conducting services.

Government.—Like all Soviet republics, Lithuania has its own Soviet (legislature), Soviet Presidium (standing legislative committee), and Council of Ministers (cabinet). However, all three have virtually no power, except as agents executing orders from the USSR central government in Moscow. Most Lithuanian laws simply copy the law code of the Russian Republic, or Soviet edicts. All key governmental posts are in the hands of members of the Lithuanian Communist Party, many of whom are Russians. Theoretically Lithuania has the right to have its own armed forces and to conduct its own foreign relations; but in practice, Lithuania is guarded and policed by the Soviet armed forces, and has never been permitted to send diplomats abroad or to receive foreign envoys.

Economy.—The 1955 planned budget provided for the expenditure of 1,644,514,000 rubles (\$411,128,500), of which 811,235,000 rubles were to be spent by the central government of Lithuania, and 833,279,000 by city, town, and district authorities. In comparison with 1954, the 1955 total expenditures were slightly reduced. Lithuania's budget appropriations in 1955 were less than those of Latvia, although the latter neighboring Soviet republic has almost a million fewer inhabitants.

As in 1954, the 1955 budget data revealed how little of the tax revenue collected in Lithuania under Soviet rule is actually spent by the Lithuanian authorities. Of the various taxes collected in 1955, Lithuania received the following percentages: sales tax, 32.4%; income taxes, 25%; machine-tractor station profits, 25%; state loan subscriptions, 40%; and taxes on agriculture, forests, bachelors, spinsters, and parents with less than 3 children, 40%. All of the remaining tax revenue went to the USSR central government.

Under Soviet rule, Lithuanian industry has at least doubled in size, with emphasis on the production of capital goods. In 1955 shipbuilding, turbine construction, electrical machinery manufacture, machine-tool making, and fishing were the chief Lithuanian industries. In general, the fishing industry functioned poorly during 1955; during the first half of the year, only 37% as much fish were caught as had been planned. Other Lithuanian industries with a poor record for production in 1955 were peat cutting, lumbering, the manufacture of construction materials, and so-called "local industry" (which is managed by district and city governments and specializes in production of consumer goods).

By 1955, Lithuania's 300,000 peasant households were almost entirely collectivized. There were 2,656 collective farms, with the average collective tilling 3,300 acres. The chief crops are rye, oats, wheat, potatoes, flax, clover, and sugar beets. Hogs, chickens, and cattle are raised in large numbers. Sale of livestock products accounts for 49% of collective farm income. Because of Soviet insistence, Lithuania in 1955 was forced to sow 390,000 acres under Indian corn (only 10,000 acres of corn were planted during 1954). This acreage expansion occurred despite the fact that Lithuania's soil and climate are not suitable for large-scale cultivation of corn.

Because of passive resistance by the peasants to collectivization, Lithuanian agriculture in 1955 continued in the slump which had begun two years before. The milk production of collective

farms was smaller in 1955 than in 1954, and harvesting of hay and other fodder crops was also slower in 1955. Meanwhile, production costs on Lithuanian state farms remained very high.

As a result of the scarcity of certain farm products and enforced sacrifice of consumer goods output to heavy industry, the Lithuanian standard of living continued to be low in 1955. Real wages were no more than two fifths of the level before World War II.

Political Unrest.—Although many tourists visited other sections of the USSR during 1955, none was permitted to visit Lithuania. Even foreign diplomats accredited to the Soviet government are not allowed to enter this Baltic republic, whose political unrest is thus hidden from foreign eyes. However, recent refugees from Lithuania reported that anti-Communist guerrillas still operate in the country's forests, although this resistance movement is weakening because of lack of outside aid. Radio Free Europe states that 9 slave labor camps are known to exist in Lithuania, but that persons sentenced to a year or more of imprisonment are deported to other areas of the USSR (often Siberia).

Military Developments.—Rocket-launching emplacements are strung along the Lithuanian Baltic coast, which is a security zone requiring special passes to enter. There also are large concentrations of combat planes at major airports.

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LIVESTOCK. See Index entry.

LIVING STANDARDS. See STANDARDS OF LIVING.

LLOYD, (John) Selwyn (Brooke), British foreign secretary: b. West Kirby, Cheshire, England, July 28, 1904. One of the leading younger members of the Conservative Party, he succeeded Harold Macmillan as secretary of state for foreign affairs on Dec. 20, 1955.

Educated at Fettes College, Edinburgh, and at Magdalene College, Cambridge University (M.A., 1927), he was called to the bar in 1930 and for nine years practiced law in Liverpool, specializing in insurance cases. During World War II he served in the British Army, rising in rank from 2d lieutenant to brigadier by 1944. He was made a commander of the British Empire in 1945. As a staff officer of the Second Army (1943-45), he had numerous contacts with United States forces, and in 1946 received the Legion of Merit.

Lloyd was elected to Parliament in 1945 from the Wirral Division of Cheshire. In 1947 he became a king's counsel, and from 1948 to 1951 served as recorder of Wigan. When the Conservatives returned to power in the latter year, Lloyd was appointed minister of state at the Foreign Office, in which capacity he led the British delegation at the sixth, seventh, and eighth sessions of the U.N. General Assembly and attended numerous international conferences. In October 1954, he became minister of supply, and in April 1955 was raised to cabinet rank as minister of defense.

LOANS. See Index entry.

LOS ANGELES. Third most populous city in the United States (1953 special census: 2,104,663; 1955 estimate: 2,170,934), Los Angeles, Calif., is also the nation's largest city in area (454.7 square miles).

Since 1950 the population of Los Angeles has



WIDE WORLD

A white bank of smog, one of the city's major problems in 1955, moves in across Los Angeles.

increased by more than 200,000. The most conspicuous factor in its history in 1955 was, as usual, unprecedented growth. This expansion of population continued to baffle demographers, census officials, and economists. Since 1950, Los Angeles has bypassed both Detroit and Philadelphia. Los Angeles County now holds 42% of California's total population. The county had by October 1955 increased to 5,140,583 residents, and continued to be the most populous county in the nation.

The city government is headed by Mayor Norris Poulson (Republican), Samuel Leask, city administrative officer, and a 15-member City Council. Budget appropriations (1955-56 fiscal year): \$147,032,532. City tax rate (1955-56): \$1.8271 per \$100 of assessed valuation (\$3,234,518,880, including public utilities). The tax rate was cut 0.8 mills from the previous year. Long-term debt (June 30, 1955): \$393,154,000, of which \$252,215,000 was for Department of Water and Power bonds. School enrollment (October 1955): 508,837, comprising 39,115 kindergarten; 216,503 elementary; 151,969 secondary; 47,266 junior college; and 53,984 adult education. An increase of 24,089 students occurred during the 1955 calendar year.

Total employment (July 1955) for metropolitan area: 2,284,000; unemployment: 70,400. Value of manufactures for metropolitan area (1954-55): \$5.3 billion; of retail sales, \$6,350 million. Harbor tonnage (short tons, 1954): 26,513,994, including general cargo, 3,034,318; lumber, 657,747; and petroleum, 22,821,933. Value of building permits for 1954 was \$408,672,000, and for the first seven months of 1955 was \$241,033,000, again breaking all previous records. The number of new dwelling units authorized in 1954 was 27,187; for the first seven months of 1955, 14,741.

The city's major controversial problem—smog—remained unsolved. During 1955, Smith Griswold was appointed director of the Los Angeles County Air Pollution Control District by the Board of Supervisors. Considerable argument continued over the cause of ozone in the air; the general consensus was that automobiles, industry, and backyard incinerators are major contributors. On September 13, eye irritation reached the "alert" stage for the seventh time since June. A related controversy over the collection of combustible rubbish also brought accusations of corruption in that industry by the mayor, touching off an investigation reaching into the County Board of Supervisors. Controversy also continued in 1955 over the segregation of the city's Negro firemen, with fire chief John Alderson proffering his resignation toward the close of the year.

Additional links were added to Los Angeles' extensive freeway program in 1955. Both the Harbor and Santa Ana freeways were extended,

the latter beyond Norwalk. Development of the City Center continued. New health and police buildings were completed; construction continued on the courthouse; and various old municipal buildings were razed.

The first six months of 1955 saw an 11% decrease in crime. Some \$60 million in sewer bonds and \$4 million in Fire Department bonds for 34 new substations were voted. Budgetary provisions were made to establish the Municipal Art Center in Barnsdall Park on a full-time basis. Light opera and ballet were again presented in the city's Greek Theater in Griffith Park.

ANDREW F. ROLLE,

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LOUISIANA. South Central State, United States; admitted to the Union, April 30, 1812. The "Pelican State" ranks 30th in area and 21st in population (1955) among the 48 states.

Area and Population.—Area: 48,523 square miles (land, 45,162; inland water, 3,361), divided into 64 parishes. Population: (1950) 2,683,516; (est., July 1, 1955) 2,902,000. Urban places with 1950 populations above 10,000 are as follows:

Alexandria.....	34,913	Lafayette.....	33,541
Bastrop.....	12,769	Lake Charles.....	41,272
Baton Rouge.....	125,629	Monroe.....	38,572
Bogalusa.....	17,798	New Iberia.....	16,467
Bossier City.....	15,470	New Orleans.....	570,445
Crowley.....	12,784	Opelousas.....	11,659
Gretna.....	13,813	Ruston.....	10,372
Houma.....	11,505	Shreveport.....	127,206
Jennings.....	10,673 ¹	West Monroe.....	10,302

¹ Capital. ² Special census, Dec. 1, 1953.

Executive.—Chief state officers in 1955:

Governor: Robert F. Kennon (Democrat)

Lieutenant Governor: C. E. Barham

Secretary of State: Wade O. Martin, Jr.

Treasurer: Andrew P. Tugwell

Attorney General: Fred S. LeBlanc

Supt. of Public Education: Shelby M. Jackson

Constitution and Judiciary.—The present constitution went into effect in 1921. The Supreme Court comprises seven justices; chief justice in 1955 was John B. Fournet.

Legislature.—The Legislature (Senate, 39 members; House of Representatives, 101) meets annually, commencing the second Monday in May.

At the regular legislative session (May 9-June 7) approximately \$120 million was appropriated, supplementing the 1954 biennial session appropriation for 1955. A total of \$16 million was allocated for construction at state institutions of higher education, hospitals, and charitable institutions, including \$5 million for the erection of an off-campus division of Southern University; and \$15 million was assigned to the Department of Highways for the initiation of a long-range road program. Standing committees in the House of Representatives were reduced from 37 to 16; and in the Senate, from 29 to 15. Provisions were made for orientation conferences for legislators before each regular session, publication of a manual for legislators, and for new rules governing the filing and printing of bills. State employees were permitted to vote on participation in federal social security; and an expanded program for the education of mentally retarded children was initiated. (See also below, *Principal Events*, 1955.)

Finances.—General Fund revenue (1954-55 fiscal year), \$485,371,846.10; expenditures, \$437,566,703.97; General Fund balance, \$171,388,004.96; net bonded indebtedness, \$229,198,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$421,555,918.90, including \$64,811,172 from a 2% general sales tax and selective sales and gross receipts taxes; \$13,879,943 from licensing; \$8,465,599 from individual income taxes; \$10,823,593 from corporate income taxes; and \$14,100,791 from property taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 40 national banks had \$1,755,284,000 in assets, \$1,411,347,000 in demand deposits, and \$232,594,000 in time deposits; the state's 136 other banks had \$807,469,433.94 in assets, \$597,338,025.21 in demand deposits, and \$151,617,638.88 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 15, inclusive. Operating expenditures of \$112,189,949.01 (\$229.59 per pupil) for public elementary and secondary education in the 1953-54 school year comprised

LOUISIANA

32.6% from local school districts, 65.7% from the state, and 1.7% from the federal government. Expenditures for construction and improvements totaled \$34,971,049.12. Teachers' salaries averaged \$3,462.52 for white teachers; \$3,088.71 for Negro teachers.

LOUISIANA SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (1-8).....	1,080	7,629.5	442,601 ¹
Public junior high (7-9).....	73 ²	1,388.5 ³	108,163 ⁴
Public senior high (9-12).....	483 ⁵	10,230 ⁶	108,163 ⁷
Private elementary and.....			
secondary.....	287	2,820	104,286
Vocational schools.....	24	213	9,642 ⁸
Special schools for deaf, blind, and spastic.....	5	93	635
State colleges and universities.....	9	1,214	23,769
Private colleges and universities.....	12	1,712	18,087

¹ Includes 5,712 kindergarten pupils. ² Includes 52 combined elementary and junior high schools. ³ Includes 791.5 combined elementary and junior high teachers. ⁴ Figure included in elementary and senior high school students. ⁵ Includes 423 combined elementary and senior high schools and 21 combined junior and senior high schools. ⁶ Includes 8,404 elementary and senior high school teachers; 519 junior and senior high school teachers. ⁷ Includes junior high school enrollment. ⁸ There are an additional 13,677 extension students.

Social Welfare.—Public welfare expenditures (1954-55 fiscal year) from federal and state funds (excluding operating costs) totaled \$99,009,168.10, including \$73,108,756.21 for old-age assistance, \$13,680,959.30 for dependent children, and \$1,192,057.10 for the needy blind; a monthly average of 161,244 persons received public assistance. Expenditures for the operation of health and welfare institutions totaled \$29,160,048; for correctional and penal institutions, \$3,391,287.86.

LOUISIANA WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic (Aug. 31, 1955).....	1	1,109
Hospitals for the mentally ill (Aug. 31, 1955).....	3	8,274
Sanatoriums for the tubercular (July 30, 1955).....	5	1,062
Hospitals for the medically indigent (June 1, 1955).....	8	3,309
Schools for the blind (1954-55).....	2	201
Schools for the deaf (1954-55).....	2	452
Training schools for delinquent boys (1954-55).....	2	1,196
Training schools for delinquent girls (1954-55).....	1	181
Prisons (Sept. 9, 1955).....	1	2,954

Labor Force.—The labor force on July 15, 1955, numbered 1,027,500, including 144,950 agricultural workers. Nonagricultural employees numbered 690,500, and for 1954 averaged 693,200. There were 41,400 unemployed workers on July 15, 1955, and the state paid \$10,355,855 in unemployment compensation during 1954.

Manufacturing.—Establishments numbering 2,617 in 1954 employed 147,854 "covered" workers who received \$538,851,094 in salaries and wages.

MAJOR LOUISIANA MANUFACTURES, 1954

	Persons engaged	Payroll and profit income (millions of dollars)	Value of output
All manufactures.....	158,000	\$834	\$3,086
Petroleum and coal products.....	17,000	226	1,122
Food products.....	37,000	122	689
Chemicals.....	17,000	121	355
Paper and pulp.....	18,000	101	294
Lumber.....	25,000	61	176
Transportation equipment.....	10,000	53	118
Stone-clay-glass products.....	4,000	26	55
Machinery.....	4,000	20	49
Apparel.....	7,000	15	49
Fabricated metals.....	4,000	23	48
Printing.....	5,000	21	41

(Source: *The Blue Book of Southern Progress*, 1955.)

Investment in new plant and equipment was \$149,743,005. Earnings of production workers in manufacturing averaged \$65.25 for an average work week of 41.3 hours in 1954, and \$69.14 for 41.9 hours in the first half of 1955.

Port of New Orleans.—New Orleans handled a record 40,560,350 tons of internal and foreign trade (value over \$1.5 billion) during 1954, retaining its status as the second leading American port in value of imports and exports.

The Board of Commissioners of the port approved a \$10 million bond issue to initiate a 3-year, \$20 million construction program. Begun on July 1, 1955, the plan will end on June 30, 1958, marking one phase of a \$60-million, 10-year harbor improvement program.

New industrial plants announced for or begun in the port area in 1955 include a \$6 million gypsum plant of the National Gypsum Company in Westwego; 11 acres of docks and other facilities on the east side of the Industrial Canal, by the National Lead Company; a new plant of the Ideal Cement Company; and a \$60 million Kaiser Aluminum and Chemical Corporation bauxite refinery at Gramercy, 30 miles north of the city.

Mining.—Louisiana normally ranks second among the states in production of sulfur and natural gas, and third in petroleum, natural gas liquids, and salt. In 1953 it stood 4th in the overall value of its mineral products, with 6.71% of the United States total. There were 39,500 persons employed in the state's mineral industries on July 15, 1955.

LOUISIANA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	624,427	\$ 951,612
Natural gas (1,000 cu. ft.).....	1,293,644,000 ¹	106,079,000
Natural gasoline (bbl.).....	15,846,000	55,421,000
Petroleum (bbl.).....	256,632,000 ²	721,150,000
Petroleum gases (bbl.).....	6,840,000	12,654,000
Salt.....	3,061,234 ³	9,189,526
Sand and gravel.....	4,538,387	5,162,248
Sulfur (long tons).....	1,609,364 ⁴	43,453,000
Other minerals.....		11,176,929
Total.....		\$965,237,315

¹ Production in 1954: 1,300 billion cu. ft. ² Production in 1954: 247,300,000 bbl. ³ Production in 1954: 3,100,000 tons. ⁴ Production in 1954: 2,030,000 long tons. (Source: U.S. Bureau of Mines.)

Fisheries.—The commercial fish and shellfish catch in 1953 was valued at \$41,398,473.24. Freshwater fish totaling 11,013,466 pounds had a value of \$1,266,451.95 to fishermen; saltwater fish of 12,812,145 pounds was valued at \$2,869,600.50, not including menhaden valued at \$6,525,977.50. The two leading shellfish catches were shrimp, 100 million pounds (\$28 million) and oysters, 885,717 barrels (\$1,753,098). In June 1953 there were 75,982 commercial fishermen.

Agriculture.—Cash farm income in the first half of 1955 totaled \$104,050,000, and for the full year 1954 comprised \$117,647,000 from livestock and livestock products, \$254,113,000 from crops, and \$11,306,000 from government payments.

Receipts from principal crops and livestock in 1954 included: cotton lint, \$107,630,000; rice, \$55,500,000; cattle, \$48,286,000; sugarcane for sugar, \$38,530,000; and dairy products, \$33,027,000.

The state's 111,127 farms (11,441,343 acres; harvested cropland, 3,010,580) had an average of 103 acres and \$9,591 in value of land and buildings per farm in 1954. There were 28,457 farms with telephones and 101,419 with electricity.

Livestock on farms (Jan. 1, 1955) included 1,787,000 cattle and 4,342,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 283,535 family and hired workers engaged in farming.

LOUISIANA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Corn (1,000 bu.)	15,230	12,957	18,870
Cotton lint (1,000 bales)	591	572	585
Cottonseed (1,000 tons)	239	236	236
Hay (1,000 tons)	381	324	438
Pecans (1,000 lb.)	13,725	10,500	17,000
Potatoes (1,000 bu.)	1,418	927	480
Rice (1,000 bags)	10,968	15,956	13,150
Soybeans (1,000 bu.)	460	848	1,408
Strawberries (1,000 crates)	594*	918	352
Sugarcane for sugar and seed (1,000 short tons)	5,407	6,058	6,199
Sugarcane sirup (1,000 gal.)	5,932	3,000	3,320
Sweet potatoes (1,000 bu.)	9,319	8,835	10,500

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$36,861,653.69, and newly completed construction and reconstruction aggregated 1,362.85 miles.

Highways and roads on Dec. 31, 1954, totaled 40,040 miles (26,467 surfaced). Registered motor vehicles numbered 939,061 on July 31, 1955, including 700,575 passenger cars. There were 38 railroads (1954) operating 4,685.39 line miles, and (1955) 9 regularly scheduled airlines and 149 airports and airfields (42 commercial and municipal, 5 military, and 102 private).

Communications media (1955) included 59 radio stations and 11 operating television outlets; 20 daily newspapers (circulation, 695,136) and 117 other newspapers; and (Jan. 1, 1955) 192,801 business and 491,954 residential telephones.

Principal Events, 1955.—At a special session of the Legislature (January 3-14), only three measures were enacted. Two provided for session expenses and the third appropriated \$50 million for highway maintenance and construction. The regular session (May 9-June 7) was the first under the constitutional amendment adopted in 1954 providing for annual sessions, with those held in odd-numbered years limited to 30 days and to considering financial matters. The 1955 budget session approved 142 acts and appropriated approximately \$120,000,000. This amount was in addition to that provided in the 1954 biennial session for spending in 1955. (See also above, *Legislature*.)

Preparatory to the general election in 1956, five candidates qualified for the office of governor and 535 for the 139 places in the state Legislature. On Oct. 1, 1955, there were 912,530 registered voters, 127,231 of whom were Negroes. A few years earlier Louisiana had fewer than a thousand registered Negro voters.

On October 17, an announcement was made that the boundary dispute between Louisiana and Mississippi had been settled, with both states accepting the recommendation of the U.S. Supreme Court. Both states began taxing landowners in the 25-mile area of Diamond Island, over which the dispute had begun 50 years earlier.

Business conditions were better in 1955 than in the previous year. Agriculture benefited from a better distribution of rainfall throughout the year. A number of cities began subsidizing industries which located in their areas, and tax exemptions were continued for new industries.

A number of business mergers took place. The Southern Advance Bag and Paper Company merged with Robert Gair Company, Inc., while

Olin Industries acquired the Frost Lumber Industries and the Brown Paper and Box Company and then merged with the Mathieson Chemical Corporation.

New Orleans started building its \$7 million city hall as part of a civic center which is to rise on an 11-acre site. Other structures are expected to include a state office building, a state Supreme Court building, and, subject to voter approval of a bond issue, a new library.

Among miscellaneous developments in 1955, inmates of the Louisiana State Penitentiary moved into their new \$8 million plant at New Angola, which embodies modern prison theories; the world's largest undersea pipeline (for oil and gas), a 46-mile facility off the Louisiana shore, began operating; and the bicentennial of the arrival in Louisiana of the Acadian exiles (their 700,000 descendants are scattered in 25 parishes) were celebrated from January to October. (See also BRIDGES; HIGHWAYS.)

Principal Events by: G. W. MCGINTY, Professor of History, Louisiana Polytechnic Institute; Author, "A History of Louisiana" (1949).

LUMBER. Production of lumber in the United States in 1954 amounted to 37,329 million board feet, according to a preliminary estimate by the National Lumber Manufacturers Association, based on reports of regional industry associations. The 1954 production was slightly above that of 1953 as estimated by the association.

Of the 1954 production, 29,296 million board feet was softwood lumber, and 8,033 million was hardwood lumber. Production (in millions of board feet) by principal lumber industry regions was: Southern pine, 8,007; Douglas fir, 8,723; Western pine, 7,953; redwood, 2,450; other softwoods, 2,163; Southern hardwood, 4,264; and other hardwoods, 3,769.

United States imports of lumber in 1954 totaled 3,066 million board feet, according to the U.S. Department of Commerce. The total comprised 2,855 million feet of softwoods, 208 million feet of hardwoods, and 3 million feet of sawed railroad ties. Exports were 723 million board feet, including 555 million feet of softwoods, 97 million feet of hardwoods, 5 million feet of box shooks, and 66 million feet of sawed railroad ties.

A three-month strike of sawmill and logging workers in the Pacific Northwest in the summer of 1954 affected production in that area.

During the first quarter of 1955, demand for lumber was reported exceeding production. Total output for 1955 was expected to show an increase over 1954.

During 1954, wholesale lumber prices, according to a Bureau of Labor Statistics index, averaged 117.3 (1947-49 = 100). The 1953 average was 119.3; the 1952 figure was 120.5. The all-time peak of 123.6 was in 1951. During the first four months of 1955, lumber prices were above the 1954 average.

Canada.—Canada's production of softwood lumber in 1954 was reported at approximately 7,001 million board feet, compared with 7,385 million in 1953. About 30% of production was exported. (See also CANADA.)

World Production.—The Forestry Division of the Food and Agriculture Organization of the United Nations estimated world production of sawnwood (including boxboards) in 1953 at 266,850,000 cubic meters (1 cubic meter = 424 board feet). This total showed a 3% increase

over the estimated world production in 1952. While Latin America showed a slight decrease, due mainly to lower production in Argentina and Brazil, all other regions increased their output. Production in the USSR was estimated to have increased by 6%. Japan's production, which had risen by 36% from 1951 to 1952, increased only slightly in 1953.

Coniferous or softwood species accounted for about four fifths of the total 1953 production of sawnwood in the countries reporting to FAO. North America, the USSR, Scandinavia, and Japan together produced 81% of the total softwood lumber output.

The volume of lumber reported as moving in international trade in 1953 was about 10% of reported world production. All regions, except the USSR, Latin America, and Canada, were net importers. The United Kingdom and the United States, by far the biggest importers, together accounted for more than half of the world's trade volume. In softwood lumber, Europe, the USSR, and North America accounted for over 90% of the volume shipped. Austria, Finland, Sweden, and Canada were the main exporting countries. In hardwood lumber, Europe, North America, and Asia each accounted for about a quarter of the export quantities. Yugoslavia, next to Canada the biggest exporter, increased its shipments by some 60%. The United Kingdom accounted for about a third of the world's hardwood imports.

FAO estimated that of the total cut of roundwood in 1953, 54.7% went into industrial uses. In the countries reporting to FAO, the amount of industrial wood from coniferous forests was 89% and from broadleaved stands 24%. (See also FORESTRY; PUBLIC LANDS.)

CHARLES E. RANDALL,
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LUTHERAN CHURCHES OF AMERICA. Lutheran church membership passed the seven million mark in 1955. Of the 7,117,906 baptized members, 6,906,331 were in the United States and 211,575 were in Canada. Church property was valued at \$1,238 million, and debts amounted to \$156 million.

The 17,239 congregations, served by 15,881 ministers, belonged to 16 autonomous church bodies, but merger talks between several of these were an outstanding feature of the year. The 2,200,000-member United Lutheran Church in America (the largest single body) and the 516,000-member Augustana Lutheran Church jointly invited all Lutherans to talks "looking toward organic unity." Four other bodies declared Jan. 1, 1960, as the "target date" for union. These are the Evangelical Lutheran Church (960,000 members), American Lutheran Church (862,000), Lutheran Free Church (67,000), and United Evangelical Lutheran Church (57,000). The 1.8 million group resulting from this merger will become the third largest in America, the 2 million-member Lutheran Church-Missouri Synod remaining second in size.

The eight bodies cooperating in the National Lutheran Council (largest nonparticipant; the Missouri Synod) began preparations for the 1957 Lutheran World Federation Assembly at Minneapolis, Minn. Delegates from 56 churches in 28 countries will represent two thirds of the world's estimated 77 million Lutherans.

In 1955, the National Lutheran Council launched a million-dollar refugee resettlement program, in cooperation with the Missouri Synod,

to resettle 15,000 persons under the Refugee Relief Act of 1953. A million dollars worth of farm produce was expected from the All-Lutheran Food Appeal, another joint program for overseas relief. American Lutheran missionary efforts were carried at an expense of over \$4.5 million by 1,687 missionaries serving 5,265 stations in 18 foreign countries.

Describing postwar Lutheran relief efforts as the most extensive undertaken by any Protestant denomination, the National Lutheran Council said Lutheran contributions in cash and goods to relief projects from 1939 through 1954 reached nearly \$82 million, primarily for overseas churches and refugees.

Highly publicized in 1955 were the Lutheran "heresy trials" against three young pastors in the Milwaukee (Wis.) area. Pastor George P. Crist of Durham was suspended for denial of the virgin birth and physical resurrection of Jesus Christ, as well as for deviation from other doctrines. Similar charges against two other pastors were investigated. These were the first such trials in the United Lutheran Church in America since the 1920's.

ALEX LIEPA,
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LUXEMBOURG. A grand duchy of western Europe, bounded by Belgium, France, and Germany. Area, 998 square miles; pop. (est. Dec. 31, 1954), 308,000. The capital and chief city is Luxembourg (pop. 1951, 63,951). French and Letzeburgesch, a German-French-Dutch admixture, are the chief languages in use.

Government.—Grand Duchess Charlotte (acceded 1919) is the sovereign. The unicameral legislature consists of a Chamber of Deputies of 52 members elected for 6 years (usually 26 every 3 years). There is also a Council of State whose 15 members are appointed for life. Following the elections of May 30, 1954, the Christian Social Party held 26 seats, as compared with 17 for the Socialists. Minister of State Joseph Bech (Christian Social) heads a Christian Social-Socialist cabinet formed on June 29, 1954. The estimated 1954 budget (including the extraordinary budget) was: revenue, 3,867,203,000 francs; expenditure, 4,371,426,000. The Luxembourg franc equals U.S.\$0.02.

Education and Religion.—In 1952-53, primary schools had 27,672 pupils; 22 higher elementary and secondary schools, 3,761; and 4 technical schools, 3,919. Luxembourgers are predominantly Roman Catholics.

Production and Trade.—Luxembourg's economy is featured by a highly developed heavy industry. Output of crude steel in 1954 totaled 2,828,000 metric tons; iron ore (30% metal content), 5,892,000; and pig iron and ferroalloys, 2,796,000. Other manufactures include sole leather, china, textiles, gloves, and beer. Chief crops are oats, wheat, rye, and potatoes. Luxembourg exports chiefly iron and steel products, and imports fuel, vehicles, cotton, textiles, foodstuffs, and machinery. Luxembourg has had an economic union with Belgium since 1922.

Transportation and Communications.—Luxembourg had 2,414 miles of roads and 286 miles of railways in 1953. Passenger cars numbered 18,317 in 1955; trucks, 6,488; and telephones, 29,861. There were 5 daily newspapers in 1952 with a total circulation of 135,000. Radio Luxembourg is one of the most powerful stations in the world. Luxembourg's first TV station was inaugurated at Dudelange on Jan. 23, 1955.

Principal Events, 1955.—On April 6, the Chamber of Deputies, 48-3, voted approval of the 1954 Paris pacts on the rearmament of West Germany. The United States and Luxembourg raised their respective legations to embassies in September.

Economic activity was at a high level in 1955, the index of industrial production (1948 = 100) averaging 125 for the first nine months, as compared with 114 for 1954 (full year). The growing gas and electric utilities set new output rec-

ords, while many manufacturing industries equalled or surpassed the boom levels of 1951-52. Mining, recovering strongly from the 1954 slump, reached the 1952 peak by mid-1955. Overall employment was also at a record level in 1955.



MACAO. See PORTUGUESE TERRITORIES.

McCORMICK, Robert Rutherford, American newspaper editor and publisher: b. Chicago, Ill., July 30, 1880; d. Wheaton, Ill., April 1, 1955. As editor and publisher of the Chicago *Tribune* for 40 years, he was an outspoken nationalist and champion of the extreme right wing in American politics.

The son of Robert Sanderson McCormick, American ambassador to Austria-Hungary, Russia, and France, and grandson of Joseph Medill, former owner of the Chicago *Tribune*, McCormick was educated at Groton School and Yale University (B.A., 1903). He was admitted to the Illinois bar in 1907, after a period of study at the Northwestern University School of Law, and subsequently became a member of a Chicago law firm. During this period he made a successful excursion into Chicago politics, serving, among other posts, as a member of the City Council (1904-06).

McCormick and his cousin, Joseph Medill Patterson, gained control of the Chicago *Tribune* when its editor and publisher, Robert W. Patterson, died in 1910. It was not, however, until 1914 that they jointly took the posts of editor and publisher and began directing editorial policy. Although differing in point of view, they nevertheless succeeded in establishing the *Tribune* as an important and widely read Midwestern paper.

McCormick's journalistic efforts were interrupted by World War I. After a brief period as war correspondent in France and Russia, he returned to the United States and participated with the 1st Illinois Cavalry in the Mexican campaign against Pancho Villa in 1916. Returning to France, he served with Gen. John J. Pershing's staff and saw action as a battalion commander of the 5th Field Artillery and later as commander of the 61st Regiment. He rose to the rank of colonel and was awarded the Distinguished Service Medal.

After the war, Colonel McCormick and Patterson launched the *Illustrated Daily News* in New York City (June 1919), a tabloid modeled after the London *Daily Mirror*. McCormick became sole editor and publisher of the Chicago *Tribune* when Patterson split with him and went to New York to become resident head of the *Daily News* (the word *Illustrated* having been dropped) in 1925.

Under the colonel's rigid direction, the *Tribune* became a reflection of its editor's brilliant, if erratic, personality. Its pages were exhibitionistic, but dynamic; its editorials were opinionated and frenetic, but independent and often provocative. As one journalist put it, one could never be certain whether the *Tribune* "is going to be reactionary and vicious, or whether it accidentally will be found on the side of progress and en-

lightenment." Nevertheless the reiteration of certain tenets served to reveal the editor's views. As spokesman of the Midwest, he was uncompromising in his condemnation of internationalism, the welfare state, the New Deal, subversion in government, control of the press, and life in the eastern United States.

During the years prior to the entry of the United States into World War II, his opposition to President Roosevelt's foreign policy was total. During the war, however, he gave his editorial support to the war effort. In the postwar period he roundly condemned President Truman, the Marshall Plan, and the United Nations; and in the presidential campaign of 1952, he denounced both Dwight Eisenhower and Adlai Stevenson.

In July 1949, McCormick purchased the Washington (D.C.) *Times-Herald* "to take Americanism into the nation's capital." The venture failed, and he was forced to sell the newspaper to the Washington *Post* on March 17, 1954. In his will the colonel turned over the management of the *Tribune* to its three top executives: Chesser M. Campbell, vice president of the Tribune Company; William D. Maxwell, the newspaper's managing editor; and J. Howard Wood, its business manager.

McCormick was the author of several provocative books, including *Ulysses S. Grant, the Great Soldier of America* (1934); *Freedom of the Press* (1936); *The American Revolution and Its Effect on World Civilization* (1945); and *The War Without Grant* (1950). He also wrote numerous articles on history, military science, law, and politics.

MACFADDEN, Bernarr (original name BERNARD A. McFADDEN), American publisher and physical culturist: b. near Mill Springs, Mo., Aug. 16, 1868; d. Jersey City, N.J., Oct. 12, 1955. The colorful former owner of popular magazines and newspapers, he influenced a wide segment of the American public in the fields of physical health and beauty.

Orphaned at the age of eight, Bernarr Macfadden spent his youth traveling from one odd job to another until 1886, when he established a physical culture studio in New York. In 1898 he published the first issue of *Physical Culture*, a pamphlet amply illustrated with photographs of "Professor B. Macfadden in classical poses" to advertise a massage reducer he had invented. The combination of health theories and vivid illustrations depicting the results of their application proved very appealing to the public and highly remunerative to Macfadden. Although he was convicted, in a case that reached the U.S. Supreme Court, of sending obscene literature through the mails, his publishing fortunes continued to rise during the first and second decades of the 20th century. By 1929 he owned 13 nationally circulated magazines, including *Health and Beauty*, *True Story Magazine*, *True Romance*, *True Detective*, and *Modern Marriage*,

and 10 daily newspapers, including the *Philadelphia News*, the *Detroit Daily*, and the notorious *New York Evening Graphic*. In 1931 he acquired *Liberty*, but was forced to dispose of it in 1942.

During the heyday of his publishing career, Macfadden greatly broadened the scope of his activities. In 1931 he established the Bernarr Macfadden Foundation to promote the cause of "physcultopathy" (healing through physical culture) in the United States. He also founded the Macfadden Institute of Physical Culture; the American Institute for Physical Education; Castle Heights Military Academy, Lebanon, Tenn.; the Physical Culture Hotel, Danville, N.Y.; and the Macfadden-Deauville Health Hotel, Miami Beach, Fla. With the depression and the failure of the *Evening Graphic* in 1932, Macfadden's fortunes took a negative turn, and in 1941 he sold his publishing interests to minority stockholders.

Macfadden practiced vigorously and exuberantly the health tenets he advocated. As late as 1952, on his 84th birthday, he parachuted into Paris to demonstrate that he had succeeded in avoiding the "bad habit" of old age. He was the author of numerous books on health and related subjects, including an *Encyclopedia of Physical Culture*.

MACHINERY. See Index entry.

McKAY, (James) Douglas, United States secretary of the interior: b. Portland, Oreg., June 24, 1893. Head of one of the largest and most complex of the executive departments, he has been a strong advocate of development of hydroelectric power by local authorities and private industry rather than by the federal government.

Educated at Oregon State College (B.S., 1917), he served in the army in World War I. After the war he sold automobiles, establishing his own agency in 1927. He served as mayor of Salem in 1933-34, and as state senator in 1935-37, 1939-41, 1943-45, and 1947-49. Elected Republican governor of Oregon in 1948 to fill an unexpired term, he was re-elected in 1950. Designated secretary of the interior on Nov. 20, 1952, by President-elect Dwight D. Eisenhower, McKay took office on Jan. 21, 1953.

As a proponent of the reduction of federal authority, he has supported the development of natural resources on federal lands by private enterprise, and local and private power development. On May 2, 1955, he appeared before the Senate Interior Committee to oppose federal construction of the long-sought Hell's Canyon Dam on the Snake River (see DAMS).

MACMILLAN, (Maurice) Harold, British political leader: b. London, England, Feb. 10, 1894. A leading figure in the British Parliament for almost 30 years and the holder of various important ministerial posts, he was, on April 7, 1955, appointed secretary of state for foreign affairs, succeeding Sir Anthony Eden (q.v.). In a reshuffling of the British cabinet on December 20, Macmillan moved into the post of chancellor of the Exchequer succeeding R. A. Butler.

Born of a Scottish father and an American mother, Macmillan received his formal education at Eton and at Balliol College, Oxford University. During World War I he served with the Special Reserve Grenadier Guards and was wounded three times in combat. He spent the year 1919-20 as aide-de-camp to the ninth duke of Devonshire, who was governor general of Canada, and whose daughter, Lady Dorothy Evelyn Cavendish, he married in 1920. Returning to England

in 1920, Macmillan became a director, until 1940, of Macmillan and Company, Ltd., the publishing firm founded by his grandfather.

Macmillan's political career began in 1924 when he was elected as a Conservative to the House of Commons from Stockton-on-Tees. He lost his Commons seat in 1929, but was re-elected in 1931 and served continuously until 1945. In the years prior to World War II, he was a frequent and caustic critic of the Conservative Party's economic and foreign policies. Conscious of the necessity of progress, he propounded a liberal economic philosophy that integrated what he thought was the best of both socialism and capitalism. He also opposed Prime Minister Stanley Baldwin's appeasement of Italy in the Ethiopian war and Neville Chamberlain's appeasement of Germany at Munich. With the outbreak of the war, he joined Winston Churchill's coalition government in May 1940 as parliamentary secretary to the Ministry of Supply. On Feb. 4, 1942, he was appointed undersecretary of state for the colonies and was charged with increasing colonial production and shipping to compensate for British losses to the Japanese.

On Dec. 30, 1942, after the Allies had invaded North Africa, Macmillan was named resident minister at Allied headquarters in Algiers to work with General Eisenhower and Robert D. Murphy, of the U.S. State Department, for the creation of a unified approach to the political and military problems of that area. In 1943 he participated in the Casablanca Conference and in the settlement of differences between the French generals, Charles de Gaulle and Henri H. Giraud, who were vying for power over Free France. He subsequently participated in the negotiations relating to the Italian armistice (September 1943), and was appointed British representative on the Advisory Council for Italy (November 1943). In December 1944 he visited Athens and assisted in negotiating the peace signed by the Greek government and the EAM (National Liberation Front). On his return to England in 1945, he was appointed secretary of state for air.

Macmillan was not returned to Parliament when the Churchill government was defeated by the Labour Party in July 1945, but was re-elected in a November by-election from the Bromley Division of Kent. In the years that followed he played an active role in modernizing Conservative doctrine, and with the return to power of the Conservative government in 1951, he was named minister of housing and local government. He held this post until late 1954 when he was appointed minister of defense.

A brilliant speaker with a biting wit—"The brave new world [Great Britain under the Labour government] has turned into nothing but a fish-and-Cripps age"—he is also the author of several important economic studies: *Industry and the State* (in collaboration with others, 1927); *Reconstruction: A Plea for a National Policy* (1933); *Planning for Employment* (1935); *The Next Five Years* (1935); and *The Middle Way* (1938).

(See also GENEVA CONFERENCE; GREAT BRITAIN.)

McNEIL, Hector, British public official: b. Garelochhead, Dumbarton, Scotland, March 10, 1907; d. New York, N.Y., Oct. 11, 1955. One of the highest-ranking diplomats in the postwar Labour government, he was a leading spokesman for the Western nations in conflicts in the United Nations with representatives of the USSR.

Soon after graduation from Glasgow University, he was elected in 1932 to the Corporation of Glasgow. Two years later he went to work for Lord Beaverbrook's Scottish *Daily Express*, of which he later became night news editor. After standing for Parliament unsuccessfully in 1935 and 1936, he won a seat in the House of Commons from the burgh of Greenock in 1941. With the accession to power of the Labour Party in 1945, he was appointed parliamentary under-secretary of state for foreign affairs. A year later he became minister of state under Foreign Secretary Ernest Bevin. A member of several diplomatic missions, he was Great Britain's representative at the United Nations from 1946 to 1949, serving as vice president of the General Assembly in 1947. From 1950 to 1951 he was secretary of state for Scotland. After the defeat of the Attlee government in 1951, he retained his seat in the House of Commons, and returned to private business.

During the three years in which he represented Great Britain at the United Nations, McNeil's diplomatic skill and his ability as a speaker made him an outstanding spokesman for the West in debates with the Soviet delegates, Vyacheslav M. Molotov and Andrei Y. Vishinsky, on such issues as the control of atomic energy, the Berlin blockade, the Palestine problem, and the North Atlantic Treaty.

McNUTT, Paul Vories, American lawyer and public official; b. Franklin, Ind., July 19, 1891; d. New York, N.Y., March 24, 1955. A former governor of Indiana, he served in a variety of important administrative posts during World War II, and was the first United States ambassador to the Republic of the Philippines.

McNutt took his B.A. degree from Indiana University in 1913 and his LL.B. degree from the Harvard Law School in 1916. After a brief period of law practice with the family firm, McNutt and McNutt, in Martinsville, Ind., he accepted a teaching post at the Indiana University Law School in 1917. During World War I he began service in the field artillery as an instructor, and rose to the rank of colonel. With the termination of hostilities, he returned to his teaching duties at Indiana University Law School, where he served as dean from 1925 to 1933.

Gaining prominence as national commander of the American Legion (1928-29), he was elected governor of Indiana on the Democratic ticket in 1932. During his term he reorganized the executive branch of the state government, and was instrumental in the passage of a comprehensive social security program. When his term expired in 1937, President Roosevelt appointed him high commissioner to the Philippines, a post he held twice (1937-39 and 1945-46).

Aspiring to the presidency from his youth, McNutt came closest to achieving his ambition during the Democratic National Convention of 1940, when President Roosevelt's demand that Henry Wallace be his running mate encountered considerable opposition among the delegates. The McNutt adherents began a drive in behalf of their choice, but he loyally withdrew his candidacy.

Between 1939 and 1945, McNutt served in a number of wartime administrative capacities in Washington. He was federal security administrator (1939-45), director of the Office of Defense Health and Welfare Services (1941-43), chairman of the War Manpower Commission (1942-45), and member of the War Production and

Economic Stabilization boards. When the Philippines gained their independence in 1946, he was appointed first ambassador to that country. After seeing through the initial diplomatic arrangements, he resigned the post in 1947 to return to private law practice in both Washington, D.C., and New York City. In the succeeding years he assumed the board chairmanship of the Philippine-American Life Insurance Company (1948), served as economic adviser to the Korean government (1951), and was director of several companies. He was awarded the Medal of Merit by President Truman for his wartime services.

MADAGASCAR. An island in the Indian Ocean about 250 miles off the east coast of Africa. With Nossi-Bé, Sainte-Marie, and other small island dependencies, it forms an overseas territory of the French Union. Area (without dependencies), 227,737 square miles; pop. (est. 1953), 4,523,000, including (in 1951) 66,107 nonindigenous inhabitants, mostly French. The natives, known as Malagasy, comprise over 20 different ethnic groups of Negro, Arab, and Malayo-Polynesian origin. Tananarive (187,339) is the capital, and Tamatave (39,843) the chief port.

Government.—The French high commissioner is aided by a government council. A Representative Assembly of 36 members (15 French and 21 Malagasy) is elected by the provincial assemblies of the 5 provinces. The provincial assemblies are elected on a 2-college basis. Madagascar sends 5 deputies and 5 senators to the French Parliament in Paris, and 7 delegates to the Assembly of the French Union.

Education and Religion.—About 42% of the school-age population attends school. In 1954 there were 1,861 primary schools (236,041 pupils); and in 1953, 146 secondary schools (11,358), 135 technical schools (6,194), and 4 higher schools (378). Roman Catholic and Protestant missions have converted many of the natives to Christianity. There is a small Arab Moslem minority.

Finance.—The general budget for 1954 totaled 12,145 million francs CFA; the provincial budgets aggregated 7,860 million. The franc CFA (*Colonies Françaises d'Afrique*) equals 2 metropolitan francs.

Production.—The economy is predominantly agricultural and pastoral. Subsistence crops include rice, manioc, sugarcane, sweet potatoes, maize, and bananas. Chief cash crops are coffee, rice, vegetables, sisal, tobacco, cloves, vanilla, tapioca, and raffia. Minerals include graphite (12,051 metric tons in 1954), mica (524), industrial beryls and garnets, quartz, and columbite. Industrial products are mainly canned and frozen meats, hides, refined sugar and rice, rum, alcohol, soap, essential oils, sisal and raffia fibers, footwear, tobacco products, and distilled cloves.

Foreign Trade.—Exports in 1954 totaled 16,174 million francs CFA; imports, 24,040 million. Chief exports were: coffee, 41,476 metric tons (7,669 million francs CFA); leaf tobacco, 4,713; cloves, 5,656; vanilla, 244; and essential oils, 1,027. Imports include foodstuffs, textiles, machinery and equipment, and petroleum products. France took 69% of 1954 exports and provided 75% of imports.

Transportation and Communications.—Madagascar's 4 railways have a total route length of 538 miles. The road network in 1954 aggregated 16,120 miles, including some 5,000 of all-weather roads. Four airlines connect Tananarive with Paris and other points in Europe and Africa. Passenger cars numbered 8,251 in 1954; telephones, 8,614 (1955).

Principal Events, 1955.—On Aug. 5, 1955, the French National Assembly approved a measure constituting the Southern and Antarctic French Lands as an autonomous territory of the French Union. The territory included the Adélie Coast

(Adélie Land) of Antarctica, with an area of about 150,000 square miles, and the following former island dependencies of Madagascar: Kerguelen Islands, 2,700 square miles; Crozet Islands, 200; Amsterdam Island, 16; and Saint Paul, 3. The new unit, which has a population of 90, will have its own budget and will be represented by a Consultative Council attached to the French Ministry of Overseas Territories in Paris.

MADEIRA. A group of Atlantic islands about 535 miles southwest of Lisbon, forming the Funchal District of Portugal. Area, 308 square miles; pop. (1950 census), 266,990; capital, Funchal (37,215). Madeira (286 sq. mi.) and Porto Santo (16 sq. mi.) are the only inhabited islands. Uninhabited islets comprise the Desertas and Salvages (Selvagens) groups. Oranges, grapes, bananas, and sugarcane are grown. Industries include fishing, embroideries, wine, and wicker baskets and furniture. The island of Madeira is a noted health resort.

MAGAZINE PUBLISHING. The best news of 1955 for publishers of general circulation magazines was a slight upturn in net profit ratio from the all-time low of 2.8%, set in both 1953 and 1954. Despite almost-certain higher operating costs for 1956, the majority of publishers expected that the year would show a slight strengthening of the ratio of profits to income.

In three important respects 1955 was a record year. According to the Magazine Advertising Bureau, circulation of general and farm magazines averaged more than 166,300,000 copies per issue, compared with 164,966,886 in 1954. Advertising pages approximated 83,500 sold, compared with 81,103 in 1954. Advertising dollar volume was estimated at \$650 million, against \$604,121,055 in 1954.

Adding a note of encouragement for the end of 1955 and the beginning of 1956 was a sharp increase in newsstand sales, representing far more than simply a recovery from the so-called summer slump.

The year 1955 was outstanding for the specialized magazines, such as the home service, outdoor, and fashion magazines—those giving specific information of reference value. These few publications recorded sharp gains in circulation and all-time highs in advertising revenues.

Editorially in both Canada and the United States there was added evidence of more depth in subject coverage, as shown by increasing numbers of entire issues being devoted to a specific topic. Emphasis continued to be given to interpretive articles, especially on international and national issues, and the popularity of biographical and autobiographical features continued.

Canadian Publications.—In Canada, despite the growth of television, general circulation magazines (61 English- and 14 French-language) recorded consistent gains. The Magazine Advertising Bureau of Canada estimated that circulation of ABC publications in 1955 totaled some 3,700,000, against 3,630,058 in 1954, with advertising revenues of more than \$16,800,000 against 1954's final figure of \$16,098,898. With higher circulation, advertising rates moved up slightly, but cost per thousand circulation of 12 leading consumer magazines stayed about the same, at \$5.58 for black-and-white and \$7.81 for four-color advertisements. Total advertising revenues for 1955 marked an all-time high, and forecasts for 1956 indicated a moderate but steady increase.

There were no new Canadian publications in

1955, but two changed hands. Crombie Publishing, a new company, bought *Mayfair Magazine* and *Canadian Bride Magazine* from the MacLean Hunter Publishing Company. *Canadian Bride*, which in the past had been an annual, was scheduled for semiannual or more frequent publication.

Split-Run Advertising.—Use of three split-run techniques—sectional-edition, alternate copy, and split press—gained among United States advertisers in 1955. Originally used mainly to test advertising copy, the system became fairly common in 1954. In 1955, split runs were definitely moving from the test stage to tie-ins with more intensive local merchandising campaigns.

Business Publications.—Nearly half the year's new ventures were in the business publishing field. Circulation of some 1,870 such publications (compared with 1,838 in 1954) rose to a record high of about 32,700,000 from about 30 million in 1954. A study by A. R. Venezian, assistant to the director of advertising of McGraw-Hill Publishing Company, showed advertising pages increasing 4,000 to about 1,065,000, indicating that 1956's total would beat the all-time record of 1,073,000 set in 1953. With 1955 advertising volume estimated at \$390 million (compared with \$365.5 million in 1954) the study forecast that 1956 would set another record at some \$430 million.

Comics.—Although much less in the limelight than in the preceding year, comics in 1955 continued to be big business, with a continuing average of about 400 titles selling some 60 million copies a month. In the fall, former New York City Magistrate Charles F. Murphy went into his second year as "czar" of most of the industry—represented by the Comics Magazine Association of America. Censoring was continued in order to eliminate crime and horror content. With the industry thus moving to keep its own house in order, and apparently willing to meet all challenges, it was becoming less popular to attack the comics as a prime source of juvenile delinquency and crime. (See also CENSORSHIP.)

New Publications.—Continuing to reflect high costs and growing competition, new ventures in 1955—as in 1954—numbered some 50, about half the number started in 1953. And again, approximately 50% of the new publications were in the business field. Among these were: *American Salesman*, a monthly; *Atomic Age*; *Christian Bookseller*, a quarterly for religious publication distributors and dealers; *Cleaning Laundry Supplier*; *Design Engineering*; *Gadget Patents and Invention News*, a quarterly for manufacturers; *Grinding and Finishing*; *Insulation*, a monthly for electric and electronic material manufacturers; *Jobber Product News*; *Kitchen Business*; *Maintenance Engineering*; *Modern Office Procedures*; *National Retailer*; *New York Industrial World*; *Office Equipment Buyer*; *Outwear News*, a quarterly; *Package Engineering*; *Plastics Technology*; *Product Design and Materials*; *Research and Engineering*, a monthly for research and development management men; *Resident Physician*; *Room Service*, Florida hotel and motel monthly; *Seaway*; *Small Boat Dealer*; *Spot Radio Register*, quarterly covering spot radio advertiser activities; *Tackle Industry*, for fishing equipment producers and distributors; and *Travel Markets*.

Other publications scheduled for 1955 appearance included: *Audiocraft*, how-to-do-it magazine for home sound-reproduction experimenters; *Bride-To-Be*, a quarterly; *Calling All Girls*, pocket magazine for the 7-14 age group;

Commuter, "for, of and by the commuter"; *Conquest*, bimonthly men's magazine; *Essential Books*, slated for 5 issues a year; *Evening Out*, quarterly for New York City college students; *Fanfare*, about night clubs; *Film Culture*, bimonthly for the "adult and discriminating film goer"; *Fishing Waters Of The World*; *Flip*; *The Georgia Farmer*; *Handy-Cap*, pocket-sized monthly for the physically handicapped; *International Theatre*, fortnightly on theater and allied arts; *Intro Bulletin*, literary monthly; *Know-The-Facts*, pocket-size monthly; *Limelight*, show business monthly; *National Review*, conservative weekly journal of opinion; *Official Racing Guide*, monthly of automotive performance records; pocket-sized *Picture Week*; *Radio-TV Scripts*; *Simplicity's Children*, semiannual pattern magazine; *Sports Car Illustrated*; *Swank*, men's quarterly; *Teen Photo News*; *Utah Gardens*; *Water World*; *Wisdom*; and *Your Church*.

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MAGNESIUM. World production of magnesium (revised estimates by U.S. Bureau of Mines) increased from 50,000 short tons in 1950 to 170,000 tons in 1953, but declined to 140,000 tons in 1954. (See MINERAL PRODUCTION for table showing output of major producing countries.) United States production, confined to the output of two plants, has declined from the peak of 105,821 short tons in 1952 to 93,075 tons in 1953, 69,729 tons in 1954, and 25,572 tons during the first half of 1955. The metal content of imports declined from 2,451 tons in 1953 to only 742 tons in 1954. A new use for magnesium, as a reducing agent for titanium, zirconium, and hafnium, consumed 8,704 tons in 1954.

MAIL SERVICE. See POST OFFICE DEPARTMENT.

MAINE. New England state, United States; admitted to the Union, March 15, 1820. The "Pine Tree State" ranks 38th in area and 36th in population (1955) among the 48 states.

Area and Population.—Area: 33,215 square miles (land, 31,040; inland water, 2,175), divided into 16 counties. Population: (1950) 913,774; (est., July 1, 1955) 890,000. Urban places with 1950 populations above 10,000 are as follows:

Auburn.....	23,134	Portland.....	77,634
Augusta (capital).....	20,913	Saco.....	10,324
Bangor.....	31,558	Sanford town*.....	15,177
Bath.....	10,664	South Portland.....	21,866
Biddeford.....	20,836	Waterville.....	18,287
Brunswick town*.....	10,996	Westbrook.....	12,284
Lewiston.....	40,974	* Civil division.	

Executive.—Chief state officers in 1955:

Governor: Edmund S. Muskie (Democrat)

Secretary of State: Harold I. Goss

Treasurer: Frank S. Carpenter

Attorney General: Frank F. Harding

Commissioner of Education: Herbert G. Espy

Constitution and Judiciary.—The present constitution went into effect in 1820 and was most recently codified in 1951. The highest tribunal, the Supreme Judicial Court, comprises six justices; chief justice in 1955: Raymond Fellows.

Legislature.—The Legislature (Senate, 33 members; House of Representatives, 151) convenes in odd-numbered years commencing the first Wednesday in January.

The state legislature convened in regular biennial session on Jan. 5, 1955. Under the leadership of Gov. Edmund S. Muskie, Maine's first Democratic chief executive in 20 years, it created a Department of Industry and Commerce, increased state aid to education, and upped the budget for 13 state institutions (penal, sanatoria, etc.). It also authorized a comprehensive survey of the state government and, for the first time since 1931, reapportioned the state legislature. However, the Republican-controlled legislature balked at the governor's proposals for an income tax or for a sales tax in-

crease, choosing instead to raise the gasoline tax from 6 to 7 cents a gallon and to increase various other existing levies (cigarettes, alcoholic beverages, etc.). It also turned down suggestions for a highway bond issue and for creation of a state building reserve fund. Appropriations approximated \$75.5 million, a record amount.

Finances.—State treasury receipts (1954-55 fiscal year), \$166,252,806.71; expenditures, \$167,794,290.41; treasury balance, \$12,218,808.12; long-term indebtedness, \$37,300,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$55,376,053.75, including \$43,522,467.36 from a 2% general sales tax and selective sales and gross receipts taxes, and \$9,234,818.24 from licensing. The state has no individual or corporate income taxes, but does have a \$3 poll tax for males.

Banking.—As of June 30, 1955, the state's 31 national banks had \$290,034,000 in assets, \$165,179,000 in demand deposits, and \$94,755,000 in time deposits; the state's 60 other banks had \$661,551,299.90 in assets, \$148,730,859.87 in demand deposits, and \$440,651,863.06 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 17, inclusive. Operating expenditures of \$30,527,058 (\$198.41 per pupil) for public elementary and secondary education in the 1953-54 fiscal year comprised approximately \$22,155,692 from local school districts, \$7,264,084 from the state, and \$492,399 from the federal government. Expenditures for construction and improvements totaled \$5,045,313. Teachers' salaries averaged \$2,719 (elementary school teachers, \$2,517; high school teachers, \$3,218).

MAINE SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (1-8).....	1,192	4,845	119,574
Public senior high (9-12).....	194	1,971	34,278
Parochial elementary and secondary.....	66	...	22,248
Private academies.....	55	515	8,512
State teachers colleges.....	5	133	1,199*

* 1955-56 figures.

Social Welfare.—Public assistance expenditures from federal and state funds in the 1955 fiscal year totaled \$11,720,576, including \$7,107,112 for old-age assistance, \$4,268,413 for dependent children, \$335,244 for the needy blind, and \$9,807 for the disabled; a monthly average of 28,323 persons received public assistance.

MAINE WELFARE INSTITUTIONS

(As of August 31, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic..	1	1,442
Hospitals for the mentally ill.....	2	1,991
Sanatoriums for the tubercular (July 31, 1954).....	3	276
Schools for the deaf (May 31, 1955).....	1	118
Homes for dependent children (July 31, 1955).....	1	37
Training schools for delinquent boys.....	1	90
Training schools for delinquent girls.....	1	87
Reformatories for males.....	1	111
Reformatories for females.....	1	80*
Prisons.....	1	395

* Including infants of inmates.

Labor Force.—In July 1955 the labor force numbered 389,300 workers, including 280,100 nonagricultural employees; for the preceding 12 months nonfarm employment averaged 267,515. There were 13,250 unemployed workers in July 1955, and the state paid \$8,824,882 in unemployment compensation for the year ending June 1955.

Manufacturing.—Establishments numbered 1,802 in 1954. Investment in new plant and equipment (1953) totaled \$38,593,000. Earnings of production workers in manufacturing averaged \$56.52 for an average work week of 39.9 hours in 1954, and \$58.71 for 41 hours for the first half of 1955.

MAJOR MAINE MANUFACTURES, 1954

Product or industry	No. of employees	Gross wages paid	Value of product
<i>All manufactures</i>	110,688	\$317,258,718	\$1,188,778,168
Paper and allied products	16,206	67,768,079	292,735,384
Textile mill products	19,594	57,898,193	219,803,904
Food and kindred products	14,117	23,709,067	153,350,041
Leather and leather products	19,880	44,383,633	148,805,044
Lumber and wood products (except furniture)	14,726	31,973,326	109,989,863
Transportation equipment ¹	10,852	47,094,523	52,731,358
Nonelectrical machinery	4,147	15,809,060	41,370,525
Fabricated metal products ²	2,631	9,043,221	39,505,262

¹ Portsmouth Naval Shipyard included, except value of product. ² Except ordnance, machinery, and transportation equipment.

Mining.—Maine ranked second among the states in production of beryllium concentrates and fourth in output of sheet mica in 1953. The state stood 44th in value of its mineral output, accounting for 0.07% of the United States total.

MAINE MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.)	2,001,464	\$ 5,422,272
Clays	29,661	27,476
Feldspar (long tons)	17,637	117,090
Peat	2,428	73,564
Sand and gravel	8,071,937	2,608,386
Stone*	248,501	1,215,439
Other minerals		1,038,883
Total		\$10,503,110

* Excluding stone used in making cement and lime. (Source: U.S. Bureau of Mines.)

Fisheries.—In 1954, landings at Maine ports comprised 255,438,956 pounds of fish valued at \$6,547,596, and 283,905,931 pounds of shellfish valued at \$10,308,024. Principal species and their poundages and values were: Maine lobsters, 21,667,713 (\$8,087,165); ocean perch, 79,670,711 (\$3,205,500); herring, 123,602,099 (\$1,769,516); and soft clams, 3,721,891 (\$1,360,436). In the first eight months of 1955, landings totaled 163,013,668 pounds (\$10,101,722), compared with 195,729,852 pounds (\$10,798,234) during the same period in 1954.

Agriculture.—Cash farm income in the first half of 1955 totaled \$106,869,000, and for the full year 1954 comprised \$99,594,000 from livestock and livestock products, \$44,109,000 from crops, and \$849,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$32,547,000; eggs, \$26,505,000; broilers, \$24,848,000; and potatoes, \$23,936,000.

The state's 23,268 farms (3,614,242 acres; harvested cropland, 795,710) had an average of 154.7 acres and \$9,439 in value of land and buildings per farm in 1954. There were 16,991 farms with telephones and 22,028 with electricity. Livestock on farms on Jan. 1, 1955, included

MAINE CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	927	740	1,440
Bans, dry edible (1,000 bags)	61	26	52
Hay (1,000 tons)	772	712	817
Maple sirup (1,000 gal.)	21	27	13
Oats (1,000 bu.)	3,344	3,003	2,490
Potatoes (1,000 bu.)	61,758	48,960	64,325

(Source: U.S. Dept. of Agriculture.)

238,000 cattle and 4,464,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 75,846 family and hired workers engaged in farming.

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$33,688,675, and newly completed construction and reconstruction aggregated 257 miles.

Highways and roads on March 1, 1955, totaled 20,386 miles (11,162 surfaced). Registered motor vehicles numbered 307,142 on Dec. 31, 1954, including 237,800 passenger cars. There were 8 railroads (1954) which, in 1953, operated 1,862 line miles, and in 1955, there was one regularly scheduled airline and 121 airports and airfields (30 commercial and municipal, 4 military, and 31 private, and 56 private and commercial seaplane bases).

Communications media (1954) included 13 AM and 2 FM radio stations and 5 VHF operating television outlets; 11 daily newspapers (circulation, 260,408) and 56 other newspapers (circulation, 316,740); and (Jan. 1, 1955) 66,002 business and 184,864 residential telephones.

Principal Events, 1955.—Senators Margaret Chase Smith and Frederick G. Payne and Representatives Robert Hale, Charles P. Nelson, and Clifford G. McIntire served as Maine's all-Republican quota in Congress. In Augusta, Edmund S. Muskie was sworn in on January 6 as Maine's 56th governor. After years of talk a state office building was under way at Augusta, to be completed in 1956. A state liquor warehouse was also under construction in the state capital.

At a special election on September 12, voters passed on a bridge bond issue (for a \$1 million bridge over Jonesport Reach to connect Jonesport and Beals Island) and four proposed amendments to the state constitution submitted by the 1955 legislative session. The measures were approved, including an amendment which opened the governorship to naturalized citizens. Indian tribes, wards of the state living on reservations, were permitted to vote in the special election for the first time in history, due to a constitutional amendment approved in 1954.

Economic conditions were generally favorable in 1955, with a record tourist business, high employment in industry, and favorable weather for agricultural production. The Maine Turnpike extension from Portland to Augusta was opened on December 13. The \$55 million, 63-mile extension joins the original 43-mile portion from Kittery.

Legislature and Principal Events by:

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MALAYA, Federation of. This British-protected territory in Southeast Asia (area, 50,850 square miles; mid-1954 pop., 5,888,578) comprises 9 Malay states and 2 British settlements. The colony of Singapore (q.v.) is a separate political entity. The economies of the Federation of Malaya and Singapore are complementary; administration and policy are coordinated by a commissioner general in Southeast Asia (Sir Robert Heathie Scott, appointed May 15, 1955), who holds similar responsibilities with respect to Brunei, North Borneo, and Sarawak (see BORNEO). A high commissioner (Sir Donald MacGillivray, appointed June 1, 1954) heads the administration. The capital is Kuala Lumpur.

On June 30, 1954, the population comprised 2,893,650 Malaysians, 2,216,105 Chinese, 691,431 Indians and Pakistanis, and 87,392 others.

Government.—Under the Federation of Malaya Agreement of Feb. 1, 1948, the central government is

headed by a high commissioner, a 98-member Legislative Council, sitting at Kuala Lumpur, and a 15-member Executive Council. The Legislative Council in 1955 included 52 members elected at the first federal elections held on July 27, 1955 (see below, *Principal Events, 1955*). Authority is also exercised in the various federated units by state and settlement councils, which are legislative

FEDERATION OF MALAYA

Component	Area (sq. mi.)	Pop. (1954)	Capital
Perak.....	7,980	1,152,342	Ipoh
Selangor.....	3,160	877,286	Kuala Lumpur
Negri Sembilan.....	2,580	333,875	Seremban
Pahang ¹	13,820	288,553	Kuantan
Johore.....	7,500	904,691	Johore Bahru
Kedah ²	3,660	664,659	Alor Star
Kelantan.....	5,750	506,117	Kota Bahru
Perlis.....	310	82,976	Kangar
Trengganu.....	5,050	256,994	Kuala Trengganu
Penang ³	400	527,770	George Town
Malacca ⁴	640	293,315	Malacca
Total.....	50,850	5,888,578	

¹ Includes Island of Tioman in China Sea. ² Includes Island of Langkawi and adjoining islands. ³ Penang Settlement comprises Penang Island (110 square miles) and Province Wellesley (290 square miles). ⁴ Malacca Settlement.

bodies having some elected members and which are presided over by *mentris besar* (chief ministers).

Education.—In 1952 education was made free and compulsory, and a new type of national school inaugurated, in which the medium of instruction is either Malay or English, with Chinese and Tamil as subsidiary languages. Enrollment in government and state-aided Malay schools in September 1954 totaled 349,456; in Chinese schools, 251,124; in Indian schools, 44,538; and in English schools, 158,485. There were also a technical college, junior technical (trade) schools, a college of agriculture, and colleges or schools for training teachers, nurses, foresters, and railwaymen.

Finance.—Revenue in 1954 was M\$717,400,000 including M\$318,133,445 from customs (the Malayan dollar = 32.6667 U.S. cents); expenditures, M\$809,300,000. During 1954 the administration received a financial grant of M\$51,400,000 from the United Kingdom and a loan of M\$30 million from the Singapore government toward the cost of fighting Communist terrorism. The government's share of surplus funds of the former Straits Settlement amounted to M\$26,200,000. Surplus funds stood at M\$374,400,000 on Dec. 31, 1954.

Production.—Responding to prices averaging 50 cents (U.S.) per pound, rubber production in the first half of 1955 was at its highest level since the Korean War, accounting for an increase of 15% over the same period in 1954. Total output in 1954 was 582,991 tons. Acres of other crops in 1954 (and production in long tons) were: rice, 845,990 (408,170); coconuts, 92,019 (copra, 164,159; coconut oil, 96,800; coconut cake, 61,568); oil palm, 109,265 (palm oil, 53,950; palm kernels, 14,471); and pineapples, 27,949 (canned pineapples, 23,717). Tea production totaled 4,590,330 pounds in 1954.

Producing about one third of the world's total output, the tin industry ranks next to rubber as a source of Malaya's dollar earnings. Production in 1954 totaled 60,689 long tons of concentrates. Other mineral yields in 1954 comprised 20,955 troy ounces of gold, 1,212,780 tons of iron ore, 224,540 tons of coal, 44,745 tons of ilmenite, and 1,352 tons of China clay (kaolin). Deposits of bauxite and thorium are also worked.

Other primary production in 1954 included 46,371,101 cubic feet of lumber and 109,934 tons of fishery products.

The major manufacture is related to the rubber industry and includes the output of rubber footwear (more than 9 million pairs in 1953), rubber sheeting (1,696,000 pounds), hose (54,000 feet), tubing (600,000 pounds), and rubber compounds (2,170,000 pounds).

External Trade.—During 1954 imports totaled M\$1,318,000,000, compared with M\$1,451,300,000 in 1953; exports were valued at M\$1,626,900,000 (in the year 1953, M\$1,599,900,000).

Trade with Singapore accounted for about 37% of the total, and Commonwealth countries, for 25%. Pan-Malayan exports of rubber in 1954 totaled 915,114 tons; tin exports totaled 70,280 tons.

Communications.—The Malayan Railway (government-owned) operates 1,028 miles of railways, between Singapore and most principal towns in the federation. The main line divides at Gemas; the western route runs via Kuala Lumpur and the chief centers on the west coast, including Penang, and joins the State Railway of Thailand at Pedang Besar. The eastern route also connects, at Sungei Golok, with the Thailand railway. The Public Works Department maintains 6,354 miles of public roads (some 4,000 miles metalled surface). Malayan Airways operates the main internal routes and has services to British Borneo, Indonesia, and Indochina. Seven airlines maintain external services through Singapore. Registered motor vehicles on June 30, 1954, included 48,400 passenger cars, 3,306 taxis, 18,741 trucks, 2,039 buses, and 18,007 motorcycles.

Principal Events, 1955.—Marking a stage in the program of bringing the Federation of Malaya to eventual full self-government was the election of July 27. A quiet and orderly, though vigorously conducted, campaign brought out 80% of the qualified electorate to choose among 128 candidates (104 Malays) for 52 seats forming an elected majority for the first time in the Legislative Council. The Alliance Party coalition (United Malays National Organization; Malayan Chinese Association; Malayan Indian Congress), advocating full self-government for Malaya within the present four-year term of the Legislative Council, and independence within the Commonwealth of Nations soon thereafter, was swept into office by an overwhelming popular vote, winning 51 seats. Its leader, Tunku Abdul Rahman, became chief minister (ranking first in the 15-member Executive Council) in the new government, which was inaugurated with colorful ceremony on Aug. 31, 1955. Ten ministers in the Executive Council (6 Malays, 3 Chinese, and 1 Indian) hold elective posts. Following the visit of the secretary of state for the colonies, A. T. Lennox-Boyd, to the federation in August, it was planned that Alliance Party ministers should visit London early in 1956 to discuss further procedures in connection with independence. Chief Minister Rahman stated on December 24 that the government would welcome a joint approach with Singapore to Britain for immediate self-government.

The campaign against Communist rebels was intensified early in 1955 with the addition of a squadron of paratroopers ordered by the British War Office to augment three paratroop squadrons already on duty in Malaya. New Zealand and Australian reinforcements also were expected, bringing the government forces engaged to a total of 35,000 troops, 50,000 policemen, and 175,000 home guards. By February 1955, acts of terrorism, which numbered about 500 monthly in 1948-49, had been reduced to 100 per month, the Communist guerrillas being then estimated at fewer than 5,000. A proposal of the Communists to negotiate directly was rejected in June on the advice of Lieut. Gen. Sir Geoffrey Bourne, director of operations. The "white" areas (free from emergency restrictions) numbered 28 by September 9, embracing about 2¼ million of the population. On that date a declaration of amnesty came into force, offering forgiveness to

such Communist rebels as laid down their arms and became "law-abiding citizens." Only five surrenders were made in the following week, but a cease-fire was subsequently arranged, following which peace talks began on December 28 between government officials and Chin Peng, secretary general of the Malayan Communist Party. Two days later the talks broke down and Chin Peng announced that: "We will never accept surrender . . . and will continue the struggle to the last man."

DONOVAN ROWSE,
Author and Publicist.

MALDIVIVE ISLANDS. Situated 400 miles southwest of Ceylon, this British-protected Moslem sultanate comprises several hundred coral atolls (aggregate area, 115 square miles), of which about 200 are inhabited. The population was estimated at 95,000 in 1953, including 8,000 on Malé, the capital. A sultanate dating from the 12th century was restored with the election of Mohamed Farid Didi as sultan on Feb. 22, 1954, after about a year of republican government. The islands have few resources. Dried fish, copra, and tortoise shell are exported to Ceylon, and rice, sugar, and flour are imported from that country. Following hurricanes which swept the atolls early in 1955, the Ceylon government responded to a radio appeal made by prime minister Ibrahim Ali Didi, sending 400 bags of flour and 115 tons of rice to the Maldives, which received also cloth and sarongs from the Red Cross, and 100 tons of rice from United Nations Children's Fund allocations.

MALTA. Since 1814 a British colony, Malta comprises the islands of Malta (95 square miles), Gozo (26 square miles), and Comino (1 square mile), and is the base of the British Fleet and of the NATO command in the Mediterranean. The population as of Jan. 1, 1954, was 320,613, including Valetta (19,145), the capital and chief port.

A governor (Sir Robert Laycock, sworn in Sept. 5, 1954) is assisted by a 40-member Legislative Assembly, the latter comprising (after elections held Feb. 26-28, 1955) 23 Labor and 17 Nationalist members; Dominic Mintoff succeeded Dr. G. Borg Olivier as prime minister. In July 1955 the United Kingdom government agreed to confer with Maltese leaders on the question of representation of the colony in the British Parliament.

Revenue in 1954-55 totaled £8,485,728; expenditure, £8,927,435. Educational facilities in 1954 included 112 primary schools (42,623 pupils), 4 secondary schools for girls (886), a lyceum for boys (951), and 3 technical schools (578). Extension of full-time education to all primary school children was to begin in 1955.

Malta's exports, including potatoes, hides and skins, gloves, buttons, hosiery, and tobacco pipes, rose by £200,000 to £2.88 million in 1954. Imports totaled £20.3 million (in 1953, £20.17 million) and included 2.53 million square yards of cotton piece goods, 914 motor cars, cattle, foodstuffs, and metal manufactures. Motor vehicles totaled 12,856 in 1954. Air services connect Malta with Great Britain, France, Italy, Tunis, Tripoli, Egypt, Kenya, Cyprus, the Anglo-Egyptian Sudan, and the Netherlands. The island has one of the world's finest harbors.

MANCHURIA. A region of northeastern China. See CHINA, PEOPLE'S REPUBLIC OF.

MANGANESE. The figures on manganese, shown in the accompanying table, were compiled by the U.S. Bureau of Mines.

MANGANESE IN THE UNITED STATES
(Thousands of short tons)

	1951	1952	1953	1954 ¹
Mine shipments.....	105.0	115.4	157.5	210.0
Metallurgical ore.....	95.3	101.0	140.0	193.0
Battery ore.....	9.8	14.4	17.6	17.0
Imports, general.....	1,767.6	2,668.8	3,501.0	2,166.1
For consumption.....	1,902.9	2,203.5	3,115.0	2,244.1
Available supply ²	2,007.9	2,318.9	3,272.5	2,454.1
Consumption.....	4,892.6	1,809.2	2,195.7	1,713.2
Ferromanganese-made.....	791.3	758.7	907.5	718.7
Spiegeleisen-made.....	77.0	58.7	97.7	30.6

¹ Preliminary. ² Mine shipments plus imports for consumption.

Although imports of ore doubled from 1950 to 1953, they declined 38% from that high level in 1954. A complete import figure may be obtained by adding to the 2,166,144 tons of general imports, 116,088 import tons of the ore equivalent of ferromanganese. Corresponding figures for the first 9 months of 1955 were 1,563,738 and 128,858, respectively. Ore consumption, which had declined greatly in 1954, increased to 1,446,683 tons in the first 9 months of 1955. (See also MINES AND MINING; and for data on output of leading countries, see MINERAL PRODUCTION.)

MANILA TREATY. See SOUTHEAST ASIA TREATY ORGANIZATION.

MANITOBA. The central province of Canada, Manitoba is bounded on the east by Ontario, on the west by Saskatchewan, on the south by the states of North Dakota and Minnesota, and on the north by the Northwest Territories and the 440 mile-shoreline of Hudson Bay. Its area is 246,512 square miles, including 26,789 square miles of water. The population (1951 census) is 776,541 of which approximately 60% is urban; the estimated population for 1955 is 849,000. The capital of the province is Winnipeg, with a population (1951) of 235,710 (1955 est., 390,000). Other cities (1951 populations) are, St. Boniface, 26,342; Brandon, 20,598; Flin Flon, 9,899; and Portage la Prairie, 8,511.

Government.—The crown is represented by a lieutenant governor (Hon. J. S. McDiarmid). The government is headed by Premier D. L. Campbell and consists of 36 Liberal-Progressive members out of a total of 57 seats in the provincial legislature. Manitoba has 14 members in the House of Commons and 6 representatives in the Senate at Ottawa. The legislature opened on Feb. 1, 1955, and prorogued March 31. (See also below, *Principal Events, 1955.*)

Finances.—In 1955 there was a budget surplus of \$218,437 from revenue of \$56,727,947. The anticipated revenue for 1955-56 was expected to be \$58,475,000, and expenditures, \$58,318,564.

Education.—There were 1,722 school districts with 145,222 pupils enrolled during 1953-54, and 126 qualified and 567 permit teachers. Six colleges are affiliated with the University of Manitoba.

Public Health and Welfare.—Under the Manitoba Health Services Act there were 13 local health units in 1955, serving a total population of over 320,000; there were 4 laboratory and X-ray units operating with headquarters at Selkirk, Virden, Dauphin, and Neepawa. Hospitals for mental diseases at Brandon and Selkirk and the Psychopathic Hospital in Winnipeg had 3,686 patients under treatment during 1954. There were 29 general hospitals with 16 or more beds, and 11 with more than 60 beds; 2 contagious diseases hospitals, and 2 for chronic diseases; and 5 sanatoria.

Public Utilities.—Construction was begun in 1955 at the Manitoba Hydro Electric Board's \$26 million Brandon steam generating plant. Four units of the McArthur Falls generating station, on which construction began in 1952, went into operation in December 1954.

Production.—Shipments of grain through the port of Churchill in 1954 totaled 12,484,893 bushels. Output of dairy products amounted to

\$27,694,000; garden products, \$7,680,000; poultry products, \$18,613,000; fur farming, \$1,500,000; and honey, \$616,000. Receipts for field crops, which include only initial payments for wheat, oats, and barley, totaled \$108,334,000; and for livestock, \$48,313,000.

Fisheries production in 1954 amounted to 28,441,500 pounds, with a value to fishermen of \$3,087,959 and a market value of \$5,435,305.

The estimated gross value of manufactured products in 1954 was \$583,268,000, with salaries and wages totaling \$122 million. There were 1,650 establishments, with 50,000 employees.

The estimated value of mineral production in 1954 was \$34,952,541, of which \$19,906,022 represented metals. This total includes approximately 2,090,000 barrels of crude oil, valued at \$5,663,900. There were 282 producing wells in Manitoba's six fields at the end of December 1954. Other minerals are clay products, structural materials, peat moss, and salt.

The estimated value of raw furs collected in 1954 was \$2,879,907; of raw furs exported, \$9,869,174; and of processed furs, \$1,276,828.

Communications.—The government-owned telephone system on Dec. 31, 1954, numbered 199,338 subscribers' stations, with 20,443 miles of pole lines. Exclusive of yard tracks and sidings, there are 5,048 miles of railways. The estimated length of all-weather roads was as follows: gravelled, 8,700 miles; bituminous, 960 miles; and concrete, 105 miles.

Principal Events, 1955.—The Royal Commission appointed to inquire into all phases of liquor legislation and its administration in the province presented its report to the premier on Sept. 3, 1955. It recommended sweeping changes in the liquor laws and their administration, and alcohol education. The Special Select Committee on Redistribution of provincial electoral divisions presented its report to the legislature, and legislation was passed putting its recommendations into effect. First redistribution is scheduled to take place before the next provincial election, slated for 1957. Two by-elections were held on June 27, 1955; one seat was won by the Liberal-Progressives and one by the Progressive Conservatives. There was no change in party standings. The Revised Statutes of Manitoba (1954) came into force on April 1, 1955.

MARJORIE MORLEY,
Manitoba Provincial Librarian.

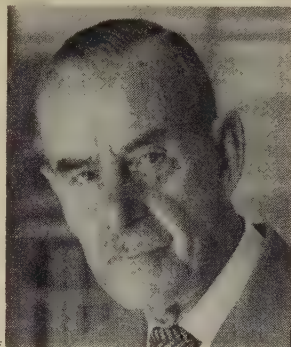
MANN, Thomas, German author; b. Lübeck, Germany, June 6, 1875; d. Zurich, Switzerland, Aug. 12, 1955. Influenced by the Germanic cultural tradition that produced Goethe, Schopenhauer, and Nietzsche, he penned a number of novels and shorter stories contributing to an artistic and intellectual achievement which made him one of the great literary figures of the 20th century.

Born into an old mercantile family, Thomas Mann was both grounded in the solid traditions of the German middle class and endowed by his part Portuguese-Creole mother with a fine sensibility and a lively imagination.

With the death of Thomas' father in 1893, the family moved to Munich, where Mann joined them in 1894 on completion of his schooling. He then attended the University of Munich, where he studied aesthetics and literature. Subsequently he journeyed to Rome and began work on *Buddenbrooks* (1901; Eng. tr. 1924), the publication of which gained him an enthusiastic audience. Incorporating much of the author's family

history and tracing through four generations the disintegration of a prosperous and respected German family, this novel explores with penetrating insight the affinity of physical and spiritual decay. In addition, the novel suggests the broad theme that was continually to occupy Mann: the agonizing conflict between artistic sensibility and middle-class life. There followed a number of shorter works which gave a more powerful and fuller expression to Mann's early romantic and pessimistic aesthetic and spiritual concerns. These included *Tonio Kröger* (1903; Eng. tr., 1914) and *Death in Venice* (1912; Eng. tr., 1925).

Mann's second masterpiece, *The Magic Mountain* (1924; Eng. tr., 1927), won for its author the Nobel Prize in literature in 1929. This complex novel, set in a Swiss sanatorium where the consumptive patients, representing the full scope of human ideology, attempt to convert an average young man to their respective creeds, presents symbolically a panorama of modern European civilization. Other important works of this second period include a prose idyl, *Bashan and I* (1918; Eng. tr., 1923); a short novel of moral



Thomas Mann
(d. Aug. 12, 1955)

COURTESY ALFRED A. KNOPP

chaos, *Disorder and Early Sorrow* (1925; Eng. tr., 1929); and an allegory attacking fascism, *Mario and the Magician* (1929; Eng. tr., 1930).

Despite his earlier insistence that art and life have distinct boundaries to be observed by the artist, Mann was caught up by the political and social issues arising over World War I. In *Reflections of an Unpolitical Man*, published in 1918, he attacked political democracy and defended German authoritarianism, maintaining that it suited the Germanic psychology best. With the advent of the Weimar Republic, however, he made his peace with democracy, although he remained reluctant to participate in German political life.

Following Hitler's rise to power in 1933, Mann went into voluntary exile in Zurich, Switzerland; nevertheless he refused to speak out against Hitler's regime. In 1936, however, when Nazi barbarism had become evident, he became one of its most persistent and effective intellectual foes. Following the revocation of his German citizenship and the banning of his books in 1936-37, he accepted a post as lecturer in the humanities at Princeton University. In the United States, of which he became a citizen in 1944, Mann continued to write and lecture vigorously against nazism. In 1941 he moved to Pacific Palisades, Calif., where he remained until 1953, except for a visit to Germany in 1949, when he was honored at the Goethe bicentennial ceremonies at Frankfurt-am-Main in West Germany and Weimar in East Germany.

Throughout these years, Mann, coming more

and more under the spiritual influence of Goethe, was engaged in the composition of his monumental tetralogy recreating the Biblical story of Joseph. Sixteen years in the writing, the epic comprises *Joseph and His Brothers* (1933; Eng. tr., 1934); *The Young Joseph* (1934; Eng. tr., 1935); *Joseph in Egypt* (1936; Eng. tr., 1938); and *Joseph the Provider* (1943; Eng. tr., 1944). These works, in which the isolated artistic sensibility finally becomes reconciled with humanity, brought to a climax Mann's personal and artistic evolution. Goethe's influence is, perhaps, more strikingly evident in other works of this period, principally *The Beloved Returns* (1939; Eng. tr., 1940), a study of genius, using the visit of Werther's Lotte to Goethe in his old age as its framework; and *Dr. Faustus* (1947; Eng. tr., 1948), a modern version of the Faust legend relating the tragic life of a gifted composer.

Despite his great productivity during his years in the United States, Mann was never completely at ease in that country, the European tradition being too deeply rooted in his nature. Thus in 1953 he returned to Zurich, where, in the last years of his life, he became a symbol of German unity. His final work, *Confessions of Felix Krull, Confidence Man*, an expansion of an earlier fragmentary story about genius' conflict with the world, was critically acclaimed on publication in Germany in 1954, and was published in the United States the following year.

Other works by Mann translated into English include fiction: *Royal Highness* (1909; Eng. tr., 1916); *Stories of Three Decades* (1936; a collection of Mann's shorter works); *The Transposed Heads* (1940; Eng. tr., 1941); *The Holy Sinner* (1951; Eng. tr., 1951); *The Black Swan* (1953; Eng. tr., 1954); and essays and speeches: *This Peace* (1938; Eng. tr., 1938); *The Coming Victory of Democracy* (1938; Eng. tr., 1938); *Order of the Day* (1942; a collection of Mann's political essays and speeches); *Germany and the Germans* (1947; Eng. tr., 1947); *Essays of Three Decades* (1947; a collection of Mann's literary essays).

MANUFACTURING. See **INDUSTRIAL PRODUCTION**.

MAPLE PRODUCTS. Maple sirup production in the United States (by 11 major producing states) in 1955 was estimated at 1,664,000 gallons (December estimate, U.S. Department of Agriculture), as compared with 1,730,000 gallons in 1954. Maple sugar output was 135,000 pounds in 1955, compared with 168,000 a year earlier. Trees tapped numbered 6,708,000, 1.1% under 1954. Leading sirup-producing states in 1955, with estimated output in gallons, were: Vermont, 673,000; New York, 461,000; Pennsylvania, 117,000; Ohio, 113,000; Michigan, 102,000; Massachusetts, 60,000; and New Hampshire, 57,000.

MAPPING. See **CARTOGRAPHY**.

MARCH, Peyton Conway, American army officer: b. Easton, Pa., Dec. 27, 1864; d. Washington, D.C., April 13, 1955. As chief of staff of the U.S. Army during the final eight months of World War I, he succeeded in reorganizing the War Department, unifying the separate armies, and building the American Expeditionary Force (AEF) from 300,000 to over 2,000,000 men, accomplishments which were significant factors in final victory for the Allies.

Peyton March was educated at Lafayette College (B.A. 1884; M.A. 1887) and the U.S. Military Academy (commissioned 2d lieutenant, June 11, 1888). He was graduated from the Artillery School of Fort Monroe in 1898, and served with distinction in the Philippines during the Spanish-American War. In 1899, March returned to the

Philippines as a major in the 33d Volunteer Infantry, and participated in the campaign against the guerrilla forces of Emilio Aguinaldo, the Filipino insurrectionary leader. After March's honorable discharge from the volunteers in 1901, he was appointed captain in the Artillery Corps of the Regular Army. Promotions came consistently, and by September 1917 he had been confirmed as major general in the Regular Army.

With the entrance of the United States into World War I, General March became artillery commander of the AEF on the western front. Despite lack of equipment and insufficient trained officers, he succeeded in quickly organizing the most effective artillery force in the war. He was recalled to the United States in March 1918 to become acting chief of staff under Newton D. Baker, secretary of war. On May 20 he was confirmed as chief of staff and was made a full general. With Germany mounting its last all-out offensive, General March undertook and executed the herculean project that landed over 2,000,000 troops in France by the time of the Armistice. At the same time, under constant congressional fire, the energetic and quick-tempered general reorganized the War Department and consolidated the Regular Army, the National Army, and the National Guard into a single U.S. Army.

Retiring in 1921, General March lived in comparative obscurity until September 1932, when he published *The Nation At War*, a book which became the subject of considerable controversy because of its attack on Gen. John J. Pershing, who had criticized the General Staff in Washington in his book, *My Experiences in the World War* (1931).

MARCUS ISLAND. See **PACIFIC ISLANDS**.

MARGARINE. Factory production of margarine in the United States in 1954 totaled 1,364,339,000 pounds, compared with 1,291,803,000 pounds in 1953, according to the U.S. Department of Commerce. (See also **DAIRY PRODUCTS**.)

MARINE BIOLOGY. Recognition that a host of organic compounds released into sea water by various plants and animals may have a profound effect upon growth rates, abundance, succession, and even the presence or absence of certain species in a marine environment seems to have come into its own in 1955 with two general publications on the subject.^{1, 2}

The background for this relatively new concept has been developing over a period of years, although a few biologists envisioned it some time ago. For example, it has been learned that certain species of marine plankton diatoms need a vitamin or some other organic compound that they cannot make themselves. It was obvious that these substances must be released from other plants or animals in the sea or else these diatoms could not grow. This concept of interdependence has been growing rapidly.

Molds, bacteria, algae, and other plants produce substances called antibiotics, familiar to everyone as a result of their medical applications. Apparently these antibiotics function in nature in controlling or influencing populations of various kinds and serve to give their producers the upper hand against competition. Where there are antibiotics there are also "probiotics" or substances that help other organisms instead of hindering

¹ Lucas, C. E., "External Metabolites in the Sea," suppl. to Vol. 5, *Deep-Sea Research*, pp. 139-148, 1955.

² Johnston, R., "Biologically Active Compounds in the Sea," *Jour. Mar. Biol. Assoc., U.K.*, 34:185-195, 1955.

them. Collectively and with reference to their function in nature, such influential metabolites have been termed "ectocrines."

An example of probiotic activity was reported by Collier, Ray, Magnitzky, and Bell,³ who discovered that oysters will feed only when the concentration of some extremely dilute organic substance reaches a certain level in the water. The source of this substance, why it varies, and how it affects oysters is still unknown, but Wangersky⁴ isolated and partially identified it as a rhamnoside. It is possible that in the absence of this substance (produced by bacteria or algae?) oysters would not be present even though all other conditions were ideal for them.

The establishment and continued maintenance of laboratory cultures of *Gymnodinium brevis*, cause of "red tide" along the Florida gulf coast, have shown that this one-celled plant requires an external source of vitamin B₁₂ and certain other organic substances.⁵ These observations strengthen the theory that river discharge may contribute to red tide outbreaks by supplying certain growth substances at certain times. It is also postulated that decaying fish, killed by the red tide organisms, contribute needed nutrients as bacterial decomposition goes on, and that this prolongs the red tide outbreak. Many other one-celled plankton organisms are now known to have a requirement for organic metabolites.^{6, 7} Even the settling of barnacle larvae is said to be influenced by such substances.⁸

Plankton as Food.—Many calculations and speculations concerning the quantity of plankton in the sea and the possibilities of gathering this vast storehouse of proteins have been made in the past. Dr. Philip Jackson of Scotland has made some realistic observations and calculations.⁹ He concludes that large nets do not seem feasible for the collection of plankton. With reference to a suggestion that the condenser water of large ships be strained, he points out that ships are not designed to permit installation of the necessary equipment.

At an estimated cost of \$4,000 to \$10,000 per dry ton of plankton, none of the methods thus far developed are economically feasible, as this is 50 to 100 times the cost of fish protein. About one million gallons of water are required to produce one pound of dry plankton. Furthermore, not all plankton is nutritious, and some of it is actually toxic.

Fish Populations.—A study of great value to the world's fisheries is Dr. W. E. Ricker's incisive but technical *Stock and Recruitment*.¹⁰ All aspects of the determinants of fish populations are covered. This will serve as an important reference for fisheries biologists who have an open mind and the training needed to follow Dr. Ricker's mathematics and philosophy.

New Animal Subclass.—Discovery of an un-

³ Consult THE AMERICANA ANNUAL, 1953, pp. 420-421.

⁴ Ibid.

⁵ Wilson, W. B. and Collier, A., "Preliminary Notes on the Culturing of *Gymnodinium brevis* Davis," *Science*, 121:394-395, 1955.

⁶ Rice, T. R., *Biotic Influences Affecting Population Growth of Planktonic Algae*, Fishery Bulletin 87, U.S. Fish and Wildlife Service, 1954.

⁷ Droop, M. R., "A Pelagic Marine Diatom Requiring Cobalamin," *Jour. Mar. Biol. Assoc., U.K.* 34:229-231, 1955.

⁸ Knight-Jones, E. W., "Laboratory Experiments on Gregariousness During Settling in *Balanus balanoides* and Other Barnacles," *Jour. Exper. Biol.*, 30:584-598, 1955.

⁹ "Engineering and Economic Aspects of Marine Plankton Harvesting," *Jour. du Conseil*, 20:167-174, 1954.

¹⁰ *Jour. Fish. Res. Bd. Canada*, 11:559-623, 1954.



ALBURTUS—YALE NEWS BUREAU

Newly discovered crustacean subclass, named *Cephalocarida*, magnified in this picture next to a needle for the sake of comparison, is only one tenth of an inch long.

known crustacean in Long Island Sound has led to the establishment of a new subclass (*Cephalocarida*) of the class *Crustacea*, by Dr. Howard L. Sanders. This only known living member of the new class is about one-tenth inch long. It is a link between two other subclasses.

Tuna Research.—During the past year of experimental fishing in the Gulf of Mexico, the U.S. Fish and Wildlife Service exploratory vessel *Oregon* demonstrated the possibilities of an important commercial tuna fishery in the gulf. An 18-day tuna fishing cruise was made in August 1955 in an area about 90 miles south of Mobile and in another area south-southeast of the Mississippi delta. A total of 652 yellowfin tuna weighing 29½ tons were caught. They weighed from 7 to 215 pounds each, averaging about 90 pounds.

Recent studies on the yellowfin tuna in the Pacific have shown that they spawn around Hawaii from May to October. Each female produces from 2 to 8 million eggs at one spawning, and probably spawns more than once a season. The eggs float, and are fertilized in the water.

(See also ZOOLOGY.)

New Books.—An entire book on one plankton species, *Calanus finmarchicus*, is *Biology of a Marine Copepod*, by S. M. Marshall and A. P. Orr (Edinburgh 1955). *The Gulf of Mexico, Its Origin, Waters, and Marine Life* (Fisheries Bulletin 89, U.S. Fish and Wildlife Service, 1954) is a compendium of data on the gulf under many topics by 55 contributors. Enthusiastically received by both biological and physical oceanographers is H. W. Harvey's third book of its type, *The Chemistry and Fertility of Sea Water* (Cambridge University Press 1955). Also of major importance is volume 2 of *Fishes of the Western North Atlantic, the Batoidea*, by H. B. Bigelow and W. C. Schroeder (Sears Foundation for Marine Research, Yale University, 1955).

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MARINE CORPS, U.S. One of the armed services of the United States, the U.S. Marine Corps dates from Nov. 10, 1775, since which time it has fought in over 300 engagements.

Progressing into the nuclear age, the corps has evolved a new design for amphibious operations of the future. Throughout 1955, tactical concepts in keeping with this design were emphasized by the employment of helicopters and

other new developments in training for amphibious assault.

In May 1955, Marines participated in the atomic operations at Desert Rock, Nev., where helicopter-borne troops of a U.S. Marine air-ground experimental force carried out an assault exercise on an objective which had been hit by an actual atomic explosion. This unit applied newly developed principles of offense and defense in atomic warfare.

In the United States and at far-flung overseas bases, ground-air teams of the Fleet Marine Forces stood alert in 1955 for service with the fleet commanders in the two great ocean areas. During 1955, large-scale amphibious exercises were staged in North Carolina, California, and the Far East.

The average strength of the Marine Corps in 1955 was approximately 207,000 officers and enlisted personnel, including about 2,200 women. The corps was commanded by Gen. Lemuel C. Shepherd, Jr., the commandant, who assumed office on Jan. 1, 1952. Lieut. Gen. Randolph McCall Pate was appointed by President Eisenhower to assume four-star rank and the office of commandant, effective Jan. 1, 1956.

The first Marine Corps trainees under the Reserve Forces Act of 1955 were enlisted in September. Men so recruited will serve with the regular establishment for six months and then an additional seven and a half years in the Marine Corps Reserve. Basic training will be conducted at Parris Island, S.C., and San Diego, Calif.

A highlight of 1955 was the redeployment of the 1st Marine Division to the United States in March, after nearly five years' service in Korea—three years of which were spent in front-line combat.

Although the size of the corps diminished somewhat in 1955, the authorized strength remained at three combat divisions and three aircraft wings. One division and one aircraft wing remained in the Far East.

The Marine Corps displayed in 1955 a new armored antitank vehicle called Ontos. Relying on speed and firepower, it carries six 106-mm. recoilless rifles. An all-weather air-support system was also unveiled. The system had been effectively tested in Korean combat. Using radar guidance, it enables planes flying blind and releasing bombs automatically to hit targets with excellent accuracy.

The Marine Corps in 1955 continued its experimental work with and field-testing of lightweight geodesic domes—igloo-shaped hemispheric frames covered by plastic-coated synthetic fabric almost as strong as steel and, except for the largest sizes, fully transportable by helicopter even when fully assembled. These domes are expected to solve many problems of military shelter in the field.

Major U.S. Marine Corps bases in the United States in 1955 were located at Quantico, Va.; Cherry Point and Camp Lejeune, N.C.; Parris Island, S.C.; Miami, Fla.; and El Toro, Camp Pendleton, and San Diego, Calif. In Hawaii, marines were stationed at Kaneohe Bay on the Island of Oahu. They also serve in Japan, on Okinawa, with the various fleets and naval bases, with United States embassies, and at NATO and United Nations installations. (See also NAVAL AFFAIRS.)

(The foregoing article was prepared by Headquarters, U.S. Marine Corps.)

MARITIME COMMISSION, U.S. See MERCHANT MARINE, U.S.

MARRIAGE AND DIVORCE. *Marriage.*—The number of marriages in the United States is at its lowest point in a decade, and there are likely to be still fewer marriages in the years immediately ahead. This is because marriage rates were unusually high during the war and postwar years, and reduced the number of marriageable persons in the population, and because the small generation of depression babies is now reaching marriageable age. In 1940, for example, there were 19 million unmarried males in the United States 15 years of age and over, as compared with 16½ million in 1955. The number of males in the most marriageable age group (20 to 25 years) in the United States fell from 7¼ million in 1945 to about 6½ million in 1955, and will continue to fall until 1957, when the large baby crop of World War II (3,909,000 births in 1953, as compared with 1,500,000 in 1932) begins to come to maturity. By 1965 this group will grow to some 8 million and produce the greatest marriage boom in American history until at least 1975. The trend for girls in the most marriageable age group (18 to 23 years) is similar to that for men.

Death or divorce now ends about 1,076,000 marriages a year, a fifth more than in 1940. In spite of this loss, there is now an annual increase of more than 470,000 married men each year, giving a total of almost 40½ million married men in the United States.

Early marriage has increased in the United States and the Western World since World War II. The economic factor is important, but changing customs are involved as well. Marriage and parenthood now have a larger place in the motivations of youth, and the extreme feminism of liberated Western women has run its course. In the highly individuated cultures, like those of Sweden and Norway, where marriages have been late, the trend is toward earlier marriages. Even in Ireland, where the custom of celibacy dates back to the great famine of a century ago, and where marriage has usually come very late, the age of marriage is earlier than formerly.

The statistical trend of marriage in the U.S. MARRIAGE AND DIVORCE DATA, 1945–55

Year	Marriages			Divorces		
	No. of marriage licenses	Rate per 1,000 pop. ¹	Percentage change	Estimated no. of divorces	Rate per 1,000 pop. ²	Percentage change
1955	1,509,545 ³	9.2	0.0	372,291 ⁴	2.3	0.0
1954	1,476,000	9.2	-6.1	376,300	2.3	-8.0
1953	1,546,000	9.8	-2.0	390,000	2.5	0.0
1952	1,539,318	9.9	-4.8	392,000	2.5	0.0
1951	1,594,694	10.4	-5.5	381,000	2.5	0.0
1950	1,667,281	11.0	3.7	385,000	2.5	-7.4
1949	1,579,789	10.6	-14.5	397,000	2.7	-3.6
1948	1,811,155	12.4	-10.1	408,000	2.8	-6.7
1947	1,991,878	13.8	-15.9	438,000	3.0	-30.2
1946	2,291,045	16.4	34.4	610,000	4.3	22.9
1945	1,612,992	12.2	11.9	485,000	3.5	20.7

¹ Excluding armed forces overseas. ² For 1945–46, based on population including armed forces overseas; for 1947–55, based on population excluding armed forces overseas. ³ Data for 1955 are estimates based on licenses issued during the first five months. ⁴ Estimate based on divorces in 25 states for first five months.

United States is summarized in the accompanying table. It will be seen that the peak year was 1947, following the return of the armed forces, and that the current rate is low by comparison.

Canada had 128,385 marriages in 1954, a rate of 8.5 per 1,000 population, as contrasted

with 10.9 in 1946. The highest marriage rate for 1954 was in Ontario (8.9) and the lowest was in Newfoundland (7.4). For all periods, the Canadian marriage rate has been considerably lower than that of the United States, probably due to Canada's many frontier areas, which are forbidding to women.

Divorce.—Divorce rates have shown very little change in recent years. Since 1948 they have decreased from their postwar peak to a rather stable level, but remain considerably higher than in the prewar period. Although in the United States the peak periods following wars are not retained, the rate never returns to the previous level, and now, as in the past, it may be expected to begin a new gradual rise.

It will be seen from the accompanying table that the peak for divorces was 1946, with a slight decrease in 1954-55.

Divorces in Canada are estimated by the Dominion Bureau of Statistics at 58,000 for 1954, a rate of 0.38 per thousand, much lower than that of the United States and little more than half the peak year 1947, when the Canadian divorce rate was 0.65 per thousand.

PAUL H. LANDIS,
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MARTIN, Glenn L(uther), pioneer American flier and airplane builder: b. Macksburg, Iowa, Jan. 17, 1886; d. Baltimore, Md., Dec. 4, 1955. A pioneer in many phases of aeronautics, from exhibition flying to airplane design, he became one of the largest airplane manufacturers in the United States and the creator of several of the most famous military and civilian planes, including the Clipper flying boats and the B-26 bomber.

After taking a business course at Kansas Wesleyan University, he worked for a time as an automobile mechanic. In 1905 the Martin family moved to Santa Ana, Calif., where Glenn opened a garage and spent his spare time building and flying gliders. With the assistance of his mother, he constructed his first motored biplane, which he flew for the first time in August 1909. In the same year he set up a small airplane factory, one of the first in the United States, and in 1911 he incorporated the Glenn L. Martin Company.

From 1910 to 1912, Martin was one of the world's outstanding airmen, appearing frequently as a stunt flier and racer at exhibitions and fairs throughout the western United States and Canada. At this time he achieved one of the first of many aviation records when, on May 10, 1912, he made the first flight over the ocean by flying a round trip between Newport Bay and Santa Catalina Island. During World War I he built the first armored airplanes for the United States government, as well as the famous model TT used by the army as a training plane. In 1917 he merged his company with the Wright Company, but in the following year withdrew and formed a new Glenn L. Martin Company.

In the decade after World War I some of the advances in aviation design and manufacture for which Martin was responsible were the first plane built specifically for mail service and the first metal monoplane. In the 1930's he introduced the B-10 bomber, the first large twin-engine all-metal monoplane, and designed and built the well-known Clipper flying boats. During World War II his factories turned out large numbers of B-26 Martin Marauder bombers and the U.S. Navy's PBM Mariner flying boat. He retired from active control of the Glenn L. Martin Company in 1953.

The recipient of many awards and honorary degrees, he was awarded in 1933 the Collier Trophy, the aeronautics industry's highest award, and in 1944 the Daniel Guggenheim Medal of the Institute of the Aeronautical Sciences.

MARTINIQUE. An island in the Windward Islands group of the Caribbean Sea, forming an overseas department of France. Area, 425 square miles; pop. (1954 census), 239,130, about 90% of whom are Negroes. French is the official language, although a Creole patois is the popular tongue. Fort-de-France (60,648) is the capital. The department is governed by a prefect aided by an elected General Council of 36 members. Martinique sends 3 deputies and 2 senators to the French Parliament in Paris, and 1 delegate to the Assembly of the French Union. The 1954 budget totaled 5,048.2 million francs. In 1953 there were 170 primary schools (47,230 pupils); 2 lycées (2,141); and 4 professional and technical schools (738).

Production of sugar and related products dominates the economy. The sugar crop in 1954 (prelim.) totaled 87,000 short tons (78,000 in 1953). Other crops are cassava, coconuts, mangoes, citrus fruits, bananas, sweet potatoes, coffee, cacao, tobacco, and vanilla. Industries are chiefly sugar mills, rum distilleries, and factories for the canning of pineapples and bananas. Exports in 1954 totaled 8,289 million francs; imports, 12,699 million. Chief exports were sugar, 62,248 metric tons (3,695 million francs); rum, 16,827; and fresh bananas, 51,041. Martinique has 636 miles of main and local roads. Air France and other lines operate regular services to the island. Passenger cars numbered 5,200 in 1955; telephones, 3,464; and radio receiver licenses, 4,000 (1952).

MARYLAND. Middle Atlantic state, United States; one of the original 13 states. The "Old Line State" ranks 41st in area and 23d in population (1955) among the 48 states.

Area and Population.—Area: 10,577 square miles (land, 9,881; inland water, 696), divided into 23 counties and the independent city of Baltimore. Population: (1950) 2,343,001; (est., July 1, 1955) 2,593,000. Urban places with 1950 populations above 7,500 are as follows:

Annapolis*.....	10,047	Hagerstown.....	36,260
Baltimore.....	949,708	Havre de Grace.....	7,809
Cambridge.....	10,351	Hyattsville.....	12,368
College Park.....	11,170	Mt. Rainier.....	10,989
Cumberland.....	37,679	Salisbury.....	15,141
Frederick.....	18,142	Takoma Park.....	13,341

* Capital; population given excludes that of the U.S. Naval Academy.

Executive.—Chief state officers in 1955:

Governor: Theodore R. McKeldin (Republican)
Secretary of State: Blanchard Randall
Treasurer: Hooper S. Miles
Attorney General: C. Ferdinand Sybert
Supt. of Public Instruction: Thomas G. Pullen, Jr.

Constitution and Judiciary.—The present constitution went into effect in 1867. The highest tribunal, the Court of Appeals, comprises five justices; chief justice in 1955 was Frederick W. Brune.

Legislature.—The General Assembly (Senate, 29 members; House of Delegates, 123) meets in regular session in odd-numbered years commencing the first Wednesday in January, and for a budget session starting the first Wednesday in February of even-numbered years. (See also below, *Principal Events*, 1955.)

The 1955 legislature enacted a budget of \$269 million for the fiscal year 1955-56. It also stiffened adoption laws; substituted the lethal gas chamber for hanging in capital punishment; set up a new state Division of Industrial Safety; revised state income tax laws to include, among other provisions, an increase in corporation income taxes from 4% to 4½% and a decrease in individual income tax exemptions from \$1,000 to \$800; made the use of voting machines mandatory in state elections; and provided for construction of a new toll road to be known as the Northeastern Expressway, run-

MARYLAND

ning northeasterly from Baltimore to the Pennsylvania and Delaware borders.

Four constitutional amendments were proposed for presentation to the voters. The first authorizes the councils of counties adopting a charter form of government to convene for a maximum of 45 days in any one year; the second prohibits the introduction of new bills in either house of the state General Assembly during the last 10 days of a regular session in even-numbered years and in the last 20 days in odd-numbered years; the third provides for recess appointments to be returned to the Senate on the first day of the next regular session; and the fourth requires the governor to submit his budget to the assembly within 20 days after its convening in odd-numbered years.

Finances.—State treasury receipts (1954-55 fiscal year), \$384,168,371.35; expenditures, \$386,080,567.71; treasury cash balance, \$35,263,469.18; bonded indebtedness, \$170,785,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$201,128,640.95, including \$35,004,891.89 from use taxes and a 2% general sales tax; \$47,177,433.41 from individual and corporate income taxes; \$43,569,915.88 from a motor vehicle fuel tax; and \$21,805,869.80 from motor vehicle taxes, fees, and fines. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 57 national banks had \$963,694,000 in assets, \$677,329,000 in demand deposits, and \$210,665,000 in time deposits; the state's 103 other banks had \$1,710,895,685.87 in assets, \$787,033,396.27 in demand deposits, and \$768,228,348.39 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$97,883,408 (\$253.12 per pupil) for public elementary and secondary education in the 1953-54 school year comprised \$59,923,713 from local school districts, \$35,561,124 from the state, and \$2,398,571 from the federal government. Expenditures for construction and improvements totaled \$49,178,643. Teachers' and principals' salaries averaged \$4,093 (in elementary schools, \$4,020; in high schools, \$4,186).

Integration continued in the public schools with only minor incidents during the 1955-56 school year. By Sept. 10, 1955, ten counties had complied with the U.S. Supreme Court ruling.

MARYLAND SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (K-6, 7).....	800	8,803	280,634
Public secondary (7 or 8-12).....	211	6,649	147,658
Private and parochial elementary and secondary.....	338	3,125	86,091
Schools for the handicapped.....	17	144	1,414
Public junior colleges.....	4	100	962
State teachers colleges.....	5	178	2,307

Social Welfare.—Public welfare expenditures from federal and state funds for the 1954-55 fiscal year totaled \$17,383,523, including \$5,728,452 for old-age assistance, \$7,044,520 for dependent children, \$289,485 for the needy blind,

MARYLAND WELFARE INSTITUTIONS (As of June 30, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic..	1	1,714
Hospitals for the mentally ill.....	4	9,475
Sanatoriums for the tubercular (Sept. 7, 1955).....	1	1,164
Schools for the deaf (Oct. 18, 1954).....	1	150
Training schools for delinquent boys.....	2	697
Training schools for delinquent girls.....	2	181
Institutions for defective delinquents.....	1	147
Reformatories for males.....	1	923
Reformatories for females.....	1	165
Prisons.....	1	1,614
Prison camps.....	4	281*
Houses of correction.....	1	2,026

* Included in prison and correction figures.

and \$2,699,169 for the disabled; a monthly average of 45,667 persons received public assistance. Expenditures for the operation of correctional and penal institutions amounted to \$4,187,576.

Labor Force.—The labor force (June 1955) numbered 1,022,700, including 65,000 agricultural workers. Nonagricultural employment was 917,500, and for the full year 1954 averaged 888,267. There were 40,200 unemployed workers in June 1955, and the state paid \$32,845,739 in unemployment compensation benefits during 1954.

Manufacturing.—Establishments numbered 3,201 in 1954. Investment in new plant and equipment in 1953 was \$115,935,000. Earnings of production workers in manufacturing averaged \$68.58 for an average work week of 39.8 hours in 1954 and \$73.54 for 41.1 hours in the first half of 1955.

MAJOR MARYLAND MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output
<i>All manufactures.....</i>	<i>275,000</i>	<i>\$1,315</i>	<i>\$3,855</i>
Food products.....	45,000	147	844
Transportation equipment.....	48,000	286	766
Primary metals.....	31,000	195	409
Machinery.....	31,000	157	353
Chemicals.....	12,000	81	252
Apparel.....	26,000	68	217
Fabricated metals.....	16,000	84	203
Petroleum & coal products.....	3,000	31	156
Paper and pulp.....	7,000	40	111
Textiles.....	8,000	28	106

(Source: *The Blue Book of Southern Progress, 1955.*)

Mining.—Maryland has been one of the few producers of verde antique (serpentine) marble for many years. The state ranked 38th in value of its mineral output in 1953, with 0.19% of the United States total.

MARYLAND MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	671,029	\$ 1,135,495
Coal.....	530,590	2,441,605
Coke ¹	3,268,655	...
Iron, pig ¹	3,753,407	...
Lime.....	71,705	707,736
Natural gas (1,000 cu. ft.).....	1,408,000	268,000
Sand and gravel.....	7,379,511	8,919,088
Stone ²	3,578,249	6,275,124
Other minerals.....	...	7,337,486
Total.....	...	\$27,084,534

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement or lime. (Source: U.S. Bureau of Mines.)

Fisheries.—In 1953, commercial fisheries engaged 8,269 fishermen whose catch comprised 48,781,000 pounds of shellfish valued at \$8,906,000, and 15,931,000 pounds of fish valued at \$1,463,000. Total 1954 value of all species was \$11,100,000, excluding oysters which, between Sept. 1, 1954, and April 30, 1955, amounted to \$8,250,000 for 3 million bushels. Other leading species were crabs, 20,912,000 pounds (\$1,290,000) and striped bass, 2,100,000 pounds (\$524,000).

Agriculture.—Cash farm income in the first half of 1955 totaled \$107,686,000, and for the full year 1954 comprised \$164,563,000 from livestock and livestock products, \$84,001,000 from crops, and \$1,392,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$66,112,000; broilers, \$40,892,000; tobacco, \$21,054,000; eggs, \$17,970,000; and corn, \$10,037,000.

The state's 32,500 farms (3,896,608 acres; harvested cropland, 1,571,744) had an average of 119.9 acres and \$20,396 in value of land and buildings per farm in 1954. There were 22,137

farms with telephones and 30,155 with electricity. Livestock on farms on Jan. 1, 1955, included 540,000 cattle and 3,809,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 65,993 family and hired workers engaged in farming.

MARYLAND CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	1,176	1,485	1,137
Corn (1,000 bu.)	19,489	18,778	18,213
Hay (1,000 tons)	644	621	716
Peaches (1,000 bu.)	480	502	448
Potatoes (1,000 bu.)	1,500	767	903
Soybeans (1,000 bu.)	948	1,998	2,320
Sweet potatoes (1,000 bu.)	1,097	990	1,018
Tobacco (1,000 lb.)	37,919	45,000	35,525
Wheat (1,000 bu.)	6,189	4,972	4,744

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways and roads in 1954 totaled \$59,259,052.24, and newly completed construction and reconstruction aggregated 204.57 miles.

Highways and roads on Jan. 1, 1955, totaled 18,745.52 miles (16,892.52 surfaced). Registered motor vehicles numbered 907,926 on April 1, 1955, including 737,028 passenger cars. There were 13 railroads (1955) operating 1,320 line miles, and 9 regularly scheduled airlines and 106 airports and airfields (26 commercial and municipal, 12 military, and 68 private).

Communications media (1955) included 26 AM and 6 FM radio stations and 4 operating television outlets (3 VHF and 1 UHF); 12 daily newspapers (circulation, 730,352) and 80 other newspapers; and (Jan. 1, 1955) 242,562 business and 624,998 residential telephones.

Principal Events, 1955.—Measures adopted by the General Assembly in 1955 included legislation establishing the withholding of state income taxes and providing for annual property assessments to replace the former five-year and three-year assessment cycles. Also enacted was legislation to implement a recently adopted (1954) home rule amendment to the state constitution. Principal provisions of the enabling legislation relate to procedures for incorporating new municipalities, adopting and amending municipal charters, annexation of territory, and borrowing and issuance of bonds. The effect of these provisions will be to augment local autonomy greatly in municipal affairs.

Constitutional amendments proposed by the assembly, which will be voted on in November 1956 by the electorate, would require earlier submission of the governor's budget to the legislature and make minor changes in legislative procedures (see also above, *Legislature*).

The governor appointed a special 23-member commission to study water resources of the state, and a 12-member body to make recommendations for improving state governmental services and administrative organization.

In the three-year period since the opening of the Chesapeake Bay Bridge on July 30, 1952, 6,082,354 vehicles, carrying 8,810,559 passengers, have crossed the span. Receipts for the 36 months reached \$11,481,367, exceeding by more than \$2,000,000 the estimates originally made in planning for the facility.

On August 13, hurricane Connie swept through major portions of the state, leaving 14 dead and doing an estimated \$4,000,000 worth of damage. Five days later, on August 18, shoreline areas of the state were whiplashed by the somewhat less severe hurricane Diane.

Leading industrial events in 1955 included announcement of plans for a \$100,000,000 steel

plant expansion (Bethlehem Steel Company) near Baltimore City and for a \$15,000,000 cement plant expansion (Lehigh Portland Cement Company) in Carroll County. (See also BALTIMORE.)

Principal Events by: DON L. BOWEN,
Director, Bureau of Governmental Research,
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MASSACHUSETTS. New England state, United States; one of the original 13 states. The "Bay State" ranks 44th in area and 9th in population (1955) among the 48 states.

Area and Population: Area: 8,257 square miles (land, 7,867; inland water, 390), divided into 14 counties. Population: (1950) 4,690,514; (est., July 1, 1955) 4,972,000. Towns (defining civil divisions) and cities with 1950 populations above 15,000 are as follows:

Arlington town	44,353	Methuen town	24,477
Attleboro	23,809	Milford town	15,442
Belmont town	27,381	Milton town	22,395
Beverly	28,884	Natick town	19,838
Boston (capital)	801,444	Needham town	16,313
Braintree town	23,161	New Bedford	109,189
Brookline	62,860	Newton	81,994
Brookline town	57,589	North Adams	21,567
Cambridge	120,740	Northampton	29,063
Chelsea	38,912	Norwood town	16,636
Chicopee	49,211	Peabody	22,645
Danvers town	15,720	Pittsfield	53,348
Dedham town	18,487	Quincy	83,835
Everett	45,982	Revere	36,763
Fall River	111,963	Salem	41,880
Fitchburg	42,691	Saugus town	17,162
Framingham town	28,086	Somerville	102,351
Gardner	19,581	Southbridge town	17,519
Gloucester	25,167	Springfield	162,399
Greenfield town	17,349	Taunton	40,109
Haverhill	47,280	Wakefield town	19,633
Holyoke	54,661	Waltham	47,187
Lawrence	80,536	Watertown town	37,329
Leominster	24,075	Wellesley town	20,549
Lexington town	17,335	W. Springfield town	20,438
Lowell	97,249	Westfield	20,962
Lynn	99,738	Weymouth town	32,690
Malden	59,804	Winchester town	15,509
Marlborough	15,756	Winthrop town	19,496
Medford	66,113	Woburn	20,492
Melrose	26,988	Worcester	203,486

Executive.—Chief state officers in 1955:

Governor: Christian A. Herter (Republican)
Lieutenant Governor: Sumner G. Whittier
Secretary of the Commonwealth: Edward J. Cronin

Treasurer: John F. Kennedy

Attorney General: George Fingold

Commissioner of Education: John J. Desmond, Jr.

Constitution and Judiciary.—The present constitution went into effect in 1780 and was rearranged in 1919. The state's highest tribunal, the Supreme Judicial Court, comprises seven justices; chief justice in 1955 was Stanley E. Qua.

Legislature.—The General Court (Senate, 40 members; House of Representatives, 240) meets annually commencing the first Wednesday in January. The 1955 session, third longest in state history, adjourned on September 16. It appropriated \$324,148,311 (an increase of \$25 million over 1954-55) and \$30 million for new buildings. State bond issues totaling \$90 million were authorized, including \$25 million to repair highways and bridges washed out by floodwaters beginning in August and \$30 million to reimburse cities and towns for losses to public buildings and to make up for losses in local taxes. A \$125 million highway bond bill was defeated by one vote, largely because there was available a \$200 million balance in the highway fund. Temporary taxes yielding \$78 million were extended for one year and the 1954 income tax decrease of 20.5% was canceled. Under a new law, nonresidents working in Massachusetts must pay income taxes at the same rate as residents.

New legislation reorganized the Youth Service Board and gives it increased powers. The board may now attempt to prevent juvenile delinquency, as well as care for those cases already before the courts.

A new penal law liberalizes credits for good conduct, provides for a new classification system for prisoners, sets up a training school for prison officers, and improves the prison industries program.

Other new legislation provides for stiffer penalties for sex criminals, an increase in minimum wages from 75 to 90 cents an hour, group insurance (life and health) for all state employees, with the state paying half the premiums.

Finances.—State treasury receipts (1954-55 fiscal year), \$976,984,225; expenditures, \$997,541,202; treas-

MASSACHUSETTS

ury balance, \$34,770,869; long-term indebtedness, \$550,259,369.

Taxation.—State tax revenue (1954-55 fiscal year): \$319,008,701, including \$112,256,489 from selective sales and gross receipts taxes; \$86,978,206 from individual income taxes; and \$66,804,574 from corporate income taxes. The state has no general sales or property taxes, but does have a poll tax of \$2 per person.

Banking.—As of June 30, 1955, the state's 111 national banks had \$3,353,553,000 in assets, \$2,513,209,000 in demand deposits, and \$464,878,000 in time deposits; the state's 422 other banks had \$9,473,848,126 in assets, \$6,311,023,010 in demand deposits, and \$41,727,798 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Estimated spending of \$175,000,000 (\$251 per pupil) for public elementary and secondary education in the 1954-55 school year comprised \$144,000,000 from local school districts, \$28,000,000 from the state, and \$3,000,000 from the federal government. Expenditures for construction and improvements were an estimated \$40,000,000. Teachers' salaries averaged \$4,045.

MASSACHUSETTS SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary.....	1,692	17,478	477,902
Public junior high.....	104	3,648	88,848
Public senior high.....	216	6,638	128,096
Public and private vocational and special.....	395	3,437	67,226
Public junior colleges.....	2	87	344
State teachers colleges*.....	9	306	4,329

* Including one art school.

Social Welfare.—Public welfare expenditures from federal and state funds for 1955 totaled \$124,632,564, including \$83,152,886 for old-age assistance, \$19,298,228 for dependent children,

MASSACHUSETTS WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic	5	8,249 ¹
Hospitals for the mentally ill.....	12	22,089 ¹
Sanatoriums for the tubercular.....	4	505 ²
Hospitals for crippled children.....	2	229 ²
Schools for the blind.....	1	173 ³
Schools for the deaf.....	4	403 ³
Soldiers and sailors homes.....	2	982 ⁴
Reformatories for males.....	1	610 ⁵
Reformatories for females.....	1	243 ⁵
Prisons and prison colonies.....	2	1,291 ⁶ , 6
County jails and houses of correction.....	16	2,293 ⁷
Farms for prisoners, defectives, delinquents, mental cases, inebriates, drug addicts.....	1	1,595 ⁸
Reforestation camps.....	2	65 ⁸

¹ As of June 30, 1955. ² Aug. 31, 1955. ³ September 1954; pupils attend private schools and tuition is paid by the state. ⁴ Oct. 26, 1955. ⁵ Sept. 3, 1955. ⁶ Prison inmates, 461; colony inmates, 830. ⁷ July 31, 1955.

and \$22,181,450 for other relief measures; a monthly average of 171,638 persons received public assistance. Operating expenditures for correctional and penal institutions: \$5,919,810.

Fisheries.—The commercial catch in 1953 comprised 477,049,000 pounds of fish valued at \$25,534,000 and 32,986,000 pounds of shellfish valued at \$12,312,000. Poundages and values of principal species were: haddock, 133,856,000 (\$10,146,000); scallops, 20,038,000 (\$8,948,000); flounder (except fluke), 38,090,000 (\$4,741,000); and cod, 27,465,000 (\$1,847,000).

Labor Force.—Employment as of mid-August 1955 was roughly estimated at 1,982,000; non-agricultural employment (as of July 1955) was 1,780,400, and for the 12 months ending July 31, 1955, averaged 1,771,000. There were (roughly estimated) 86,000 unemployed in mid-August 1955.

Manufacturing.—Establishments numbered 9,250 in 1953, and investment in new plant and

equipment amounted to \$157,212,000. Earnings of production workers in manufacturing averaged \$65.55 for an average work week of 39.4 hours in 1954, and \$69.43 for 40.6 hours in the first half of 1955.

MAJOR MASSACHUSETTS MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
All manufactures.....	741,457	\$2,743,880	\$4,630,013
Nonelectrical machinery.....	83,382	264,858	624,176
Electrical machinery.....	92,745	342,261	588,864
Textile mill products.....	83,485	284,410	426,169
Leather and leather products.....	74,962	230,668	328,943
Fabricated metal products.....	39,694	161,097	297,120
Paper and allied products.....	34,395	133,686	256,543
Food and kindred products.....	38,450	135,688	254,870
Transportation equipment.....	25,103	118,664	254,202
Apparel and related products.....	58,233	147,703	247,363

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—The state ranked 42d in the value of its 1953 mineral output, accounting for 0.12% of the United States total.

MASSACHUSETTS MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	152,117	\$ 195,809
Coke ¹	849,535	...
Iron, pig ¹	126,763	...
Lime.....	135,383	2,156,205
Sand and gravel.....	7,308,190	5,930,894
Stone ²	3,457,708	8,821,108
Other minerals.....	...	87,330
Total.....	...	\$17,191,346

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$86,181,000, and for the full year 1954 comprised \$126,015,000 from livestock and livestock products, \$62,722,000 from crops, and \$484,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$46,990,000; eggs, \$39,105,000; greenhouse and nursery products, \$21,934,000; broilers, \$16,363,000; tobacco, \$8,759,000; and cranberries, \$6,825,000.

The state's 17,361 farms (1,439,080 acres; harvested cropland, 331,180) had an average of 82.9 acres and \$16,434 in value of land and buildings per farm in 1954. There were 15,519 farms with telephones and 17,019 with electricity. Livestock on farms (Jan. 1, 1955) included 190,000 cattle and 5,526,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 44,039 family and hired workers engaged in farming.

MASSACHUSETTS CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	2,436	2,180	3,300
Corn (1,000 bu.).....	1,656	1,656	1,584
Cranberries (bbl.).....	510,700	590,000	560,000
Hay (1,000 tons).....	532	524	539
Potatoes (1,000 bu.).....	61,758	48,960	64,325
Tobacco (1,000 lb.).....	11,114	11,678	10,847

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways and roads in 1954 totaled \$104,915,270, and construction and reconstruction aggregated 291.759 miles.

Highways and roads on Jan. 1, 1955, totaled 24,741,721 miles (23,692,921 surfaced). Registered motor vehicles numbered 1,500,346 on Aug. 31, 1955, including 1,315,383 passenger cars. There were 9 railroads (1954) operating 1,723.17 line miles and in 1955, 14 regularly scheduled airlines and 117 airports and airfields (51 commercial and municipal, 5 military, and 54 private, and 7 seaplane bases).

Communications media included (1955) 51 AM and 21 FM radio stations and 7 operating television outlets (3 VHF and 4 UHF); 61 daily newspapers (circulation, 1,572,061) and 197 other newspapers; and (Jan. 1, 1955) 528,116 business and 1,298,868 residential telephones.

Principal Events, 1955.—Hurricanes, accompanying heavy rains, and resulting floodwaters devastated large areas of western Massachusetts in August, September, and October. On August 18-19, as an aftermath of hurricane Diane, torrential rains fell, establishing the following records for given lengths of time: 4.05 inches in three hours on August 19; 8.40 inches for 24 hours on August 18-19; and 11.94 inches in a 48-hour period on the same two days. Approximately \$400 million in damage was caused to residential, industrial, business, and other properties. Southbridge was the worst-hit community, suffering some \$20 million in damage, especially to an extensive industrial area, when waters of the Quinebaug River went on the rampage. Berkshire, Franklin, Worcester, Hampshire, and Hampden counties were officially listed as disaster areas, and thousands of families were made homeless and destitute.

Transportation facilities were conspicuous victims of the storm. For more than a week, no through trains were running between Boston and New York. More than 50 miles of the roadbed of the Boston and Albany Railroad into Springfield were washed out, and for almost a month trains for the west were routed over the Boston and Maine.

After August rainfall had set a new record of 17.09 inches—more than 4 inches above that of May 1954, when 13.38 inches fell—above-normal rains continued during September and October. As a consequence floods again occurred (October 14-17) in many cities and towns where work was being carried on in rebuilding roads, bridges, and factories.

A new prison code (see above, *Legislature*) was enacted after a serious prison riot on September 19 at the ancient State Prison in Charlestown, parts of which were erected as early as 1805. Four armed convicts held five guards as hostages for 84 hours, until a committee of citizens, offering some changes in prison rules, interceded to effect release of the guards. Following appointment of a new commissioner of corrections and the strengthening of his powers, prisoners were transferred during November and December to a new \$9 million maximum security prison at Norwalk.

On May 17 the Sterling and Francine Clark Art Institute was officially opened at Williamstown with an exhibit of American, Dutch, English, and French art treasures.

Legislature and Principal Events by:

DENNIS A. DOOLEY,
State Librarian.

MATHEMATICS. The increased importance of mathematics for workers in the physical and social sciences received widespread recognition during 1955. This resulted in a considerable shortage of trained mathematicians in both education and industry, and stimulated high school and college teachers of mathematics in their ef-

forts to provide a modern course of study for their students.

Mathematics for Social Scientists.—The need for advanced mathematics in fields such as psychology, sociology, economics, and geography is being investigated by a committee of the Social Science Research Council, which has recommended that prospective social scientists receive mathematical training in the fields of logic, axiomatics, calculus, matrix algebra, and probability. These subjects are intended to provide the background needed for an understanding of the mathematical models now being constructed as aids to the development of sound theoretical foundations for the social sciences. Since many practicing social scientists do not have this mathematical training, the SSRC sponsored two institutes in the summer of 1955 at which these mathematical subjects were taught. These institutes, which were held at the University of Michigan and at Stanford University, also served as proving grounds for regular courses to be given at a number of universities.

The Undergraduate Curriculum.—The movement to modernize the standard freshman and sophomore curriculum in collegiate mathematics received new impetus from two sources. First, the new curricula developed for the training of mathematicians turned out to be surprisingly similar to those recommended for social scientists as outlined above. On the other hand, the American Society for Engineering Education has expressed its dissatisfaction with the standard curriculum. The number of experimental courses at this level increased quite sharply in 1955, and the curriculum will be in a state of flux for the next few years.

These changes and the general need for more trained scientists have stimulated similar studies by groups of high school teachers. Two significant developments are: (1) the program of the School and College Study of Admission with Advanced Standing, in which college-level courses are taken in high school for college credit; and (2) the appointment by the College Entrance Examination Board of a Commission on Mathematics which will formulate a high school mathematics curriculum agreeable to the schools and colleges concerned, to be used as a basis for the board's examinations.

Manpower Problems.—The shortage of trained mathematicians reached an acute stage in 1955. The supply of new Ph.D.'s was about equal to the number of retirements and resignations from academic positions. Many colleges and universities were unable to fill their increased needs for teachers to handle their booming undergraduate enrollments. The demand for mathematicians in industry increased sharply, partly because of the large-scale installation of high-speed computing machinery.

Research.—Particular recognition of research in applied mathematics was given in 1955 when the Society for Industrial and Applied Mathematics held its first joint meetings with other mathematical organizations. Research symposia in partial differential equations, in statistics, and in topology were held during the summer. Nathan Jacobson of Yale University gave the annual Colloquium Lectures, on "Jordan Algebras," before the American Mathematical Society.

Publications.—Noteworthy books published during the year include: *General Topology*, by J. L. Kelley; *Probability Theory*, by M. Loeve; *The Elements of Probability Theory and Some of Its Applications*, by H. Cramér; and *Higher Transcendental Functions*, vol. 3, edited by A. Erdélyi. The mathematical literature for the

year, including works of book length, is reviewed in volume 16 of *Mathematical Reviews*.

CARL B. ALLENDOERFER,
Executive Officer, Department of Mathematics,
University of Washington; Editor, "The
American Mathematical Monthly."

MAURITANIA. See FRENCH WEST AFRICA.

MAURITIUS. Annexed by Great Britain during the Napoleonic wars, this Indian Ocean colony comprises the island of Mauritius (area, 720 miles) and several scattered dependencies: Rodrigues (40 square miles; pop. est., 13,998 in 1953), Diego Garcia (11 square miles), Salomon Islands (2 square miles), and smaller island groups aggregating 45 square miles. The population, including dependencies, numbers 555,536 (est., Dec. 31, 1954), of whom 362,375 were descendants of Indian immigrants, most others being Creole descendants of 18th century French planters. French is widely spoken, and the French penal system was retained unchanged until the setting up of the first Court of Criminal Appeal in Mauritius on Jan. 1, 1955. Port Louis (pop., 90,978, including suburbs) is the capital and chief port.

A governor (Sir Robert Scott, appointed July 30, 1955) is assisted by an Executive Council and a 34-member Legislative Council. The Mauritius rupee equals U.S.\$0.21. Revenue surplus in 1953-54 was Rs.3,733,951. Estimated revenue in 1955-56 was Rs.142,328,133; expenditure, Rs.151,497,288. The British Treasury is contributing £1,750,000 toward development and welfare programs. The government conducted 79 primary and secondary schools and aided 84 others (75,358 pupils) in 1954; there were also 143 unaided schools.

The colony's principal crop is sugarcane, of which 499,000 metric tons was produced from 186,500 acres in 1954 (512,000 metric tons, from 184,500 acres, in 1953). Production in 1955 was estimated at 500,000 metric tons. Other acreages in 1954 included tea, 2,600 (crop, 519 metric tons); aloe fiber, 18,300; corn, 4,900; and manioc, 800. Rum, soap, matches, and tobacco products are manufactured. Major exports in 1954 were sugar (Rs.258,908,756), molasses (Rs.4,511,647), tea (Rs.591,769), rum (Rs.25,403), and aloe fiber (Rs.25,007). Imports include automobiles, fertilizers, textiles, foodstuffs, machinery, and petroleum products. Railways aggregate 82 miles; highways, 716 miles. Steamships and Air France and Qantas Empire Airways provide external communication.

MEANY, George, American labor leader, b. New York, N.Y., Aug. 16, 1894. For many years a prominent figure in labor's efforts to establish itself as a major factor in democratic government, he was unanimously elected president of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) when the new body was formed in 1955.

Beginning as a plumber's apprentice in 1910, Meany attained journeyman's status in 1915, and by 1922 had become business representative of Plumbers Local Union No. 463, New York. His forceful manner, colorful personality, and first-hand acquaintance with the problems of labor won him the presidency of the New York State Federation of Labor in 1934.

On Jan. 1, 1940, following six successful years as a state leader, he became secretary-treasurer of the American Federation of Labor (AFL), in which capacity he was active in public relations.

He led the postwar fight against participation by United States labor in the Soviet-dominated World Federation of Trade Unions, advocating in its stead affiliation with the anti-Communist International Confederation of Free Trade Unions (founded in 1949).

Elected president of the AFL to succeed the deceased William Green on Nov. 25, 1952, Meany was re-elected in 1953. From the outset one of his primary objectives was the reunification of the United States labor movement, which had been split since 1935, when the Committee for Industrial Organization (CIO; in 1938 renamed Congress of Industrial Organizations) was formed. On Feb. 9, 1955, Meany signed a merger agreement with Walter Reuther, president of the CIO, and on December 5, after AFL and CIO conventions had ratified the agreement on December 1 and December 2, respectively, the new 15 million-member AFL-CIO was officially established, with Meany as its first president. In his address to the founding convention, Meany denied charges that labor was in the process of founding or taking over a political party, but he insisted on workers' rights as citizens to participate "in shaping the policies of our government."

MEAT INDUSTRY. The total slaughter of cattle and calves in 1955 was expected to approximate a new record of 40 million head, 2% greater than in 1954. There were no strong factors evident which would either increase or decrease marketings in 1956.

It appeared likely that market supplies for sheep and lambs in 1956 would be smaller than in 1955. It was expected that the sheep population on Jan. 1, 1956, would be about 30 million head, the second smallest number on record.

There was a big supply of pork in 1955. Production of pork under federal inspection during 1955 was up 13% over 1954. Hog slaughter for the last of October and middle of November 1955 exceeded 1.5 million head, representing an average increase of 23% over 1954.

The American Meat Institute predicted that meat production for 1956 would total about 27.2 billion pounds, slightly over 1955 output. Because population continues to increase significantly, per capita meat consumption in 1956 may decrease slightly from the 1955 figure of 161 pounds. However, the year 1956 would still boast the third largest meat consumption level on record.

U.S. MEAT PRODUCTION AND CONSUMPTION, 1954-56

Item	1956 prospects*	1955 prelim.*	1954 actual
Production (millions of pounds):			
Beef.....	13,450	13,550	12,991
Veal.....	1,600	1,600	1,656
Lamb and mutton.....	700	750	734
Pork.....	11,450	10,950	9,952
Total.....	27,200	26,850	25,333
Per capita consumption (pounds):			
Beef.....	79.4	80.8	79.2
Veal.....	9.4	9.5	9.9
Lamb and mutton.....	4.2	4.5	4.5
Pork.....	67.0	65.7	59.7
Total.....	160.0	160.5	153.3

* Estimates of American Meat Institute.

Sausage production for 1955 was about 5% above 1954. The year's output by federally inspected plants was expected to reach 1.8 billion pounds, exceeded only by the 1945 total of over 1.9 billion. One third of 1955's sausage output were wieners and frankfurters.

Canada.—According to the Dominion Bureau of Statistics, no other major industry in the Dominion spends so high a proportion (84 cents) of its sales dollar for raw materials as does the meat packing industry.

Fresh meat, including poultry, constitutes approximately 58% of the industry's total sales. Next are cured meats, cooked meats, and fresh sausage, representing about 28%. Beef is the largest single fresh-meat item. Of cured meats, bacon and other pork cuts are the leaders.

The Canadian industry is not dominated by any large firms. Of 152 reporting firms, 74 had an annual turnover of a million dollars or more. Distribution of slaughtering and meat packing establishments is as follows: Ontario, 61; Quebec, 36; the Prairie provinces, 33; British Columbia, 11; and the Atlantic provinces, 11.

JOHN CUTTING,
American Meat Institute.

MEDIATION AND CONCILIATION SERVICE, Federal. See FEDERAL MEDIATION AND CONCILIATION SERVICE.

MEDICINE. The year 1955 was another eventful period in the history of medicine. Two Nobel prizes were awarded to scientists for work in fields related to medicine. The conquest of tuberculosis had progressed so far that some hospitals dedicated to the treatment of that disease closed their doors, notably the famous Trudeau Sanatorium near Saranac Lake, N.Y. Vaccination against poliomyelitis was shown to be a practical procedure, although a few unfortunate but unpredictable complications resulted from the use of some early batches of the vaccine.

There was consideration of plans for federal re-insurance support for private insurance companies offering voluntary health insurance, but no such legislation was passed by the 84th Congress in 1955. The Ford Foundation, as a part of its magnificent gift of \$500 million to privately operated hospitals, colleges, and universities (see also EDUCATION), earmarked \$90 million for the 42 non-tax-supported medical schools. In many cases the schools will benefit further from additional grants by the foundation to their affiliated teaching hospitals. Toward the end of the year it was announced in Washington that the administration would ask Congress for an increase in funds for medical research, these to be allocated through the Public Health Service.

Antibiotics.—Based on the decline in fatality rate from certain diseases, it has been estimated that well over a million deaths from infections have been prevented since the introduction of sulfa drugs and antibiotics. The effect of such drugs has been apparent not only in acute infections such as pneumonia, but also in tuberculosis and syphilis, where striking changes in morbidity and mortality have been achieved.

The parade of new antibiotic agents has continued, undiminished. Worldwide search has been in progress now for years, seeking new sources of these valuable medicines. Most are derived from various fungus organisms found in soil. During the past year there have been reports of the preparation of new antibiotics from such microorganisms found in Russia, Sardinia, India and the Philippines, among other geographic sources.

However, microorganisms are not the only manufacturers of antibiotic substances. It is of interest to note the report from India of the preparation of a potentially valuable one from edible mushrooms, which represent the group of large fungi. Preliminary information indicated a pos-

sible use for this antibiotic in the treatment of typhoid fever, where there is definite need for additional effective drugs. Chloramphenicol, the best presently used drug for typhoid infections, at times produces serious toxic effects. Another antibiotic has been prepared from an Australian mushroom.

Perhaps the fact that antibiotics are derived chiefly from fungi explains why it has been so difficult to find compounds which are effective in treating infections due to pathogenic fungus organisms. Several new compounds active against experimental fungus infections in animals were reported at an antibiotics symposium held in Washington in November. Among these were *eulicin*, *amphotericins A and B*, and antibiotic 1968 (the latter known only by its laboratory code name). Another new antifungus antibiotic is known as *filipin* because it was obtained from a newly discovered soil fungus, *Streptomyces filipinensis*, found in the Philippines. Much additional experimental work will be required before usefulness of such compounds in the treatment of the often serious fungus diseases of human beings can be demonstrated.

Physicians frequently in recent years have administered two or more antibiotics for more potent effect, in the treatment of severe infections. A new naturally occurring combination of antibiotic substances has been reported. The combination is called *synergistin* because its fractions A and B have synergistic actions, that is, they are much more effective when administered together than is either fraction used alone. *Synergistin* also still is in the experimental stage.

For several years it has been common practice to include small amounts of antibiotics in the feed of meat animals, with the result that the animals gain weight more rapidly without consuming additional food. A minute amount of *chlortetracycline* (*aureomycin*) applied to poultry after dressing has been found helpful as a preservative, to delay spoilage. The antibiotic is applied in a water bath during chilling of the dressed poultry. The Food and Drug Administration (q.v.) has specified, however, that not more than seven parts per million of the antibiotic may remain on the uncooked meat. It is believed that cooking effectively destroys this small amount of the drug so that there is no danger to a consumer who may be sensitive to *aureomycin*.

Atomic Energy.—The 1955 International Conference on the Peaceful Uses of Atomic Energy (see ATOMIC ENERGY) furnished the first opportunity for free discussion of the medical aspects of the subject. The results of many previously described uses of isotopes in medical research and treatment were reviewed and some newer techniques were discussed.

The use of radioactive tracer atoms in the study of body chemistry and metabolism continues to expand. For instance, the incorporation of carbon-14 into glucose has contributed to the study of diabetes, where glucose metabolism is deranged. Inclusion of radioactive sulfur in a sulfone drug used for the treatment of leprosy furnishes a method of studying the distribution and action of this medicine in the body of patients with the disease. *Terramycin* also has been tagged with carbon-14 for similar purposes.

A new approach to the treatment of tumors has been described. By this technique, instead of administering a radioactive substance to the patient or exposing him to radioactive particles from outside his body, the radioactivity is created in the tumor under treatment.

Patients with certain types of brain tumor have been given boron by intravenous injection. This substance tends to localize in such tumors, and while it is there the tumors are irradiated with a beam of neutrons. Under these conditions the boron atoms capture neutrons, with the result that alpha particles are released for local irradiation. It is understood that a special nuclear reactor is under construction for further development of this and similar techniques.

Iodine-131 has been of great value in the diagnosis and treatment of disorders of the thyroid gland. The effect of this radioactive substance is limited largely to thyroid tissue because the gland takes up most of the iodine of the body. Additional reports have appeared on the use of this method of irradiating and decreasing the activity of the thyroid in patients with severe heart disease. The treatment does not alter heart disease itself, but decreased thyroid function slows down total body metabolism and thus reduces the load on the ailing heart.

During the past year there has been much discussion of the possibility of long-range harmful effects of atomic radiation. The immediately dangerous effects of excessive exposure are well known, and some progress has been made toward counteracting these in experimental animals. However, if an individual survives the immediate dangers of a nuclear blast, he still is subject to possible delayed effects. These have appeared in exposed persons who escaped death at Nagasaki and Hiroshima. Greatly increased incidence of leukemia, depending on the intensity of exposure, is one of the delayed risks in this group.

In addition, some geneticists, reasoning from animal experiments where many generations may be observed, have become increasingly concerned about the danger of unfavorable long-range effects on the human race, by alterations in heredity. They point out that there is slow accumulation of exposure to radioactivity from bomb tests and other sources. If a war should occur, with the use of nuclear weapons, the risks of mutations and hereditary defects would be greatly increased among the descendants of those who survived.

At present there appears to be considerable difference of opinion among responsible scientists concerning the magnitude of the danger to future generations from even the peacetime nuclear weapons program and proposed uses of atomic energy. A United Nations commission to study this problem thoroughly has been advised by the Federation of American Scientists. It has been suggested by others that over a period of years mankind must develop protective techniques to guard against the harmful effects of increasing radioactivity in his environment, just as he has learned to protect himself against other diseases and dangers.

Heart and Circulation.—If any additional stimulus was needed to arouse widespread interest in diseases of the heart and circulatory system, this was provided by the announcement in September 1955 that President Eisenhower had suffered a "heart attack." Hence there has been considerable discussion in the press of disease of the coronary (heart) arteries, coronary occlusion (blockage of a branch of an artery of the heart), and myocardial infarction (damage to an area of heart muscle deprived of adequate blood supply).

Medical scientists for years have been attempting to define the factors which predispose to such attacks, and these apparently are numerous and complex. However, there is wide varia-

tion in the incidence of this type of heart trouble in different parts of the world, and attacks are definitely less frequent among some peoples who consume less fat in their diet than does the average American.

Preliminary reports appeared in 1953 and 1954 of protection of animals from experimental atherosclerosis, and the lowering of blood cholesterol levels in persons on "normal" diets by the administration of plant sterols (sitosterol). Additional studies of this experimental approach to the problem now have been carried out, with encouraging results. It appears that the sitosterol hinders the absorption of cholesterol or fatty substances from the intestinal tract, but the mechanism of its action is not fully understood.

Gratifying improvement has been achieved in the symptomatic management of high blood pressure during the past five years, but the fundamental causes of the most common types of hypertension still are not known. Drugs now are available which may be used for the reasonably effective treatment of many patients. The various preparations of rauwolfia now have achieved particularly widespread usage, because in small dosage this drug produces comparatively few undesirable effects. Other antihypertensive drugs often are combined with it in the treatment of more difficult cases. (See also HEART DISEASE.)

Hormones and Enzymes.—Most of the vital processes of the body are controlled or mediated by hormones and enzymes. Some of the most important advances in the eventful modern era of medicine have been made in the study of these body chemicals. Two 1955 Nobel prizes were awarded for work in this field (see PRIZES AND AWARDS) and several others have been granted for similar work in recent years.

Hormones are made by glands but are released into the bloodstream to control body functions elsewhere. Some are of comparatively simple chemical structure; others, such as ACTH and insulin, are very complex. Vincent du Vigneaud (q.v.) of the Cornell University Medical College, New York, has synthesized two hormones of the pituitary gland, oxytocin and vasopressin, from the posterior portion of the gland. This work won for Dr. du Vigneaud the 1955 Nobel Prize in chemistry. He previously had the leading role in the extremely difficult synthesis of penicillin.

Body cells form numerous enzymes, of complex protein structure, which act as catalysts for the varied chemical reactions of body metabolism. One of the basic chemical processes of living cells is the conversion of food to energy, and enzymes are intimately concerned in the various reactions by which this is accomplished. The Nobel Prize in medicine for 1955 was awarded to Dr. Axel Hugo Thorell (q.v.) of the Nobel Medical Institute in Stockholm for his study of some of the enzymes and associated cellular processes of this type. Sharing one of the earlier Nobel prizes for work in a related field was Dr. Bernardo A. Housay; subsequently he was relieved of his important post at the University of Buenos Aires, for political reasons, by former President Juan Perón. Reinstatement of this eminent scientist has been announced by the new government of Argentina.

Other important advances in hormone chemistry were achieved by the clarification of the structure of ACTH, one of the anterior pituitary hormones, and the synthesis of aldosterone, another hormone of the adrenal cortex. Aldosterone is a "mineral corticoid" concerned with regulation of the excretion of certain salts through the kidneys. A newly recognized disease state was re-

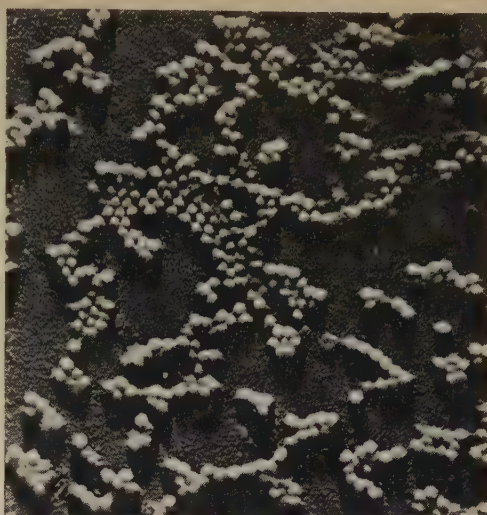
ported in a few patients who had tumors of the adrenal cortex producing excessive quantities of aldosterone. The condition is called primary aldosteronism and is characterized particularly by retention of too much sodium in the body and the loss of excessive amounts of potassium. The potassium loss causes muscle weakness.

Chemically altered forms of "glucocorticoid" hormones of the adrenal cortex, cortisone and hydrocortisone, were described in 1954. Among these, prednisone (first called metacortandracin) and prednisolone (metacortandralone) have been used to the largest extent in clinical medicine. The first is closely related to cortisone, the latter to hydrocortisone. Fluorohydrocortisone also has been used to some extent. These substances are much more potent than the parent compounds so that smaller doses are adequate. However, while there may be some lessening of undesirable side effects with the new drugs, they still are subject to much the same limitations and precautions as the natural hormones. A valuable new freely soluble form of hydrocortisone (hydrocortisone hemisuccinate sodium) has been prepared. It may be injected rapidly intravenously in emergencies, whereas other preparations are poorly soluble and are absorbed relatively slowly after administration by mouth or intramuscular injection.

Infectious Diseases.—The more interesting developments in the study of infectious agents and diseases in 1955 concern viruses. Much publicity was given to the protective effects of polio vaccine and the cases of the disease which probably were caused by live virus in some early batches of the vaccine. A byproduct of the technique for growing polio virus in large quantities, as in the manufacture of the vaccine, was the crystallization of one strain of the virus. Several viruses which cause plant diseases had been crystallized previously. The incidence of polio in the United States as a whole was considerably lower in 1955 than in any year since 1951. Through the first week in December, 28,588 cases were reported, as compared with 37,771 for a comparable period in 1954, and a five-year average of 37,495. It is to be anticipated that there will be progressive decline in the number of cases as vaccination becomes more generally available. (See also BACTERIOLOGY; POLIOMYELITIS.)

The first virus to be crystallized was the one which causes tobacco mosaic disease. Two independent groups of investigators reported in 1955 that they had succeeded in breaking this virus down into inert chemical fractions and then recombining the fractions to produce active virus which could multiply and cause disease. This startling accomplishment has bearing on most basic concepts of life. In the experiments a protein fraction of large molecular weight was separated from nucleic acids of smaller molecular size. Neither fraction was capable of multiplying or causing disease alone. In the virus structure, nucleic acids are believed to run through rods of protein molecules, similar to lead in a pencil. These experiments undoubtedly will lead to new methods of studying viruses and virus diseases. The use of inert virus fractions, instead of intact potentially dangerous virus in vaccines, is one interesting possibility.

A new vaccine against three strains of APC virus, obtained chiefly from the throat and adenoids, and which cause grippelike illness or "colds," is expected to be ready for large-scale trial in the comparatively near future. Preliminary tests of a vaccine made from one strain gave very



WALTER REED ARMY MEDICAL CENTER

First photograph of virus RI-67, showing round shape and cluster formation, will assist in virus identification.

encouraging results. With recent progress in the technique of growing viruses in tissue cultures and preparing new vaccines, the number of protective "shots" available to the average citizen, and especially to children, is apt to increase to uncomfortable proportions.

Milk rich in antibodies is said to have been produced by special vaccination of cows by injecting killed bacteria into their udders. Experiments were reported in which chickens were protected against an infectious disease by feeding them milk from cows vaccinated against the disease. Possible application of this method to human diseases requires investigation because it has not been generally believed that antibodies are absorbed from the intestinal tract. (See also RESPIRATORY DISEASES.)

Malignant Tumors.—Increased emphasis on the search for drugs to control malignant growth is indicated by the formation of the Cancer Chemotherapy National Committee to coordinate the work in this important field into an intensive, integrated program. The committee is sponsored by private and governmental agencies interested in cancer research, as well as by representatives of the drug and chemical industries.

The logical key to the control of malignant growth would be the understanding of factors which initiate and perpetuate this change in cells. Hence much work continues on animals to study the action of chemicals which will cause cancer. Many such carcinogens are known, but the common properties responsible for their ability to initiate malignant growth in cells are not understood.

Chemical agents or irradiation will temporarily control some malignant tumors by interfering with vital metabolic processes or division of the tumor cells. However, malignant cells are extremely adaptable and apparently develop the ability to carry on their vital processes through different channels, and thus become resistant to treatment. The situation is somewhat analogous to the development of resistance to some antibiotics by certain bacteria. Hence it is important to develop and screen all manner of anti-cancer chemicals which may be used in sequence or in combination for more intensive and more permanent therapeutic effect.

Statistical studies indicate that two of the chief factors responsible for increase in cancer of the lung are heavy smoking and the pollution of the air in urban areas. In an interesting investigation, British scientists have pointed out that the death rate from lung cancer among non-smokers is much higher in Liverpool than in a rural area, but that there is little difference between the two areas among heavy smokers. They propose that benzyprylene, which is found both in cigarette smoke and city air, may be the common factor, and an important carcinogen.

The possibility of developing antibodies which might eventually be used to treat specific tumors has been suggested by the experimental production of such antibodies in mice. The detection of some activity of this type in the bodies of patients with malignant tumors also has been reported. This is only one of many experimental observations and approaches which in time may contribute to the solution of the cancer problem.

Additional evidence of the association of viruses with certain types of malignant tumors has been reported. Such association had been demonstrated previously in some malignant diseases of animals, and visualization of virus particles in breast cancer tissue from mice now may have been achieved. In addition, an infectious agent, presumably a virus, which caused disease in newborn mice, has been extracted from tissue of Hodgkin's disease, a malignant tumor of man. There has been considerable suspicion that this disease might be related to a virus but definite proof has not been obtained, nor do the above experiments constitute such proof. Further developments will be of great interest, however.

Work has continued in the effort to develop a diagnostic "blood test" for cancer. Reasonably accurate results have been reported, but no entirely satisfactory test is yet available. (See also CANCER.)

Other Developments.—One of the most interesting and potentially valuable fields of medical research at present has to do with the study of drugs which produce changes in mood and which are helpful in the treatment of some types of nervous disorders and mental conditions. Chlorpromazine (Thorazine) and reserpine (derived from *rauwolfia*) are the two most widely used "tranquilizing" agents at the present time. Both were introduced into medicine for other purposes: chlorpromazine for the control of vomiting, reserpine as one of the best drugs for the treatment of hypertension. Both have complex and little-understood effects in the brain. Chlorpromazine reinforces the antihypertensive effect of reserpine when the two drugs are given together. Jaundice is an occasional complication of treatment with Thorazine. Another new tranquilizing agent, meprobamate, is said also to possess muscle-relaxing properties and to be particularly useful in tension states.

For years drugs have been known which will produce hallucinations and temporary psychotic states. Scientists now are using these "hallucinogenic" drugs, such as lysergic acid (derived from rye fungus) and mescaline (used by Indians in tribal ceremonies), to test the ability of new compounds to prevent the abnormal emotional states. A piperidyl compound (Frenquel) has given protection against the effects of lysergic acid in preliminary human experiments and seems to be capable of blocking certain experimental effects of hallucinogenic drugs in laboratory animals. Frenquel and other new drugs are under study in mental patients, but results are

erratic. However, this new field of "psychopharmacology" is in its infancy and very little is known about the basic causes of mental disease and the action of drugs on the brain. There may be some interaction between serotonin, an important body chemical normally found in the brain, and both the tranquilizing and the hallucinogenic drugs. Much work is sure to follow, and beneficial developments may be anticipated, even if they do materialize only very slowly.

The extremely complex structure of cobalt-containing Vitamin B₁₂, the anti-pernicious anemia vitamin, finally has been clarified by chemists at Cambridge University. Commercial synthesis is not anticipated, however, because it may be prepared from liver or mold cultures.

A new agglutination test, using sheep red blood cells, has been developed and is proving of considerable value in the differential diagnosis of rheumatoid arthritis. Particularly in early stages it may be quite difficult to distinguish among certain types of arthritis.

An inexpensive model of the artificial kidney which is used in emergencies has been constructed. It may serve in place of more expensive and complex apparatus, but the team of doctors and laboratory technicians still will be needed to regulate its use.

A new anesthetic agent, which is a steroid chemical and thus distantly related to important body hormones, has been subjected to clinical trial, apparently with satisfactory results. The compound is called Viadril. It has no known hormone effects.

Aspirin is a versatile drug and has been used for many purposes, but the report that daily doses will discourage the formation of some types of kidney stones came as something of a surprise. The treatment was tried in patients who had been subject to repeated attacks of stones. It is believed the aspirin, in combination with other chemicals, helps prevent the precipitation of calcium salts during their excretion through the kidneys.

(For further information, see the Index entries on *Medicine* and specific diseases and drugs.)

JAMES PAISLEY HENDRIX,
Associate Professor of Medicine and Therapeutics, Duke University School of Medicine.

MELLANBY, SIR Edward, English medical educator and nutritionist: b. West Hartlepool, England, 1884; d. London, England, Jan. 30, 1955. An outstanding contributor to the study of nutrition, he demonstrated that the bone disease, rickets, is caused by the lack of vitamin D in the diet.

Having attended Cambridge University and served as a demonstrator in physiology (1909-11) at St. Thomas's Hospital in London, Mellanby was appointed lecturer in physiology at the University of London in 1913, and shortly afterward was promoted to professor. In 1920 he left the university to become professor of pharmacology at Sheffield University, a post he held until 1933. During these years and after his retirement from Sheffield, he lectured at several British and foreign universities, including Vanderbilt in Nashville, Tenn. (1947). From 1931 to 1933 he was a member of the Medical Research Council, and from the latter year until 1949 he was its secretary. In 1950 he helped found the Central Drugs Institute, a medical research center, at Lucknow, India.

Dr. Mellanby's research, especially in the field of nutrition, led to several important discoveries.

Between 1915 and 1919 he conducted a series of experiments which demonstrated that rickets is caused by an absence in the diet of a sterol which, altered by exposure to ultraviolet light (irradiation), has some control over the rate of calcification. The irradiated sterol later became known as vitamin D. In 1948 he discovered that nitrogen trichloride (Agene), used at that time in bleaching nearly all the bread flour in the United States, was injurious to the nervous systems of small animals. His discovery led to the banning by the U.S. Food and Drug Administration in 1949 of this substance as a flour bleaching agent.

Dr. Mellanby was the recipient of honors from several universities and governments, and was knighted in 1937. He served as chairman of the International Conference for the Standardization of Vitamins in 1931, 1934, and 1949. Besides writing numerous articles on biochemical and physiological subjects, he was the author of *Nutrition and Diseases* (1934) and *A Story of Nutritional Research* (1950).

MELLON INSTITUTE. In pure science, Mellon Institute has been steadily broadening the variety and scope of its researches. These investigations in the fiscal year 1954-55 were conducted by 147 scientists in 6 research departments and on 12 fellowships, for whose support \$1,033,172 was spent. The 64 other fellowships, in applied science, employing 390 specialists and aides, carried on projects of fundamental significance to technology. Publications of the past year included 7 books, 8 bulletins, 50 research papers, and 62 other scientific articles.

Pure Research Activities.—Facilities for micro-analysis, electron microscopy, and electron diffraction have increased the research strength. Investigations in spectroscopy have yielded new knowledge on the structural characterization of molecules. X-ray studies have enriched single-crystal structure analysis and diffraction instrumentation. Useful advancements have been made in rotary and packed thermal diffusion columns and in gas adsorption apparatus for measuring surface area, pore volume distribution, and density of finely divided solids. From research on new instruments have come a revolutionary recording balance, recording friction and surface tension equipment, and other electronic apparatus. Studies of the analytical chemistry of organic sulfur compounds have been quite productive.

The research of the Industrial Hygiene Foundation constantly strives for health maintenance in mining and manufacturing. During the fiscal year 1954-55, 25 environmental surveys or medical audits took the institute's industrial hygienists into 81 plants to evolve health programs. Close attention is accorded to uncovering and defining possible hazards in handling newly available chemicals. Much has been achieved in developing better orthopedic appliances in cooperation with the medical profession.

The program of research in glass science is wide. The largest undertaking, the construction of a laboratory for nuclear and paramagnetic resonance absorption studies, neared completion in 1955. New information has been gleaned from investigations of the mechanical properties of glassy systems and of the physics and chemistry of glass surfaces. In research on properties of synthetic elastomers there has been progress in studies of dynamic mechanical properties, stress-relaxation measurements, tensile strength, and physical testing procedures. Another fellowship

has developed a method of fireproofing a foam rubber. In the program on artists' materials, durable, colorless synthetic resins have been developed to replace natural resins, and a new picture varnish is being evaluated in collaboration with several prominent museums. Three projects in standardization have been finished: government purchasing and competition, company standards in industrial administration, and national standards in technology.

Applied Science Researches.—An electromagnetic flowmeter for liquids has been developed. Rapid strides have been effected in improving selenium rectifiers. A new heat-insulating material has been fully appraised. Structural clay products have been improved. Research has gone forward with success in evaluating castable refractories, and the preliminary phase of a cooperative study of the effect of grinding severity upon residual stresses and fatigue properties of steel has been completed. Much has been attained in developing new welding processes for higher strength alloy steels. Good painting practice for steel structures has been codified in specifications. The preparation of zirconium compounds is under investigation.

Air-pollution investigations are continually under way in laboratories of the Industrial Hygiene Foundation. Other groups are studying the effects of every kind of waste water discharged by steel mills, and the control of acid in coal mines. Long-range researches in petroleum chemistry have yielded much progress in separating and identifying sulfur compounds in crudes, in elucidating engine deposit theory, and in catalysis. Another large fellowship is investigating the basic properties of vinyl and ethylene resins. On a different fellowship, styrol resins have been adapted to specific reinforced plastics applications. The multiple fellowship on silicones has reported a new silicone-base gum, new leather- and textile-treating agents, and a nonwetting, scratch-resistant coating for glassware.

In programs concerned especially with therapeutic agents, preparational methods have been evolved for two drugs utilizable in the treatment of epilepsy and for an antispasmodic agent. There is extensive research on the synthesis of compounds for test in cancer, and of substances with antiviral properties.

WILLIAM A. HAMOR,
Director of Research.

MELONS. See **VEGETABLES.**

MENOTTI, Gian-Carlo, Italian composer-librettist: b. Cadegliano, near Milan, Italy, July 7, 1911. He was awarded the 1955 Pulitzer Prize in music (announced May 2) for his opera, *The Saint of Bleeker Street*. It was the second time he won the award, the first being in 1950 for his opera, *The Consul*.

Arriving in the United States in 1928, Menotti obtained a scholarship at the Curtis Institute of Music in Philadelphia, Pa., where he studied under Rosario Scalero. He was graduated in 1933, was appointed to the institute faculty in 1941, and was promoted to director of the composition department in 1948. While still a student he had begun his first opera, *Amelia Goes to the Ball*, which was produced at the Academy of Music in Philadelphia in 1937, and later at the Metropolitan Opera House in New York City. His next work, another comic opera, was a radio production entitled *The Old Maid and the Thief* (1939). Thereafter he produced a number of highly successful operatic works, including *The Telephone*

and *The Medium*, companion pieces which had a successful Broadway run in 1947 (and which also established Menotti as a dramatist), and *The Consul*, winner of the 1950 Pulitzer Prize.

His prize-winning *The Saint of Bleeker Street*, which treats the recurrent Menotti theme of the conflict between faith and reason, depicts the relations of a sickly girl in New York's Little Italy (who is believed to be a saint) with her inexorably skeptical brother, who tries desperately to prevent her becoming a nun. Besides the Pulitzer Prize, *Bleeker Street* won the New York Drama Critics Circle award for the best musical of 1954, and the Music Critics Circle award for the best opera.

Other works by Menotti include: Variations on a Theme of Robert Schumann (awarded the Lauber Composition Prize, 1931); *The Island God* (opera, 1942); *Sebastian* (ballet, 1944); Concerto for Piano and Orchestra in F Major (1945); Concerto for Violin and Orchestra (1945); *Ricercare* and *Toccata* (for piano, 1947); and *Amahl and the Night Visitors* (opera for television, 1951).

MENTAL HEALTH. See PSYCHIATRY and the Index entry, *Mental Health*.

MENTAL TELEPATHY. See PARAPSYCHOLOGY.

MERCHANT MARINE, U.S. The year 1955 saw a notable start made in the addition of new ships to the American merchant marine. The conversion of three Mariner-type vessels for trans-Pacific service was completed. Four more Mariners being converted for round-the-world service were scheduled for completion at about the end of the year. Two Mariners were being converted to passenger liners for service between the west coast and Australia and New Zealand.

Bids were received on four large passenger ships for the Caribbean and South American trade. Formal agreements were signed by two major steamship companies to replace their entire fleets. This will involve the construction of over 50 ships, at a cost of nearly \$500 million in the next 10 to 20 years.

Under the government's trade-in-and-build program, six new tankers were ordered in 1955. Fourteen old tankers were traded in to the government, to be placed in the reserve fleet.

Applications involving the construction of over 30 roll-on-roll-off type vessels* were made under provisions of the Federal Ship Mortgage Insurance law, through which the government may insure loans made by private financing institutions for new ship construction.

The government also built or placed contracts for the building of a number of merchant vessels adapted for military use. The 35-ship Mariner program was completed. One of these vessels was wrecked, and one was taken by the Navy for conversion to a military type. The others were available for sale to private operators. Nine had been sold, and prospects were good for the sale of a number of others.

The Maritime Administration was completing conversion of 4 Liberty ships taken from its reserve fleets for experimental work. By installing more modern propulsion units and cargo-handling gear and improving the hull lines, it was expected that the speed and efficiency of these vessels could be improved. A program to repair the best of the naval auxiliaries in the reserve fleets

was carried on throughout the year, resulting in the reconditioning of 88 ships to Oct. 1, 1955.

In the year ending Aug. 31, 1955, 11 large ocean-going merchant vessels were built in United States shipyards. On Sept. 1, 1955, there were 13 tankers, an ore carrier, a roll-on-roll-off ship, a cargo ship dock, 2 Mariners, and 2 refrigerated ships, or a total of 20 new ocean-going ships under construction, of which six were being built for the government. In addition there were 10 vessels undergoing conversion, of which 4 were for the government. This was 15 more vessels than were under construction in the preceding year.

On Sept. 1, 1955, there were 1,172 active ocean-going merchant vessels in the United States merchant fleet, of which 1,050 were privately owned and 122 were owned by the government. There were 14 combination passenger-cargo ships, 3 tankers, and 105 freighters in the active government fleet. The private fleet contained 35 combination ships, 345 tankers, and 670 freighters.

The number of government-owned vessels under bareboat charter to private companies was 18, while 39 were assigned to general agents who were operating them on behalf of the Military Sea Transportation Service.

Vessels on which the government was paying operating-differential subsidies numbered 292, 13 more than a year before. Subsidies enabled these ships to compete with lower-cost foreign flag operators on essential United States trade routes.

In addition to ships of the active fleet there were 2,152 inactive ships, of which 2,101 were in the government's National Defense Reserve Fleets. The others were loading grain for storage, undergoing repair and conversion, or waiting for cargoes.

Compared with Sept. 1, 1954, the active and temporarily inactive fleet (excluding the reserve fleet) was smaller by 68 ships. The private fleet had suffered a net decrease of 116 ships, while the government fleet was larger by 48 ships. The government-owned vessels under charter had decreased by 3, while those under general agency had increased by 44. Most of the latter, however, were not active but were being used in the grain storage program. Five additional ships were being used by other government agencies, and two were in custody of shipyards undergoing conversion.

MERCHANT FLEETS OF THE WORLD AS OF JUNE 30, 1955

(Vessels of 1,000 gross tons and over, excluding those on the Great Lakes and inland waterways, and a few special types.)

Country	No. of ships	Deadweight tons
United States*	3,324	35,746,000
United Kingdom	2,531	22,874,000
Norway	1,082	10,332,000
Liberia	429	6,297,000
Panama	510	5,854,000
Italy	585	4,994,000
Japan	610	4,884,000
France	583	4,489,000
Netherlands	520	4,228,000
Sweden	574	3,797,000
Others	4,204	23,708,000
Total	14,952	127,203,000

* Includes 89 ships under other flags.

CLARENCE G. MORSE,
Maritime Administrator.

MERCURY. Production of mercury in the United States increased under the stimulus of advancing prices, from 14,337 flasks (of 76 pounds

* The roll-on-roll-off ship is a fairly new type of vessel which permits loaded trucks, trailers, trains, or other vehicles to enter or leave the ship under their own power, speeding up the time spent in loading and unloading the ship, and cutting cargo handling costs. It was hoped that the construction of a number of ships of this type would help to revive the declining coastwise and intercoastal trade and would provide auxiliaries of a type especially useful to the Defense Department.

each) in 1953 to 18,542 flasks in 1954 and to 8,950 flasks during the first half of 1955. Consumption declined from 52,259 flasks in 1953 to 42,796 flasks in 1954, but a decided gain (37,400 flasks) was recorded for the first half of 1955. The excess of consumption over domestic production is supplied by imports, which reached 85,784 flasks in 1953 (the second highest figure on record), but dropped to 65,316 in 1954 and to 8,166 in the first half of 1955. (See MINERAL PRODUCTION for table showing output by major producing countries.)

METALLURGY. Rising Price of Copper.—An increase of nearly 50 per cent in the price of a major metal within the period of a few months is a noteworthy occurrence, especially during a period of relative stability in commodity markets. The price of copper, which had been unchanged at 30 cents per pound during 1954, rose to 36 cents in March 1955, and to 43 cents at the end of August, with many consumers paying 46 cents or more. A combination of circumstances produced this rise, including a strong industrial demand, an increase in wage costs, and a tight supply aggravated by strikes, government stockpiling, and high prices in Europe, where widespread manufacturing activity was supported by generally prosperous conditions. Copper may now encounter further stepped-up competition from other metals, as well as a growing use of substitutes in some of its principal markets.

Flash Smelting.—An innovation in copper smelting is the flash smelting process developed by the International Nickel Company. Sulfide flotation concentrates are injected with oxygen into a reverberatory furnace, where matte and slag are formed and collect on the hearth. Oxidation of iron and sulfur supplies the necessary heat without use of fuel. A high-grade matte is made with unusually low loss of copper in the slag. The slag loss is minimized by flash smelting pyrrhotite at the skimming end of the furnace. The droplets of molten iron sulfide not only reduce oxidized copper in the slag, but also exert a mechanical cleansing action which washes out much of the entrained matte. The furnace gases contain as much as 75 per cent SO_2 , which is converted to liquid sulfur dioxide. Economically the success of the process depends on low-cost oxygen. The quantity of oxygen consumed is about 0.2 ton per ton of concentrates smelted.

Ductile Chromium.—Research on the problem of producing chromium in ductile form is progressing on a wide front in the United States and elsewhere. At the National Metal Exposition held in Philadelphia in October 1955, a conference on ductile chromium and high-chromium alloys was sponsored by the U.S. Army's Office of Ordnance Research and the American Society for Metals. The plant recently built at Marietta, Ohio, by the Electro Metallurgical Company has been very successful in producing pure chromium on a large scale by an electrolytic method. Another company also is planning production of pure chromium.

Rhenium.—A "New" Metal.—Publication of the results of research carried on at Battelle Memorial Institute has drawn attention to the valuable properties possessed by rhenium. Its melting point, 3180°C ., is nearly as high as that of tungsten. It has a remarkably high density—21.0, as compared with 19.3 for tungsten. Its electrical resistivity is extremely high, and its tensile strength in the annealed condition is 170,000 pounds per square inch. It is very ductile at room

temperature when annealed, and retains fair ductility when cold-worked. It has excellent resistance to corrosion at atmospheric temperature, but oxidizes at high temperature. A peculiarity is the formation of a low-melting and rather volatile oxide, presence of which renders rhenium hot-short unless completely protected.

The process of producing rhenium follows the lines for production of pure tungsten. It begins with preparation of a chemically purified salt, which is then reduced to metal powder with hydrogen. The powder is compacted by pressing, then presintered in hydrogen or a vacuum by passing an electric current through it, heating it to about 2700°C . It can then be swaged, rolled, or forged.

Applications of rhenium are in the field of electronics, especially as a filament in electron tubes; as an electrical contact material; and for pen points. Its present price is of the same order as that of platinum.

Nickel Plating without Electricity.—This method of nickel plating without electric current, first used about two years ago, is being applied to greater extent as the process is improved and its advantages realized. Because of its ability to coat the principal strong aluminum structural alloys, aircraft manufacturers are employing it for many parts. The nickel coating is deposited by chemical reduction of an aqueous solution of a nickel salt in which the piece to be plated is immersed. The reducing agent is usually sodium hypophosphite, and the plating is a hard nickel alloy containing 3 to 7 per cent phosphorus. A principal feature of the process is the uniform thickness of the deposit, regardless of the contour of the surface on which it is plated. Other advantages are good adhesion, greater protection against corrosion, close control of thickness (which is determined by temperature and time of immersion), ability to plate inner as well as outer surfaces, and to plate recessed areas and objects of complex design within close tolerances. There is no build-up at the edges as in electroplating. The unit cost is usually a little higher than in conventional plating.

Among the surfaces to which this type of nickel plating is applied are all types of carbon and alloy steels, copper and copper alloys, many aluminum alloys, and soldered and brazed parts.

(See also ALUMINUM; CHEMISTRY; IRON AND STEEL.)

ALLISON BUTTS,
Head, Department of Metallurgy, Lehigh University.

METALS. See METALLURGY; MINERAL PRODUCTION; MINING.

METEOROLOGY. A brief summary of weather conditions from autumn 1954 through summer 1955 follows:

Autumn 1954.—The autumn season was warmer than average over most of the United States. In the East it was wet because of excessive rains from a series of hurricanes. After hurricane Edna struck a glancing blow at New England in mid-September, Hazel ripped through the Carolinas, Virginia, Pennsylvania, and New York into Ontario in October. In its last stages this vicious storm dumped as much as 10 inches of rain near Toronto, where over 100 persons were killed and extensive flood damage resulted. A little earlier the Chicago area had up to 12 inches of rainfall in 40 hours. Damage was estimated at \$25 million.

Winter 1954-55.—Winter in the Eastern and

Central states was near the average, while the Mountain states and the Southwest were colder than normal. The drought of earlier months continued in the western prairies, but elsewhere precipitation was near normal. Dublin, Ireland, had its worst flood in history in December. On Jan. 2, 1955, a tropical storm occurred, the earliest ever observed in the North Atlantic.

Spring 1955.—The spring season was cold in the West and Northwest, but was generally warm in the eastern half of the United States, even though a record-breaking late freeze struck the deep South in the last days of March, causing \$100 million damage to crops. An estimated 121 persons were killed in tornadoes in Oklahoma, Kansas, Texas, and Missouri on May 25-27.

Summer 1955.—The summer brought the most sustained heat on record to many Eastern and Central states, and drought continued in many sections of the Prairie states. The Eastern seaboard again had excessive rains from hurricanes. In August hurricanes Connie and Diane followed each other within a week on similar tracks through the South and Middle Atlantic states into New England. Unprecedented floods followed rainfalls which totaled 20 inches in many places and caused an estimated 179 deaths. Damage estimates exceeded the \$1 billion mark. Northern India and Hokkaido also suffered from floods, while in the Southern Hemisphere, Argentina had a cold winter with snowfall in Buenos Aires for the first time in 30 years.

Severe Storms.—Complete weather statistics for 1954 for the United States showed, aside from severe drought, a dismal record of disasters:

Type of storm	Number	Lives lost	Damages (in million \$)
Tornadoes	690	35	28
Hail	...	...	72
Hurricanes*	8	193	800
Other storms	...	100	130

* Total death toll from North Atlantic hurricanes in the United States and abroad exceeded 800. Lloyds of London estimated damages at \$.35 billion.

Technical Advances. Storm Research.—Prompted by the heavy storm losses of 1954-55, Congress appropriated funds for the Corps of Engineers for study of protective measures against storm surges, and for the Weather Bureau for research into severe storms and for an improved warning system. New upper-air observing stations and complete coverage of the east coast by

weather radar will be in operation by 1956. In view of the great stake of insurance underwriters in weather disasters, Travelers Insurance of Hartford, Conn., established the first major weather research center outside of academic institutions and government. (See also FLOOD CONTROL.)

Studies on causes and tracks of hurricanes were intensified, and the World Meteorological Organization held a conference on tropical storms in Japan. J. Namias hypothesized that the apparent northwest shift of storm tracks in the Atlantic is due to recent changes in the general circulation, with a northward displacement of the belt of westerly winds. Radar and airplane reconnaissance have disclosed more detail on hurricane structure. Very important seem to be semipermanent precipitation bands and squall lines 50 to 100 miles from the eye of the hurricane. Associated with these are dangerously high winds and thunderstorms.

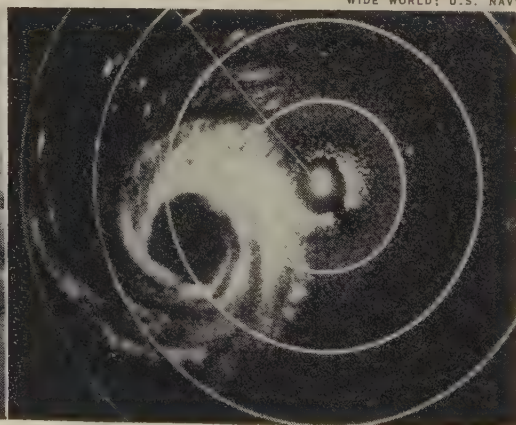
Radar is also often capable of identifying tornadoes. A hook-shaped echo on the scopes has been discovered as the peculiar mark of the twisters. In Texas a tornado-tracking radar network, started with 8 stations in 1954, was expanded to 24 stations in 1955. Warnings from this net have proved valuable in reducing casualties.

Study of 160,000 case histories of histoplasmosis has led the U.S. Public Health Service to suspect tornadoes as spreaders of the fungus causing the disease. Apparently only exceptionally high winds are capable of dislodging the soil-dwelling agent, prevalent in the Midwest, so that it can affect the human respiratory system.

Reconnaissance of storms by rocket as a powerful meteorological tool is foreshadowed by the chance photography of cloud systems of a tropical storm. The pictures were taken on Oct. 5, 1954, from an Aerobee rocket fired at White Sands, N. Mex., when the storm was centered near Del Rio, Texas. The main vortex and several secondaries show clearly in the cloud patterns. (See illustration under PHOTOGRAPHY.) Pictures of this type regularly taken from above would be most helpful in weather analysis.

Telemetered information on cloud cover will be one of the foremost practical aims of the earth satellite vehicle, which is well along in design and planned for launching by the United States during the International Geophysical Year, 1957-58. (See SPACE FLIGHT.) Meteorological rockets

(Left) U.S. Navy jet, at 20,000 feet off the Florida coast, flies through hurricane Connie, whose "eye" is the turbulent area directly to the right of the plane's nose. (Right) Radarscope of year's first hurricane, Jan. 1, 1955.



for lower altitude work have been developed by the U.S. Navy. These Deacon rockets can be launched vertically by airplanes from 30,000 feet above the levels of high air density. This "rock-air" system permits reaching altitudes of 90,000 feet. It supplements the "rockoon" system, in which the rocket is carried to 70,000 feet by a "sky hook" plastic balloon.

Solar Constant.—Rocket-collected spectrographic data have made it possible to obtain a better estimate of the solar constant, that is, the amount of radiation received from the sun at the upper boundary of the earth's atmosphere. At mean solar distance the new value, 3 per cent above older calculations, is given as 2 calories per square centimeter per minute. This new estimate makes the solar illuminance constant 12,700 foot-candles.

Weather Prediction.—In April 1955, numerical weather prediction became operational in the United States. A giant electronic computer has been installed jointly by the Weather Bureau and the military weather services at Suitland, Md. From current upper-air data it predicts the heights of the 900-, 700-, and 400-millibar pressure surfaces. The computations for a 12-hour prediction take about 30 minutes; for a 24-hour prediction, 90 minutes. The forecasts of large-scale motions are quite remarkable. Errors in the mean vector wind predictions average about 10 per cent.

Further development work is directed toward three sources of errors. The first is caused by inaccuracies of data fed into the machine. The second, usually the source of greatest error, is caused by physical assumptions such as the geostrophic wind approximation and the neglect of topographic effects, heat sources, and friction. Mathematically induced errors comprise the third source; these can be kept small and are rapidly being overcome by development of new equations. In areas with a good observational network, subjective analysis of the initial data can soon be replaced by machine calculations. This is desirable because the numerical prediction is based on data located in regular grid fashion, whereas presently observations are taken at irregularly spaced airports and weather stations. By fitting second-degree polynomials with a least square adjustment to the original data, very satisfactory analysis of initial conditions for numerical prediction can be obtained.

Climatic Change.—Much effort has been devoted to the study of climatic change. The cause of terrestrial glaciations has been, according to a new hypothesis of Oepik, a nuclear refueling process on the sun with an initial reduction of radiation by 10 per cent and subsequent fluctuations in solar emissions. The latter have led to alternating warming and cooling. Paleontological evidence has shown that in the last North American interglacial period a moderate climate was prevalent in the midcontinent with temperatures and rainfall comparable to present conditions in coastal Virginia.

The upward trend of temperatures of the more recent past was still discernible in many places of the central and eastern United States. But analysis of past fluctuations has led some meteorologists to predict speculatively that colder winters are again impending in the next decade.

Weather Modification.—The problem of artificial weather modification has entered a phase of critical evaluation. As far as field operations are concerned it has become a problem of statistical analysis. Experimentation has adopted techniques

of randomized seeding of cloud and storm systems which are amenable to modification. This makes probability tests of significance possible. On this basis, essentially negative results were announced by Dr. J. Spar of New York University from Project Scud, carried out under U.S. Navy sponsorship with the purpose of modifying by cloud seeding the development of cyclones on the east coast of the United States. Similarly the Canadian Meteorological Service found no increase of precipitation from cloud seeding in the Canadian plains.

Results of cloud seeding tests in Oregon were compared with rain occurrence probabilities from similar unseeded storms in the past. The conclusion was that on all but one occasion rain would have fallen from the seeded systems naturally. However, the analysis did not disclose whether amounts on specific targets might have been increased.

Several new techniques have been introduced in field experiments. University of Chicago scientists studied cumulus clouds in Puerto Rico. A cloud census disclosed common existence of precipitation from warm clouds forming in the trade wind. Cumuli over sea with tops higher than 11,500 feet always contained precipitation but were lower than the freezing level. Hence, seeding with freezing nuclei is futile. Airborne seeding of such warm cumulus clouds on a randomized basis with water was undertaken. Many of the seeded clouds promptly developed radar echoes, and the statistical tests showed that artificial modification of these clouds was beyond reasonable doubt. No data were available on quantitative increases in rainfall on the ground. As another seeding agent, sulfur trioxide has been used with some success. In field work in Pakistan, finely powdered common salt was injected into the cloud by a small explosion on the ground. Some increase in rainfall was claimed.

The effect of cosmic dust or micro-meteorites, suggested by Bowen as possible explanation for worldwide singularities in rainfall, seems to be a hypothesis unverifiable by facts.

Laboratory investigations have shown that iodine and many of its metal compounds, such as the silver, lead, sodium, potassium, and tin salt, are active freezing nuclei. The nucleating ability is not, as was once postulated, a function of crystal structure, but rather is related to the ability of the solid to adsorb water vapor. Ice crystals are then directly formed by adsorption from the vapor phase. Presence of liquid water at sub-freezing temperatures is not necessary.

In the open atmosphere there is, according to Australian experiments, a rapid decay of silver iodide. The degradation depends critically on ambient temperature and pressure. In 8 minutes, concentration of effective nuclei from ground generators decreased by a factor of 10 down wind. Atmospheric stability in Australia is such that it would take several hours, equivalent to a decay factor of 10 million, for nuclei to reach the level in clouds where temperatures are suitable for silver iodide to become active. In practice this would require prohibitively costly quantities of seeding agent, but release from generators on mountain tops might in some areas be practical.

Nature seems to operate its condensation processes mostly with chlorides and sulfates as nuclei. Measurements in fogs and clouds in New England show that chlorides range from 0 to 100 parts per million, with lowest concentrations far from the coast. Sulfates are present in 7 to 50 parts per million, mostly in acidic form. These

nuclei are possibly sulfur dioxide photochemically oxidized and later hydrolized to sulfuric acid. In some cases ammonium sulfate is the prevalent compound.

Miscellaneous.—Belief in recurrence of certain weather conditions on fixed days of the calendar has been a part of persistent folklore. A few of these so-called weather singularities appear in far more years than chance alone would indicate. In the eastern United States, the January thaw, a warm spell in the third week of January, and a cold snap in the middle of October seem to have significance. To this can be added a rainy spell in Arizona which occurs with considerable regularity around the first of July. It is caused by the usual migration of the westerly jet stream and of a high-level anticyclone northward. This leads to a replacement of dry air by moist air in the Southwest.

The second congress of the World Meteorological Organization, one of the specialized agencies of the United Nations, was held in Geneva, Switzerland, in April 1955. It elected the head of the French weather service, André Jules Armand Viaut, as president. Among its important actions was a resolution to make a worldwide study of the radioactive debris in the air. As an aid to scientific studies and long-range radio communication engineering, the compilation of a series of world maps of thunderstorm occurrence was authorized. With an estimated 40,000 thunderstorms per day on the earth, patterns of distribution are also of interest as a primary mechanism by which the atmosphere dissipates part of the energy received from the sun. As a cooperative project among the nearly 90 member nations and territories, a world climatic atlas is also to be undertaken in the next few years.

H. E. LANDSBERG,

Chief, Climatic Service, U.S. Weather Bureau.

METHODIST CHURCH. A year of unbroken prayer for world peace began with the dawn of 1955. Twenty-four-hour vigils, held in selected churches across the United States, were initiated in the Upper Room Chapel of the Board of Evangelism in Nashville, Tenn.

High interest of Methodists in 1955 centered in the election by 148 annual conferences in the United States and overseas of 754 delegates for the quadrennial General Conference, which was scheduled to meet in Minneapolis, Minn., April 25–May 9, 1956. It will consider, among other matters, full clergy rights for women. Churchwide gatherings during 1955 included an experimental assembly of members of 30 boards and commissions in Cincinnati, Ohio (January 7–14); the quadrennial National Town and Country Conference at the University of Indiana (July 22–25); and the quadrennial National Conference of Methodist Youth at Purdue University (August 22–26), where Paul Bosley of Evanston, Ill., was elected president of the organization.

The church has a total membership of 9,313,278, with 39,854 pastors in the United States alone. Membership in Methodist organizations increased in 1955. Church school enrollment reached 6,811,498; youth organizations, after 12 years of losses, showed a gain of 77,000; and there were more than 500,000 members in 9,000 chartered local organizations of Methodist men.

The Methodist Publishing House, whose business rose to a new high of \$19,609,488, began the erection of an office building adjoining its printing plant in Nashville; and 144 new build-

ing and improvement projects were initiated among the denomination's 199 hospitals and homes, at a cost of \$51,600,000. In 1955, capital gifts of \$30,000,000 were made to the denomination's colleges and universities, in which enrollment reached 200,000. General benevolent gifts increased 8.2% in 1955 over the previous year's total of \$52,481,949. Giving for all purposes reached \$384,490,613, an increase of 11%.

A series of 13 half-hour dramatic television programs costing \$300,000 was produced by the Radio and Film Commission. Collectively entitled *The Way*, the films are a Methodist contribution toward Protestant broadcasting. Two motion pictures were produced by other agencies—one on civil liberties, by the Board of Social and Economic Relations, and another on the alcohol-free way of life, by the Board of Temperance. Circulation of the *Upper Room*, a devotional bi-monthly published in 26 languages and Braille, reached 3,000,000.

The Rev. Dr. Leon M. Adkins of Syracuse, N.Y., succeeded the Rev. Dr. John Q. Schisler as executive secretary of the Division of the Local Church of the Board of Education; and Bishop W. Earl Ledden of Syracuse was named to succeed Bishop Clare Purcell of Birmingham, Ala., on April 26, 1956, as president of the Council of Bishops. The autonomous affiliated Methodist Church of Brazil elected and consecrated two new bishops, the Rev. João Augusto do Amaral and the Rev. José Perdo Pinheiro. Attention on missions was being centered in Sarawak, the Congo, Bolivia, and Korea. Authorities reported that the Methodist Church has more than doubled its strength in the last five years in the latter country.

Deaths of notable Methodists in 1955 included Bishop Lewis O. Hartman of Boston, Mass., on June 30; John R. Mott (q.v.) on January 31; and Mary McLeod Bethune (q.v.) on May 18.

RALPH STOODY,

Executive Director, Commission on Public Relations and Methodist Information of The Methodist Church.

METROPOLITAN AND REGIONAL PLANNING. See CITY PLANNING.

MEXICO. Bordered on the north by the United States, on the west and south by the Pacific Ocean, on the southeast by Guatemala, British Honduras, and the Caribbean Sea, and on the east by the Gulf of Mexico, Mexico has an area of 760,373 square miles and is the third largest country in Latin America.

Population.—As of June 30, 1955, the estimated population of Mexico was 29,675,323. The Federal District which includes Mexico City, has an estimated population (1954 est.) of 3,795,567. Other cities and their 1954 populations are Guadalajara, 382,710; Monterrey, 340,625; Puebla, 229,976; Mérida, 159,405; León, 157,379; and San Luis Potosí, 156,850. Approximately 60% of the population is mestizo, 30% is Indian, and 10% is of European descent. The official language is Spanish, but 50 Indian dialects are spoken.

Government.—Although the constitution (1917) provides for a federal republic with a Federal District, 2 national territories, and 29 states, a large measure of authority rests with the central government. The president (currently Adolfo Ruiz Cortines, who took office on Dec. 1, 1952), elected for one 6-year term by direct vote and forever ineligible for re-election, wields wide legislative powers. The bicameral Congress is composed of 60 senators and 162 deputies, elected for 6- and 3-year terms, respectively, and ineligible for immediate re-election. The judicial power, which never challenges the major policies of the chief executive, lies in a 21-member Supreme Court (each member having life tenure) and in inferior federal and state courts.

Education and Religion.—Free and compulsory education until 15 years of age is guaranteed by the constitu-

tion, but in 1955 only 2,407,000 students out of 5,407,000 were enrolled in primary schools. Another 106,600 students attended 524 secondary schools, while 29,487 future teachers were being trained in 62 normal schools. There were 24,000 polytechnical students attending 31 institutions. During 1954-55, about one third million persons were taught to read and write; however, approximately half of the population was still illiterate.

Roman Catholicism is the dominant religion, but it is strictly controlled by constitutional law.

Finance.—The 1955 budget totaled 5,681 million pesos (1 peso equals U.S.\$0.08). This represented an 853.7 million increase over the previous year, but government income was estimated to reach 7,800 million pesos, permitting a large reduction in the public debt.

As of June 30, 1955, the national debt was 7,788 million pesos, of which 3,277 million represented internal debt; 1,857 million, external debt; and 2,654 million, obligations of Nacional Financiera guaranteed by the government.

General Economic Conditions, 1955.—After its mild recession in 1953-54, Mexico resumed rapid economic progress; in 1954 the national income increased 7% and rose another 10% during the first half of 1955, promising to exceed the national product of 67,000 million pesos for 1954.

A stronger international position was reflected in the \$45.7 million overall favorable balance of payments in June 1955. This compared with a deficit of \$87.6 million in the previous year. Rising prices for minerals, a greater volume of exports, and increased tourist expenditures contributed to this improved situation.

The major obstacle to continuing economic prosperity, however, was the serious threat of inflation. The index of food prices in Mexico City (1929 = 100) had increased from 693.1 in June 1954, to 797.8 a year later. The general price index in mid-1955 was 23% above the pre-devaluation level in March 1954. Labor contracts in 1955 called for further wage increases of approximately 15%.

Withal, the position of labor was enhanced by the organization of the Block of United Workers on March 7, 1955. Representing all Mexican unions except two small leftist groups, the new organization would promote trade union cooperation and counterbalance the growing strength of employers.

Agriculture and Food Production.—Mexico's record harvests of 1954 were surpassed in 1955. The value of overall agricultural production was estimated at approximately \$750 million, an increase of 81% in a period of 10 years. Food imports fell from a total of \$132 million in 1953 to \$98.5 million in 1954 and were negligible in 1955. Harvests of agricultural staples were estimated (after the disastrous storms and floods in September 1955) at 5 million tons of corn, as compared with 4.5 million tons in 1954; 29.4 million bushels of wheat; and 500,000 tons of beans, or 25% more than 1954.

In cash crops, 1,086,693 hectares of cotton were planted (210,693 more than in 1954) with a yield of 2,050,000 bales—more than enough to meet the estimated domestic market (300,000 bales) and export demands (1,640,000 bales). Coffee production of an estimated 1.5 million bags (44 pounds each) provided 1.25 million bags for export. Coffee exports provided Mexico with \$66 million in the first 7 months of 1955. Sugarcane planted on 235,532 hectares of land produced 910,000 tons of sugar, with 180,000 tons for export. Much of this agricultural productivity was due to a vigorous irrigation program. By 1955 a total of 3.1 million hectares were being irrigated.

With an average production of 14.8 million cattle during the last 4 years, Mexico ranks tenth as world producer. In 1955 the total increased to

15.3 million head, a 68% increase, compared with the 3% annual growth of population. In 1954, 4,631 head of cattle valued at 1.6 million pesos were exported, and after the United States quarantine for hoof-and-mouth disease was lifted in January 1955, a total of 203,516 cattle were driven across the border by May 1955.

Industry.—Industrial production, supported by public investments, increased during 1954 and again in 1955. Iron production reached 381,133 tons, and steel, 621,935 tons—increases of 57% and 18.5%, respectively, over the previous year. Automobile assembly plants were permitted to increase their quota to 16,500 units for the second half of 1955, as foreign exchange became more plentiful. Cement production, which was less than 1 million tons in 1954, rose to 1.2 million tons during the first half of 1955. Power and petroleum shortages prevented the industry from producing its annual 3-million-ton capacity.

Petroleum and Mining.—Expansion of the petroleum industry in 1955 was marked by the discovery of 11 new gas and oil wells and the drilling of 354 new wells, 262 of which were successful. Subsoil resources were estimated at 2,758 million barrels. Oil production reached 250,400 barrels a day, of which 77,500 barrels were exported. Total oil production in 1954-55 was 91.4 million barrels; export income from petroleum was 563 million pesos.

In 1954, the production value of minerals was \$228.4 million, as compared with \$253.8 million in 1953. Gold production totaled 386,925,000 troy ounces; lead, 216,624 metric tons; zinc, 223,749 metric tons; copper, 54,806 metric tons; and silver, 1,241 metric tons. Increasing world prices in minerals was accompanied by a recovery of Mexico's mining industry in 1955.

Foreign Trade.—Mexico ended 1954 with its best trade record since 1950, having successfully reduced its imports to \$787.1 million from \$811 million and increased its exports to \$604.7 million from \$561.3 million in 1953. Income from American tourists was \$219 million more than Mexican expenditures for foreign travel, and helped redress the unfavorable balance of trade.

The Mexican trade position improved during the first half of 1955. Exports were valued at \$373.2 million and imports at \$426.3 million during this period. The resulting trade deficit was less than half that for the corresponding period in 1954. While exports of coffee, cotton, petroleum, lead, copper, and zinc (in that order) represented 51.7% of the total, a trend towards greater diversification was apparent. Geographi-

A woman is rescued from her hut by a U.S. Navy helicopter, as Mexico's Caribbean coast is inundated by floods resulting from hurricanes in October 1955.

JAY LEVITON—BLACK STAR



cal distribution of Mexican trade was also increasing, although the United States continued to dominate the market, taking 63.8% of Mexico's exports, and supplying 73.4% of the imports in 1954.

Transportation and Communications.—Approximately a quarter of the 1955 budget was appropriated for communications and transportation. The Secretariat of Communications spent 660 million pesos on highways and feeder roads, and another 313 million pesos for railroads which were being renovated in a 6-year improvement program. There were 14,495 miles of railroad track in 1955. Administrative reorganization of the government-owned Mexican National Railway system accounted for the 63% increase in volume of passengers and freight during 1954-55. During 1953 there were available 37,300 miles of roads and highways, 15,425 of which were usable throughout the year for Mexico's 367,361 motor vehicles (1951 total). Mexico has a well-developed air transport system which links each of the major states with the capital and with other countries.

Principal Events, 1955.—President Adolfo Ruiz Cortines declared in his third annual message to Congress on September 1 that Mexico had been enjoying an atmosphere of political tranquility throughout the year. Elections for the national legislature on July 3 were noteworthy for their complete absence of violence and for the fact that women cast their first ballot. The official Partido Revolucionario Institucional (PRI) was accorded all but 20 of the 162 seats by the Electoral College. A riot involving 3,000 persons in the state of Tabasco was terminated promptly when the unpopular governor, Manuel Bartlett Bautista, who had raised the local bus fares, was relieved of his post at the end of March.

Mexico continued its policy of extending territorial asylum to political refugees. On May 24 the Foreign Office ruled that P. T. Mow, a Nationalist Chinese who was charged by the Formosan government with embezzling \$5 million and who had been imprisoned for 33 months in Mexico City, was entitled to asylum in Mexico, pending trial on a charge of illegal entry into the country. The Guatemalan political refugees who had been granted asylum the previous year were thought to be plotting against the year-old regime of Castillo Armas in July. They were accordingly brought under increased surveillance by the Mexican police.

Since the United States had doubled its patrols along the Mexican boundary in June 1954 to prevent Mexican workers from entering the country illegally, daily arrests had been reduced from 3,000 to 350, while discriminatory treatment by American employers had lessened. The success of these measures was reflected in the increased numbers of migrant labor (some 350,000) who registered legally for temporary employment in the United States. In July the U. S. Congress, despite strong labor opposition, approved a law which authorized the recruitment of seasonal Mexican laborers until June 30, 1959. The law conformed to the recommendations which the United States and Mexico had approved on April 14, looking forward to the conclusion of an improved Migrant Labor Agreement.

Optimistic assessments of Mexico's economy in 1955 had foreseen neither the devastation resulting from hurricanes Hilda on September 19 and Janet on September 28, nor the accompanying floods which washed out crops, roads, and bridges. Tampico (110,000 population) suffered

the most damage. Floods also endangered western Mexico; the states of Jalisco, Michoacán, and Colima were isolated as a result of torrential rains and near cyclonic winds during mid-October. Altogether the storms ruined 5% of the total farmland (750,000 acres), and took more than 300 lives.

MARTIN B. TRAVIS,
Assistant Professor of Political Science, Stanford University.

MICA. The United States is well supplied with scrap mica suitable for grinding into fine powders used in wallpaper, paints, roofing, and other products; but most of the supplies of sheet mica, required by the makers of electric and electronic equipment, are imported. Sales of domestic scrap mica reached about 93,000 short tons in 1954, as compared with 73,259 in 1953. Sales of sheet mica (preliminary estimates) were about 655,000 pounds, as compared with 849,394 pounds in 1953.

Imports of unmanufactured sheet mica totaled only 1,829,457 pounds in 1954, as compared with 2,599,007 pounds in 1953. Imports of films and splittings declined greatly, from 11,092,552 pounds in 1953 to 6,399,562 pounds in 1954. (See also MINERAL PRODUCTION for table showing output of major producing countries.)

MICHIGAN. North Central state, United States; admitted to the Union, Jan. 26, 1837. The "Wolverine State" ranks 22d in area and 7th in population (1955) among the 48 states.

Area and Population.—Area: 58,216 square miles (land, 57,022; inland water, 1,194), divided into 83 counties. Population: (1950) 6,371,766; (est., July 1, 1955) 7,222,000. Urban places with 1950 populations above 15,000 are as follows:

Adrian.....	18,393	Kalamazoo.....	57,704
Ann Arbor.....	48,251	Lansing (<i>capital</i>).....	92,129
Battle Creek.....	48,666	Lincoln Park.....	29,310
Bay City.....	52,523	Livonia.....	17,534
Benton Harbor.....	18,769	Marquette.....	17,202
Berkley.....	17,931	Monroe.....	21,467
Birmingham.....	15,467	Mount Clemens.....	17,027
Dearborn.....	94,994	Muskegon.....	48,429
Detroit.....	1,849,568	Muskegon Heights.....	18,828
East Detroit.....	21,461	Owosso.....	15,948
East Lansing.....	20,325	Pontiac.....	73,681
Ecorse.....	17,948	Port Huron.....	35,725
Escanaba.....	15,170	River Rouge.....	20,549
Ferdale.....	29,675	Roseville.....	15,816
Flint.....	163,143	Royal Oak.....	46,898
Grant Rapids.....	176,515	Saginaw.....	92,918
Hamtramck.....	43,355	St. Clair Shores.....	19,823
Hazel Park.....	17,770	Sault Ste. Marie.....	17,912
Highland Park.....	46,393	Traverse City.....	16,974
Holland.....	15,858	Wyandotte.....	36,846
Inkster.....	16,728	Ypsilanti.....	18,302
Jackson.....	51,088		

Executive.—Chief state officers for 1955:

Governor: G. Mennen Williams (Democrat)
Lieutenant Governor: Philip A. Hart
Secretary of State: James M. Hare
Treasurer: Sanford A. Brown
Attorney General: Thomas M. Kavanagh
Supt. of Public Instruction: Clair L. Taylor

Constitution and Judiciary.—The present constitution went into effect in 1909. The Supreme Court comprises eight justices; chief justice in 1955 was Leland W. Carr.

Legislature.—The Legislature (Senate, 34 members; House of Representatives, 110) meets annually commencing the second Wednesday in January.

Major enactments of the 1955 legislative session included those which authorized state borrowing of not more than \$100 million for loans to school districts for construction and expansion; created a Department of Workmen's Compensation and changed existing compensation provisions; formed a legislative advisory council on aging and a special unit of the Employment Security Commission to find work for persons over 65; and developed a new system of payments for foster care of children. Other bills extended social security coverage to school and public employees; appropriated \$5 million in supplementary funds for public assistance; increased the gasoline and liquefied petroleum tax by 1½ cents and weight taxes on commercial vehicles; created a highway

construction fund within the state treasury; amended the Uniform Support Act; passed a deficiency appropriation bill of \$3,025,760.31 for the 1954-55 fiscal year; wrote a School Code; established a Fair Employment Practice Commission; provided for payment of a Korean War bonus; and appropriated \$2 million for polio vaccine for "high risk" groups.

At a special session, opened on November 1 and continuing through December, the legislature authorized Michigan's first maximum speed law; added 200 men to the state trooper complement; authorized appropriation of \$177,500 to set up a traffic safety center at Michigan State University; and made \$13.5 million available to local school boards to raise the salaries of teachers and other school employees.

Finances.—State treasury funds (1954-55 fiscal year), \$1,128,694,089.21; expenditures, \$1,095,726,057.53; treasury balance, \$154,402,104.95; long-term indebtedness, \$248,111,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$645,877,000, including \$450,099,000 from a 3% general sales tax and selective sales and gross receipts taxes; \$119,642,000 from licensing; and \$34,969,000 from property taxes. The state has no individual or corporate income taxes or a poll tax.

Banking.—As of June 30, 1955, the state's 79 national banks had \$4,052,537,000 in assets, \$2,527,649,000 in demand deposits, and \$1,244,242,000 in time deposits; the state's 343 other banks had \$4,830,063,975.47 in assets, \$1,783,480,389.76 in demand deposits, and \$1,772,745,864.32 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 16, inclusive. Operating expenditures of \$352,362,250 (\$281.07 per pupil) for public elementary and secondary education in the 1953-54 school year comprised approximately \$115,401,414 from local school districts, \$191,667,712 from the state, and \$1,500,000 from the federal government. Expenditures for construction and improvements totaled \$107,753,570. Teachers' salaries averaged \$4,172.

There were (1953-54) 5,333 public elementary schools (kindergarten to grades 6 or 7), with 27,147 teachers and 830,272 students; 765 public secondary schools (grades 7-12), with 16,810 teachers and 423,331 students; and numerous private and parochial elementary schools with 5,394 teachers and 220,189 students.

Social Welfare.—Public assistance expenditures from state and federal funds in the 1954-55 fiscal year totaled \$96,705,572.67, including \$50,090,735.50 for old-age assistance, \$26,174,191.40 for dependent children, \$1,353,361 for the needy blind, and \$1,819,253 for the disabled; a monthly average of 147,723 persons received public assistance. Expenditures (1953-54) for health and welfare institutions totaled \$84,776,000; for correctional and penal institutions, \$12,313,000.

MICHIGAN WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic	5	8,578 ¹
Hospitals for the mentally ill	6	16,430 ¹
Institutions for the criminally insane	1	1,407 ¹
Sanatoriums for the tubercular	5	596 ²
Schools for the blind	1	250 ³
Schools for the deaf	1	430 ³
Veterans facilities	1	983 ⁴
Training schools for delinquent boys	1	404 ⁵
Training schools for delinquent girls	1	265 ⁵
Reformatories for males	1	1,560 ⁶
Prisons for women ⁷	1	337 ⁸
Prisons	3	6,073 ⁸
Prison farms	7	59 ⁴
Prison camps	10	84 ⁴

¹ As of Aug. 31, 1955. ² Aug. 19, 1955; includes 70 patients in U. of Michigan tuberculosis unit. ³ Oct. 30, 1955. ⁴ Sept. 13, 1955. ⁵ June 30, 1955. ⁶ Sept. 30, 1955. ⁷ Women state prisoners are housed in Detroit House of Correction.

Labor Force.—The labor force on Aug. 15, 1955, numbered 2,841,000, including 183,000 agricultural workers. Nonagricultural employment was 2,524,000, and for the 12 months ending Aug. 15, 1955, averaged 2,490,000. There were 130,000 unemployed workers on Aug. 15, 1955, and the state paid \$106,730,254 in unemployment

compensation for the year ending Aug. 25, 1955.

Manufacturing.—The number of manufacturing employees in 1954 averaged 1,082,000. Investment in new plant and equipment in 1953 was \$708,306,000. Earnings of production workers in manufacturing averaged \$87.84 for an average work week of 40.8 hours in 1954, and \$91.69 for 41.6 hours in the first half of 1955.

MAJOR MICHIGAN MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
<i>All manufactures</i>	<i>1,231,334</i>	<i>\$5,919,426</i>	<i>\$9,781,647</i>
Transportation equipment	476,137	2,222,844	3,726,365
Nonelectrical machinery	188,518	1,027,581	1,650,895
Fabricated metal products	123,640	600,383	929,830
Primary metal industries	89,007	460,448	789,953
Food and kindred products	49,165	194,605	434,480
Chemicals and allied products	38,448	188,456	432,630
Paper and allied products	31,670	140,446	259,404
Printing and publishing	22,623	108,569	179,780
Stone, clay, glass products	19,262	81,868	171,667
Electrical machinery	22,333	94,059	161,713
Furniture and fixtures	22,425	89,831	150,727

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures, 1953*.)

Mining.—In 1953 Michigan ranked first among the states in production of gypsum, marl, and salt, and second in iron ore, sand and gravel, and bromine. It ranked 14th in the value of its mineral output in 1953, with 1.99% of the United States total. There were 15,000 persons employed in the state's mineral industries in 1954.

MICHIGAN MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.)	15,853,096	\$ 41,860,464
Clays	1,645,804	1,686,113
Coke ¹	3,220,133	49,518,010
Copper	24,097 ²	13,831,678
Gypsum	1,446,973	4,091,002
Iron ore (long tons)	13,312,766 ³	94,691,612
Iron, pig ¹	2,471,789	
Natural gas (1,000 cu. ft.)	7,774,000	1,275,000
Petroleum (bbl.)	12,285,000	35,870,000
Salt	5,127,387	22,171,988
Sand and gravel	30,459,663	23,170,802
Stone ⁴	21,615,686	17,639,525
Other minerals		30,198,651
Total		\$286,486,835

¹ Value for processed materials are not included in the total. ² Production in 1954: 23,350 tons. ³ Production in 1954: 9,581,000 long tons. ⁴ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Fisheries.—The commercial fish catch in 1954 was valued at \$3,223,173.95. Poundages and values of principal species were: lake trout, 1,609,144 (\$691,931.92); whitefish, 1,356,402 (\$610,380.90); and chubs, 3,483,013 (\$606,044.26). Commercial fishermen numbered 1,211 as of Dec. 31, 1954.

Agriculture.—Cash farm income in the first half of 1955 totaled \$292,153,000, and for the full year 1954 comprised \$392,996,000 from livestock and livestock products, \$270,929,000 from crops, and \$5,739,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$179,672,000; cattle, \$76,210,000; wheat, \$59,077,000; hogs, \$53,700,000; eggs, \$45,964,000; greenhouse and nursery products, \$26,996,000; beans, \$26,821,000; and corn, \$26,434,000.

The state's 138,922 farms (16,466,750 acres; harvested cropland, 7,659,696) had an average of 118.5 acres and \$15,466 in value of land and buildings per farm in 1954. There were 92,968



UNITED PRESS

UAW President Reuther (right) shakes hands with General Motors Vice President Anderson in Detroit, following agreement of June 18, 1955, guaranteeing unemployment pay.

farms with telephones and 136,060 with electricity. Livestock on farms on Jan. 1, 1955, included 2,003,000 cattle, 418,000 sheep, 818,000 hogs, and 11,274,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 262,880 family and hired workers engaged in farming.

MICHIGAN CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	6,929	6,000	6,400
Beans, dry edible (1,000 bags)	3,779	3,295	4,668
Cherries (tons)	68,980	57,900	80,500
Corn (1,000 bu.)	65,268	83,028	89,271
Grapes (tons)	31,650	46,000	23,000
Hay (1,000 tons)	3,552	3,736	3,324
Maple sirup (1,000 gal.)	90	128	102
Oats (1,000 bu.)	52,736	55,497	67,436
Peaches (1,000 bu.)	3,744	2,550	2,150
Potatoes (1,000 bu.)	14,252	9,800	7,790
Soybeans (1,000 bu.)	1,775	3,476	3,335
Strawberries (1,000 crates)	927*	700	990
Sugar beets (1,000 short tons)	633	771	862
Wheat (1,000 bu.)	31,516	30,385	28,914

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$69,366,000, and newly completed construction and reconstruction aggregated 5,662 miles. A decision of the state Supreme Court on Dec. 1, 1955, authorized construction of a 113-mile, north-south turnpike from Rockwood to Saginaw.

Highways and roads on Jan. 1, 1955, totaled 107,734 miles (93,283 surfaced). Registered motor vehicles numbered 3,347,710 on Sept. 30, 1955, including 2,657,094 passenger cars. There were 32 railroads (1955) operating 6,954 track miles and 11 regularly scheduled airlines and 240 airports and airfields (137 commercial and municipal, 5 military, and 98 emergency).

Communications media included (1954) 73 AM and 23 FM radio stations and 16 operating television outlets (11 VHF and 5 UHF); (1955) 56 daily newspapers (circulation, 4,332,713) and 295 other newspapers (circulation, 691,469); and (Jan. 1, 1955) 651,727 business and 1,838,687 residential telephones.

Principal Events, 1955.—The year was marked by very high production in the automotive industry, the key measure of prosperity in the state. As early as March 1 the industry was reaching new output records, perhaps in fear of strikes which, it

was felt, might follow labor's presentation of its contractual demands during the year. After three months of negotiations during the summer between the UAW-CIO and Ford, General Motors, and Chrysler, the so-called guaranteed annual wage was worked out without any serious strikes or stoppages. This arrangement initially affected 630,000 workers and was estimated to cost General Motors alone more than \$600 million for the first three years of its operation. This wage pattern was later extended to other industries in the Detroit area and elsewhere. With industrial peace assured and production at a record high, the year was one of general prosperity in Michigan.

The off-year elections of April 4 continued the trend started by the November 1954 contests, of electing Democrats to state offices, including such traditional Republican strongholds as the governing boards of the state's two major educational institutions.

On April 12, at Ann Arbor, Dr. Thomas Francis, Jr., announced the results of the field trials of the Salk poliomyelitis vaccine. His findings set in motion the widespread and controversial vaccination of most of the country's younger school children. (See also POLIOMYELITIS.)

During the year the state celebrated several major anniversaries. On July 1, 1955, the 150th anniversary of the formal establishment of the Territory of Michigan was observed. A centennial celebration was held throughout the summer at Sault Sainte Marie marking the opening in 1855 of the first canal and lock around St. Mary's Rapids, connecting Lakes Superior and Huron. This linking made possible the Great Lakes iron and coal trade and inaugurated the world's busiest canal.

Michigan State College at East Lansing celebrated the 100th anniversary of its founding as the first agricultural college in the United States. On July 1 the Michigan Legislature permitted the college to change its name to Michigan State University over the bitter protests of the University of Michigan at Ann Arbor.

(See also AUTOMOBILES; BRIDGES; DETROIT.)

Principal Events by: CHARLES M. DAVIS,
Professor of Geography, University of Michigan.

MICROBIOLOGY. See Index entry.

MIDDLE EAST. See Index entry.

MIDDLE EAST TREATY ORGANIZATION. See BAGHDAD PACT.

MIDWAY. An atoll and two islets—Eastern and Sand—in the central Pacific, about 1,200 miles northwest of Honolulu, Hawaii. Area, 2 sq. mi.; pop. (1950), 416. Midway is administered by the U.S. Navy, which maintains a base there.

MIGRATION. See IMMIGRATION, EMIGRATION, AND NATURALIZATION; REFUGEES AND DISPLACED PERSONS.

MILITARY AFFAIRS. See Index entry *Military*.

MILITARY POLICY, U.S. See NATIONAL SECURITY.

MILK. See Index entry.

MINERAL PRODUCTION. The accompanying table shows the trend of production of the more important mineral commodities in the major producing countries during recent years. (See also separate articles on the more important minerals.) Totals include outputs of minor countries not listed. In some cases production data are too incomplete to justify showing a total. Listing usu-

ally includes countries that have produced more than 1% of the total at any time since 1939. (These tables are based largely on data supplied by the Foreign Minerals staff of the U.S. Bureau of Mines, with gaps filled from other sources.)

Figures in parentheses are for the preceding year, as a substitute for those lacking for the year indicated. A figure with fewer decimal places indicated than others in the same table is an estimate. A question mark (?) means unknown or an estimate; a dash (—) means no production reported.

WORLD PRODUCTION OF MAJOR MINERALS

	1939	1952	1953	1954
ALUMINUM (Thousands of metric tons)				
Austria.....	—	36.7	43.5	48.0
Canada.....	75.0	453.4	495.1	508.8
France.....	50.0	106.2	113.1	120. (?)
Germany ¹	200.	100.5	106.9	129.2
Italy.....	34.2	52.8	55.5	57.6
Japan.....	23.0	42.7	45.5	53.1
Norway.....	31.0	51.1	53.6	61.3
Switzerland.....	28.0	29.5	28.0	27.0
USSR.....	45.	250. (?)	300. (?)	350. (?)
United Kingdom.....	25.0	28.5	31.4	32.1
United States.....	148.4	850.3	1,135.8	1,325.0
Total (est.).....	667.	2,050.	2,470.	2,780.
ANTIMONY (Metric tons)				
Algeria.....	217.	1,321.	1,810.	2,300.
Australia.....	419.	243.	217.	114.
Austria.....	102.	389.	310.	360.
Bolivia ⁵	9,225.	9,806.	5,784.	5,217.
Canada.....	550. (?)	1,057.	675.	544.
China.....	12,017.	8,000. (?)	8,000. (?)	8,000. (?)
Czechoslovakia.....	1,012. (?)	1,600. (?)	1,600. (?)	(?)
France.....	—	470.	300.	(?)
Fr. Morocco.....	460.	839.	58.	389.
Greece.....	1.	350.	550. (?)	(?)
Mexico.....	7,243.	5,531.	4,287.	4,182.
Peru.....	775.	505.	963.	846.
South Africa.....	6.	7,211.	2,730.	8,600.
Spain.....	22.	261.	230.	160. (?)
Turkey.....	460.	1,156.	863.	980.
United States.....	328.	1,960.	337.	693.
Total (est.).....	38,200.	45,000.	30,000.	40,000.
ARSENIC (WHITE) (Thousands of metric tons)				
Australia.....	1.44	0.12	—	—
Belgium ⁵	3.33	1.00	1.73	1.80
Canada.....	0.79	0.78	0.64	0.20
France.....	5.99	6.29	5.64	(?)
Germany ^{1,5}	1.26	0.11	0.61	0.22
Italy.....	1.15	2.00	1.07	(?)
Japan.....	3.54	1.40	1.43	(?)
Mexico.....	7.06	2.87	2.00	2.43
Portugal.....	0.32	1.32	1.18	0.6 (?)
Sweden.....	10.20	15.59	(?)	(?)
United States.....	20.27	14.22	9.86	11.9
Total ¹⁵ (est.).....	56.5	48.0	42.0	45.0
ASBESTOS (Thousands of metric tons)				
Canada.....	330.6	843.1	826.6	838.3
Cyprus ⁵	10.4	16.6	14.5	18.5
Italy.....	6.8	23.9	20.4	23.5
South Africa.....	20.0	121.4	86.0	99.0
S. Rhodesia.....	52.9	77.0	79.6	72.5
Swaziland.....	7.2	31.5	27.3	27.3
USSR.....	(?)	220. (?)	220. (?)	220. (?)
United States.....	14.0	48.9	49.4	43.2
Total (est.).....	(?)	1,425.	1,375.	1,400.
BARITE (Thousands of metric tons)				
Algeria.....	(?)	9.8	12.8	13.6
Austria.....	—	5.2	1.9	4.4
Canada.....	(?)	123.4	224.3	201.9
France.....	(?)	28.4	24.0	43.6
Germany.....	420.3	305.3	328.4	301.1
Greece.....	24.1	21.7	25.5	22.0 (?)
India.....	9.4	7.6	4.1	(?)
Ireland.....	(?)	1.8	—	(?)
Italy.....	53.9	56.3	69.3	71.9
Japan.....	(?)	14.2	17.6	18.9
Spain.....	8.9	15.9	17.9	10.9
USSR.....	(?)	100. (?)	100. (?)	100. (?)
United Kingdom.....	96.3	71.3	70.0	(?)
United States.....	331.9	918.8	834.6	858.9
Yugoslavia.....	(?)	34.8	81.2	(?)
Total (est.).....	(?)	1,800.	1,950.	2,000.
BAUXITE (Thousands of metric tons)				
British Guiana.....	483.7	2,426.3	2,297.4	2,336.9
France.....	800.	1,115.0	1,165.0	1,270.0
Fr. W. Africa.....	—	109.8	338.1	446.3
Gold Coast ⁵	—	75.6	116.9	166.1
Hungary.....	485.	1,172.0	1,200.0 (?)	1,300.0 (?)

WORLD PRODUCTION OF MAJOR MINERALS, CONT'D

	1939	1952	1953	1954
BERYL (Metric tons)				
Argentina.....	299.	499. ¹⁷	1,324. ¹⁷	—
Australia.....	6.	89.	127.	151.
Brazil ⁶	276.	2,523.	2,160.	1,366.
French				
Morocco.....	—	129.	33.	15.
India.....	9.	550. (?)	182. ¹⁷	356. ¹⁷
Madagascar.....	(?)	397.	468.	588.
Mozambique.....	—	208.	250.	450. (?)
Portugal.....	(?)	93.	376.	301.
Southern				
Rhodesia.....	—	1,076.	1,609.	977.
South Africa.....	(?)	375.	482.	184.
S. West Africa.....	(?)	537.	535.	512.
United States.....	86.	467.	681.	582.
Total ¹⁵ (est.).....	676.	7,100.	8,400.	5,700.
BISMUTH (Metric tons)				
Bolivia ⁵	13.	16.	63.	46.
Canada.....	186.	74.	53.	124.
France.....	—	86.	72.	(?)
Japan.....	(?)	44.	50.	58. (?)
Korea ¹⁴	—	110.	240.	115.
Mexico.....	164.	406.	335.	361.
Peru.....	454.	324.	287.	314.
Spain.....	—	12.	25.	23. (?)
Yugoslavia.....	(?)	99.	98.	110.
Total (est.).....	1,300.	1,900.	1,900.	1,700.
CADMIUM (Metric tons)				
Australia.....	175.	291.	302.	234.
Belgium.....	531.	550. (?)	470. (?)	500. (?)
Canada.....	426.	430.	507.	466.
France.....	130.	88.	128.	142.
Germany ¹	401.	64.	103.	281.
Italy.....	146.	133.	182.	203.
Japan.....	80. (?)	166.	208.	227.
Mexico ¹⁶	817.	734.	954.	675. (?)
Poland.....	221.	240. (?)	240. (?)	240. (?)
S. West Africa ¹⁶	82.	504.	542.	735.
USSR.....	50. (?)	90. (?)	90. (?)	100. (?)
United Kingdom.....	106.	157.	173.	143.
United States.....	2,173.	3,886.	4,430.	4,333.
Total (est.).....	4,577.	6,210.	6,970.	7,050.
CEMENT (Millions of metric tons)				
Argentina.....	1.13	1.55	1.66	1.69
Australia.....	0.68	1.36	1.6	1.91
Austria.....	0.74	1.39	1.39	1.62
Belgium.....	2.55	4.11	4.63	4.38
Brazil.....	0.7	1.62	2.03	2.41
Canada.....	0.91	2.94	3.53	3.56
China.....	0.54	2.0 (?)	2.3 (?)	4.73 (?)
Czechoslovakia.....	0.28	2.52 (?)	2.62 (?)	2.6 (?)
Egypt.....	0.37	0.95	1.1	1.24
France.....	(?)	8.65	9.05	9.37
Germany ¹	13.96	12.89	15.38	16.26
India.....	1.73	3.59	3.84	4.44
Italy.....	5.11	6.65	7.52	8.71
Japan.....	5.07	7.12	8.77	10.68
Mexico.....	0.41	1.64	1.67	1.78
Poland.....	1.49	2.66	3.3	3.5 (?)
South Africa.....	0.95	2.02	2.12	2.16
Spain.....	1.19	2.96	3.26	3.81
Sweden.....	1.18	2.12	2.35	2.37
Switzerland.....	(?)	1.38	1.58	1.81
USSR.....	5.7	14.1 (?)	16.0 (?)	18.5 (?)
United Kingdom.....	8.34	11.31	11.4	12.16
United States.....	21.27	43.09	45.65	52.51 (?)
Yugoslavia.....	0.66	1.31	1.28	1.39
Total (est.).....	93.	161.	178.	194. (?)
CHROMITE (Thousands of metric tons)				
Cuba.....	59.6	61.8	70.0	54.0 (?)
Greece.....	57.1	32.2	36.8	26.8
India.....	49.9	36.8	65.8	50.0 (?)
New Caledonia.....	52.0	107.7	121.1	84.2
Philippines.....	127.6	543.5	557.1	401.2
South Africa.....	160.0	580.0	724.4	641.3
S. Rhodesia.....	139.1	322.7	420.1	401.4
Turkey.....	191.6	806.9	912.5	561.5
USSR.....	(?)	600. (?)	600. (?)	600. (?)
United States.....	3.7	19.3	53.4	144.9
Yugoslavia.....	59.5	107.2	127.0	124.5
Total (est.).....	1,163.	3,400.	3,900.	3,300.

MINERAL PRODUCTION

WORLD PRODUCTION OF MAJOR MINERALS, CONT'D

	1939	1952	1953	1954
(Millions of metric tons)				
COAL				
Australia.....	17.5	28.0	27.1	29.6
Belgium.....	29.8	30.4	30.1	29.2
Canada.....	14.1	15.9	14.4	13.5
Czechoslovakia.....	37.3	52.1	53.1	57.6
France.....	50.2	57.4	54.5	56.3
Saar.....	(?)	16.2	16.4	16.8
Germany.....	388.9	373.9	391.4	400.0
Hungary.....	10.6	18.7	21.3	22.4(?)
India.....	28.2	36.9	36.6	37.4
Netherlands.....	13.1	12.8	12.5	12.2
Poland.....	65.5	90.6	95.5	98.4
South Africa.....	16.9	28.1	28.5	29.3
USSR.....	134.5 ¹	301.(?)	323.(?)	347.(?)
United Kingdom.....	235.1	230.1	227.8	227.7
United States.....	404.9	460.3	442.9	380.2
Total (est.).....	1,647.	1,926.	1,959.	1,952.
(Metric tons)				
COBALT				
Belgian Congo.....	1,080.	6,831.	8,278.	8,609.
Canada.....	332.	645.	727.	990.
Fr. Morocco.....	680.	998.	600.	736.
N. Rhodesia.....	1,598.	585.	677.	1,147.
United States.....	—	379.	806.	1,007.
Total (est.).....	4,200.	9,500.	11,100.	12,500.
(Thousands of metric tons)				
COKE ^{1a}				
Australia.....	1,402.	1,663.	1,888.	2,082.
Austria.....	(?)	1,230.	1,217.	1,348.
Belgium.....	5,177.	6,419.	5,953.	6,147.
Canada.....	1,830.	3,260.	3,455.	2,796.
Czechoslovakia.....	(2,367?)	5,580.	5,913.(?)	6,000.(?)
France.....	8,151.	9,216.	8,631.	9,211.
Germany ¹	43,511.	37,268.	37,829.	35,019.
India.....	1,947.	2,077.	2,043.	2,398.
Italy.....	1,985.	2,470.	2,439.	2,615.
Japan.....	(?)	3,996.	4,770.	4,392.
Netherlands.....	2,208.	3,228.	3,204.	3,356.
Poland.....	(2,523.)	7,358.	7,873.	8,000.(?)
Saar.....	(?)	3,887.	3,589.	3,609.
South Africa.....	185.	1,353.	1,445.	1,384.
Spain.....	685.	1,189.	1,180.	1,224.
USSR.....	16,670.	33,500.(?)	38,000.(?)	42,000.(?)
United Kingdom.....	14,187.	17,366.	17,762.	18,139.
United States.....	40,212.	61,919.	71,519.	54,125.
Total (est.).....	(?)	207,000.	224,000.	210,000.
(Thousands of pounds)				
COLUMBITE				
TANTALITE				
Belgian Congo.....	361.	231.	624.	1,102.(?)
Brazil.....	130.	55.	81.	398. ¹⁷
Malaya.....	—	105.	116.	249.
Mozambique.....	(?)	33.	58.	31.
Nigeria.....	965.	2,899.	4,388.	6,550.
Norway.....	—	—	26.	343. ¹⁷
Portugal.....	—	—	214.	235. ¹⁷
Sweden.....	—	—	35.	—
United States.....	—	5.	15.	48.
Total (est.).....	1,545.	3,440.	5,780.	9,640.
(Thousands of metric tons)				
COPPER (MINE)				
Belgian Congo ^a	122.6	205.7	214.2	220.8
Canada.....	276.2	234.1	229.7	274.6
Chile.....	339.2	408.6	363.1	363.7
Cyprus ^b	6.0	26.8	21.7	27.3
Germany.....	30.0	2.4	2.1	2.2
Japan.....	91.0	53.6	58.9	65.2
Mexico.....	44.9	58.5	60.1	54.8
N. Rhodesia.....	215.1	329.5	372.7	398.0
Peru.....	44.0	30.4	35.4	38.0
South Africa.....	14.3	35.1	36.1	42.3
USSR ²	130.5	295.(?)	303.(?)	319.(?)
United States.....	660.7	839.5	840.5	758.6
Yugoslavia ^a	64.2	32.8	31.2	30.3
Total (est.).....	2,251.	2,730.	2,760.	2,800.(?)
(Thousands of carats)				
DIAMONDS				
Angola.....	690.	743.	729.	722.
Belgian Congo.....	8,360.	11,609.	12,580.	12,619.
Gold Coast.....	1,088.	2,190.	2,167.	2,135.
Sierra Leone.....	600.	452.	473.	399.
South Africa.....	1,250.	2,376.	2,695.	2,858.
S. West Africa.....	35.	541.	617.	684.
Brazil.....	350.(?)	200.(?)	200.(?)	200.(?)
Total (est.).....	12,500.	18,694.	20,100.	20,440.
(Thousands of metric tons)				
FELDSPAR				
Australia.....	4.5	13.8	7.0	16.6
Canada.....	11.3	18.4	19.3	14.0
France.....	(?)	65.0	60.0	62.0
Germany ¹	11.4	102.9	95.7	140.5
Italy.....	12.5	25.4	23.6	30.9
Japan.....	4.11	24.2	25.1	25.0(?)
Norway.....	24.3	29.3	18.7	23.0(?)

WORLD PRODUCTION OF MAJOR MINERALS, CONT'D

	1939	1952	1953	1954
Sweden.....	40.8	47.9	37.9	(?)
United States.....	257.5	427.6	459.9	416.6(?)
Total (est.).....	(?)	800.	790.	820.(?)
(Thousands of metric tons)				
FLUORSPAR				
Canada ^{1a}	11.4	74.6	80.3	108.9
France.....	(51.9)	66.1	54.7	58.6
Germany ¹	162.0	146.6	161.2	165.0
Italy.....	13.2	57.6	93.8	77.1
Mexico ^a	—	180.2	157.1	120.(?)
South Africa.....	10.3	10.3	14.5	20.0
Spain.....	8.4	62.5	51.2	35.(?)
USSR.....	(?)	80.(?)	80.(?)	100.(?)
United Kingdom.....	38.8	77.0	80.4	84.0
United States.....	165.8	300.5	288.5	222.2(?)
Total (est.).....	577.	1,180.	1,220.	1,170.(?)
(Millions of metric tons)				
FUEL BRIQUETTES				
Australia.....	0.42	0.57	0.57	0.62
Belgium.....	1.56	1.48	1.32	1.38
Canada.....	0.07	0.65	0.64	0.75
Czechoslovakia.....	0.84	0.83(?)	0.83(?)	0.86(?)
France.....	8.36	7.94	6.98	6.73
Germany.....	51.88	72.66(?)	78.14(?)	77.1(?)
Japan.....	(?)	1.7	2.07	2.47
Netherlands.....	1.34	1.02	0.99	1.00
Poland.....	0.47	0.82(?)	0.82(?)	0.83(?)
Spain.....	0.79	1.15	1.16	1.12
USSR.....	(?)	7.0(?)	8.4(?)	8.5(?)
United Kingdom.....	0.81	1.81	1.60	1.71
United States.....	1.0	2.16	2.69	1.54
Total (est.).....	69. ^{1a}	101.	107.	107.
(Millions of ounces)				
GOLD				
Australia.....	1.65	0.98	1.08	1.12
Belgian Congo.....	0.55	0.37	0.37	0.37
Canada.....	5.09	4.47	4.06	4.37
Colombia.....	0.57	0.42	0.44	0.38
Gold Coast.....	0.79	0.69	0.73	0.79
Japan.....	1.96	0.20	0.23	0.24
Mexico.....	0.84	0.46	0.48	0.39
Philippines.....	1.04	0.47	0.48	0.42
South Africa.....	12.82	11.82	11.94	13.24
S. Rhodesia.....	0.80	0.50	0.50	0.54
USSR.....	5.20	9.5(?)	9.0(?)	9.0(?)
United States.....	4.62	1.93	1.97	1.86
Total (est.).....	40.04	34.3	33.7	35.1
(Thousands of metric tons)				
GRAPHITE				
Austria.....	24.0	19.7	14.7	17.4
Canada.....	1.2	1.9	3.2	1.5
Ceylon ^a	22.8	7.8	7.3	7.8
Germany ¹	24.2	9.0	7.5	9.5
Italy.....	5.7	4.4	4.9	3.8
Japan.....	1.4	4.7	4.1	4.0
Korea ¹⁴	83.4	15.1	19.4	13.9
Madagascar.....	12.2	18.5	13.5	12.1
Mexico.....	9.8	24.2	30.3	21.8
Norway.....	4.3	4.1	3.0	3.6
United States.....	(?)	5.1	5.7	(?)
Total (est.).....	205.	185.	180.	170.
(Thousands of metric tons)				
GYPSPUM				
Australia.....	180.9	356.9	335.3	446.8
Canada.....	1,390.2	3,224.0	3,482.7	3,581.1
Egypt.....	700.2	141.9	186.0	142.4
France.....	(?)	2,589.4	2,753.5	3,000.0(?)
Germany ¹	(?)	529.1	624.0	673.5
Italy.....	433.1	674.5	600.0	621.6
Japan.....	164.8	200.6	271.1	337.6
South Africa.....	40.8	148.9	150.4	154.8
Spain.....	—	1,596.0	1,046.6	(?)
United Kingdom.....	1,042.8	2,433.1	2,700.3	2,800.0(?)
United States.....	2,927.2	7,634.2	7,523.1	8,112.8
Total (est.).....	8,031.	24,800.	25,400.	26,900.
(Millions of metric tons)				
IRON (PIG)				
Australia.....	1.12	1.57	1.87	1.89
Austria.....	¹²	1.18	1.32	1.35
Belgium.....	3.06	4.79	4.22	4.62
Canada.....	0.85	2.64	2.87	2.11
China.....	(?)	2.00(?)	2.40(?)	3.05(?)
Czechoslovakia.....	1.61	2.33	2.79	2.80
France.....	7.46	9.88	8.76	8.94
Saar.....	¹³	2.54	2.38	2.50
Germany.....	20.3	13.53	12.72	13.82
India.....	1.79	1.88	1.81	1.97
Italy.....	1.10	1.29	1.39	1.35
Japan.....	3.0	3.59	4.65	4.75
Luxembourg.....	1.8	3.08	2.72	2.80
Poland.....	—	1.78(?)	2.30(?)	2.60(?)
Sweden.....	—	1.11	1.06	0.93
USSR.....	15.2	25.(?)	28.(?)	29.9(?)

WORLD PRODUCTION OF MAJOR
MINERALS, CONT'D

	1939	1952	1953	1954
United Kingdom.....	8.11	10.90	11.35	12.07
United States.....	32.32	57.51	70.04	54.21
<i>Total (est.)</i>	102.	152.	169.	158.
LEAD (SMELTER)	(Thousands of metric tons)			
Argentina.....	14.0	20.0	13.0	23.0(?)
Australia.....	238.6	159.2	175.2	203.6
Belgium.....	96.2	79.5	76.4	71.9
Burma.....	78.6	2.7	8.7	11.5
Canada.....	172.9	166.4	150.9	150.9
France.....	42.4	51.5	54.9	61.4
Fr. Morocco.....	—	30.1	27.4	26.7
Germany ¹	175.5	92.7	107.8	110.2
Italy.....	38.8	34.3	38.0	37.3
Japan.....	18.2	15.2	17.7	26.2
Mexico.....	213.7	237.4	215.0	209.2
Peru.....	24.3	48.6	59.0	57.7
Poland.....	25.0 ^a	20. (?)	21.3 (?)	21.8 (?)
Spain.....	26.0	46.5	51.2	56.7
Tunisia.....	22.9	25.5	27.3	27.2
USSR.....	74.8 ^a	154.2 (?)	183.2 (?)	207.3 (?)
United States.....	404.3	428.6	424.3	441.5
Yugoslavia.....	—	67.2	70.8	66.7
<i>Total (est.)</i>	1,765.	1,760.	1,820.	1,920.
MAGNESIUM	(Thousands of metric tons)			
Canada.....	—	5. (?)	6.0 (?)	6.0 (?)
France.....	3.9	1.09	1.00	1.13
Germany.....	14.	1. (?)	1. (?)	1.08 (?)
Japan.....	1.6	—	—	—
Norway.....	—	0.31	3.50	4.70
USSR.....	1.	40. (?)	50. (?)	40. (?)
United Kingdom ^a	5.1	4.60	5.39	5.06
United States.....	3.0	96.00	84.44	63.26
<i>Total (est.)</i>	29.4	150.	150.	120.
MANGANESE ORE	(Thousands of metric tons)			
Belgian Congo.....	—	128.0	216.7	384.9
Brazil.....	257.8	249.2	231.4	200.0 (?)
Chile.....	12.6	53.8	54.6	53.0
Cuba.....	102.4	251.7	353.2	269.3
Fr. Morocco.....	75.4	426.3	429.5	400.4
Gold Coast ^a	388.1	806.9	758.0	467.6
India.....	858.2	1,485.7	1,928.2	1,219.3
Japan.....	(?)	207.4	194.4	163.4
Mexico.....	61.	142.8	244.8	252.2
South Africa.....	419.7	874.6	827.7	701.1
USSR.....	(2,272.8)	2,500. (?)	3,500. (?)	4,000.0 (?)
United States.....	29.8	104.7	142.9	192.0 (?)
<i>Total (est.)</i>	5,175.	7,800.	9,600.	8,800.0 (?)
MERCURY	(Thousands of flasks)			
Chile.....	(0.04)	0.17	0.10	(?)
China.....	4.93	4.0 (?)	5.0 (?)	(?)
Czechoslovakia.....	2.67	0.73 (?)	0.73 (?)	(?)
Italy.....	67.15	55.87	51.37	54.48
Japan.....	1.36	3.08	6.41	10.27
Mexico.....	7.38	8.73	11.64	14.76
Spain.....	35.91	39.14	43.54	43.40
USSR.....	(?)	11.6 (?)	12.3 (?)	(?)
United States.....	18.63	12.55	14.34	18.54
Yugoslavia.....	(?)	14.62	14.27	14.45
<i>Total (est.)</i>	145.	151.	160.	177.
MICA	(Thousands of metric tons)			
Argentina.....	0.3	1.2 (?)	1.2 (?)	1.2 (?)
Brazil.....	0.4	2.1	2.0	1.0 (?)
Canada.....	1.0	0.9	1.0	0.7
India ^a	10.1	15.6	12.5	18.2
Madagascar.....	0.6	1.1	0.8	0.5
South Africa.....	1.0	2.7	1.9	1.9
United States.....	22.8	68.6	66.8	84.7 (?)
<i>Total (est.)</i>	(?)	120.	115.	140. (?)
MOLYBDENUM	(Thousands of metric tons)			
Canada.....	—	0.14	0.09	0.27
Chile.....	0.03	1.64	1.38	1.20
Mexico.....	0.52	—	(?)	0.07
Norway.....	0.43	0.13	0.14	0.15
United States.....	13.76	19.62	25.97	26.61
<i>Total (est.)</i>	15.2	22.6	28.4	29.7
NICKEL	(Thousands of metric tons)			
Canada.....	102.5	127.5	130.4	145.1
Greece.....	1.3	—	—	—
Indonesia.....	0.8	—	—	—
Japan.....	0.9	—	—	—
New Caledonia.....	10.6	10.7	17.1	13.7
Norway.....	1.1	—	—	—
South Africa.....	(?)	1.3	1.7	1.9
USSR.....	—	37. (?)	40. (?)	43. (?)
United States.....	0.4	0.6	0.5	2.4
<i>Total (est.)</i>	122.	186.	203.	220.
PETROLEUM	(Millions of barrels)			
Argentina.....	18.61	24.8	28.5	29.7
Canada.....	7.84	61.2	80.9	96.1

WORLD PRODUCTION OF MAJOR
MINERALS, CONT'D

	1939	1952	1953	1954
Colombia.....	23.86	38.7	40.2	40.5
Indonesia.....	62.09	62.5	75.1	79.4
Iran.....	78.15	10.1 (?)	9.4	22.4 (?)
Iraq.....	30.79	141.1	210.3	228.4
Kuwait.....	—	273.4	314.6	347.3
Mexico.....	42.90	77.3	72.4	83.7
Rumania.....	45.65	45. (?)	52. (?)	55. (?)
Saudi Arabia.....	3.9	301.9	308.3	347.8
Trinidad.....	19.27	21.3	22.3	23.6
USSR.....	216.87	322.4 (?)	363. (?)	411. (?)
United States.....	1,264.96	2,289.8	2,357.1	2,316.3
Venezuela.....	206.47	660.3	644.2	691.8
<i>Total (est.)</i>	2,086.	4,509.	4,771.	4,991.
PHOSPHATES	(Thousands of metric tons)			
Algeria.....	450.	702.6	602.8	757.9
Christmas Is. ^a	178.0	354.8	284.7	356.6
Egypt.....	547.5	522.2	484.2	534.7
Fr. Morocco.....	1,703.0	3,953.1	4,156.0	5,019.5
Fr. Oceania ^a	160.7	213.6	250.5	228.9
Nauru Island ^a	1,244.2	1,164.0	1,178.4	1,197.1
Ocean Island ^a	—	249.5	286.9	296.9
Tunisia.....	1,627.9	2,264.6	1,718.5	1,823.4
USSR.....	1,618.	3,650. (?)	4,025. (?)	4,500. (?)
United States.....	3,817.4	12,258.5	12,704.5	14,042.9
<i>Total (est.)</i>	11,500.	26,100.	26,400.	29,600.
PLATINUM METALS	(Thousands of ounces)			
Canada, total ^a	284.3	279.7	303.5	325.6
Platinum.....	148.9	122.3	137.5	149.1
O.P.M. ¹¹	135.4	157.4	166.0	176.5
Colombia.....	39.1 ¹⁰	33.7 (?)	29.0	25.3
South Africa ^a	65.3	238.7	306.1	344.4
USSR.....	100. (?)	100. (?)	100. (?)	100. (?)
United States.....	41.2	34.4	26.1	24.2
<i>Total (est.)</i>	543.	700.	775.	825.
POTASH^a	(Thousands of metric tons)			
France.....	598.0	927.6	1,030.8	1,234.8
Germany.....	2,061.7	3,356.7	3,486.9	3,836. (?)
Israel.....	31.8	—	3.1	11. (?)
Spain.....	25.5	181.1	183.9	209.8
United States.....	283.2	1,510.6	1,734.4	1,767.8
<i>Total (est.)</i>	—	6,300.	6,800.	7,400.
PYRITE	(Thousands of metric tons)			
Australia.....	55.1	202.0	169.7	198.6
Canada.....	206.5	502.6	356.2	(?)
Cyprus.....	403.9	1,073.0	1,001.6	1,121.1
Germany ¹	560.5	527.9	530.0	586.3
Greece.....	217.2	201.2	225.1	195.6
Italy.....	977.7	1,141.4	1,225.4	1,231.5
Japan.....	(?)	2,628.4	2,343.3	1,841.5
Norway.....	1,024.9	712.6	740.0	790.0 (?)
Portugal.....	502.3	755.9	651.1	583.4
Spain.....	2,600.0	2,378.6	1,786.5	1,913.7
Sweden.....	191.7	411.3	470.0 (?)	399.2
United States.....	524.7	1,010.3	937.5	(?)
<i>Total (est.)</i>	10,800.	15,000.	14,000.	(?)
SALT	(Millions of metric tons)			
Brazil.....	0.56	0.78	0.76	0.8 (?)
Canada.....	0.39	0.88	0.87	0.87
China.....	3.0	3.50 (?)	4.0 (?)	5.5 (?)
Egypt.....	0.44	0.50	0.38	0.45
France.....	2.13	2.70	2.77	2.91
Germany ¹	3.72	2.70	3.57	3.16
India.....	1.52	2.87	3.55	3.04
Italy.....	1.36	1.41	2.30	1.06
Japan.....	0.64	0.43	0.46	0.42
Poland.....	0.65	1.0 (?)	1.0 (?)	1.0 (?)
Rumania.....	0.37	(?)	(?)	(?)
Spain.....	0.82	1.03	1.39	1.46
United Kingdom.....	3.26	4.02	4.13	(?)
United States.....	8.41	17.73	18.86	18.49
<i>Total (est.)</i>	31.97	53.0	57.4	57.5
SILVER	(Millions of ounces)			
Argentina.....	4.77	0.96	0.90	1.64
Australia.....	15.32	11.43	12.40	13.83
Belgian Congo.....	2.80	4.73	4.96	4.55
Bolivia ^a	7.24	7.07	6.11	5.05
Burma.....	5.94	0.15	0.67	1.28
Canada.....	23.16	25.22	28.30	30.68
Honduras.....	4.21	3.70	5.64	3.43
Japan.....	11.	5.18	6.03	6.05
Mexico.....	75.87	50.35	47.87	39.90
Peru.....	18.80	18.39	19.65	20.40
USSR.....	(?)	24.0 (?)	25.0 (?)	25.0 (?)
United States.....	63.87	39.84	37.74	35.58
Yugoslavia.....	(?)	2.58	3.05	2.83
<i>Total (est.)</i>	267.	215.1	221.6	213.4
SULFUR (NATIVE)	(Thousands of long tons)			
Chile.....	27.0	47.8	32.3	39.1
Italy ^a	350.2	232.7	224.2	200.2
Japan.....	202.6 ¹²	176.7	186.6	184.7
United States.....	2,091.0	5,293.1	5,155.3	5,515.5
<i>Total (est.)</i>	2,700.	6,000.	5,800.	6,200.0

WORLD PRODUCTION OF MAJOR
MINERALS, CONT'D

	1939	1952	1953	1954
(Thousands of metric tons)				
TALC				
Austria.....	(?)	50.8	51.2	62.0
Canada.....	11.9	22.7	24.9	23.6
France.....	(?)	109.6	103.9	118.7
Germany ¹	7.7	27.6	29.9	48.8
India.....	22.6	21.1	29.0	(?)
Italy.....	71.4	80.3	80.3	86.5
Japan.....	(?)	318.4	328.6	418.3
Norway.....	31.5	64.1	61.2	59.9
Spain.....	5.5	27.9	28.4	30.0(?)
Sweden.....	7.2	8.8	8.9	(?)
United States.....	230.4	545.1	572.9	537.1
Total (est.).....	500.	1,440.	1,530.0	1,670.
(Thousands of long tons)				
TIN (MINE)				
Australia.....	2.8	1.6	1.6	2.0
Belgian Congo.....	7.1	13.8	15.3	15.1
Bolivia ⁶	27.2	32.0	34.8	28.8
China.....	15.0 ⁸	8.6(?)	9.6(?)	10.0(?)
Indonesia.....	27.8	35.0	33.8	35.9
Malaya.....	46.8	56.8	56.3	60.7
Nigeria.....	9.6	8.3	8.2	7.9
Thailand.....	17.3 ⁵	9.5	10.1	9.8
Total (est.).....	176.	174.1	179.6	178.8
(Thousands of metric tons)				
TUNGSTEN⁷				
Argentina.....	1.31	0.43	0.60	0.65
Australia.....	1.03	2.17	2.23	2.33
Bolivia ⁶	3.34	3.71	3.83	4.45
Brazil ¹⁰	4	1.78	1.95	1.50(?)
Burma.....	7.82	2.20	2.00	1.20(?)
China.....	12.87	20.0(?)	17.00(?)	18.00(?)
France.....	0.28	0.95	1.11	0.95
Korea ¹⁴	3.97	4.10	7.50	4.20
Peru.....	0.17	0.58	0.91	0.86 ⁵
Portugal.....	3.85	5.28	5.07	4.28
Spain.....	0.37	5.48	2.95	2.05
Sweden.....	0.16	0.34	0.44	0.40(?)
Thailand.....	0.38	1.6(?)	1.75	1.20
USSR.....	0.3(?)	7.5(?)	7.5(?)	7.50(?)
United States.....	3.89	6.91	8.70	12.44
Total (est.).....	42.0	68.8	71.3	69.6
(Thousands of metric tons)				
VANADIUM				
No. Rhodesia.....	0.38	0.04	—	—
Peru.....	1.02	0.44	0.32	0.18
S. West Africa.....	0.51	0.62	0.54	0.57
United States.....	0.90	3.27	4.21	4.47
Total (est.).....	2.91	4.38	5.08	5.23
(Thousands of metric tons)				
ZINC (SMELTER)				
Australia.....	72.4	88.8	91.6	106.2
Belgium.....	186.0	186.8	193.4	212.7
Canada.....	159.3	201.6	227.7	194.0
France.....	61.0	80.1	80.9	110.9
Germany ¹	231.	147.2	148.3	167.7
Italy.....	33.4	54.9	60.0	67.5
Japan.....	54.2	70.0	77.1	101.4
Mexico.....	35.4	50.4	53.1	54.9
Netherlands.....	25.3	25.9	25.2	26.0
N. Rhodesia.....	10.4	23.3	25.7	27.0
Norway.....	45.9	39.2	37.8	44.2
Poland.....	117.9	95.3	110.0	125.0(?)
Spain.....	7.7	21.4	23.1	22.8
USSR.....	80. (?)	186. (?)	212. (?)	250.0(?)
United Kingdom.....	56.2	69.8	73.9	81.5
United States.....	460.2	820.5	831.1	727.9
Total (est.).....	1,650.	2,200.	2,320.	2,400.

¹ Federal Republic only, in postwar years. ² Smelter output. ³ Crude. ⁴ Less than 50 tons. ⁵ Exports. ⁶ K₂O content. ⁷ Concentrates, 60 per cent WO₃. ⁸ Includes secondary. ⁹ Total platinum group metals. ¹⁰ Exports of crude platinum. ¹¹ Other platinum metals. ¹² Included under Germany. ¹³ Includes Newfoundland. ¹⁴ Republic of Korea only, in postwar years. ¹⁵ Excludes estimate for USSR. ¹⁶ Cadmium content of flue dust exported for treatment elsewhere; to avoid duplication, data are not included in total. ¹⁷ U.S. imports. ¹⁸ Oven and beehive coke, excluding breeze.

OLIVER BOWLES,
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BERENICE B. MITCHELL,
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MINERALOGY. From the point of view of routine mineralogical research, 1955 was an average year. The usual number of new minerals was described, a few refinements were made in the application of X-ray fluorescence spectroscopy, and differential thermal analysis, and the mineralogy and paragenesis of uranium minerals re-

ceived their just share of attention. The year also was enlivened by a major advance in mineral synthesis, which involved the diamond.

Some ten new natural compounds were described in 1955 as new minerals in the *American Mineralogist* of the Mineralogical Society of America and at the annual meeting held in New Orleans. The journal also carried abstracts of the descriptions of some 32 or 33 additional minerals described elsewhere, particularly in the Soviet Union, where some 17 more or less acceptable compounds were involved.

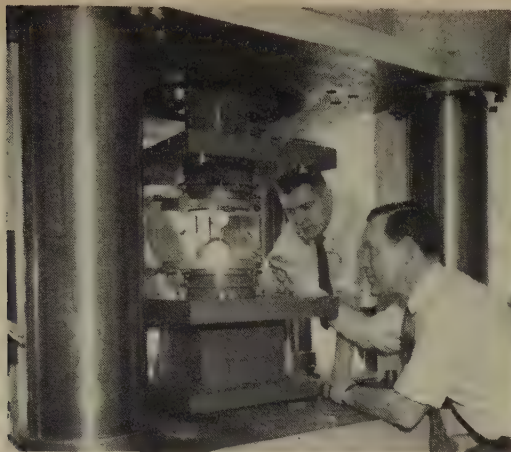
The most attractive of the new American minerals is ordonezite, a well-crystallized zinc antimonate, in small brown lustrous tetragonal crystals, associated with cassiterite in Guanaquato, Mexico. The next best-defined is probably cerianite, a cerium-thorium oxide described as minute, translucent, dark greenish-amber octahedrons embedded in a carbonate rock from the Sudbury District of Ontario.

The other new minerals are rabbittite, a pale green, fibrous efflorescence of calcium-magnesium-uranium carbonate, forming secondarily on the rock surfaces of the Lucky Strike #2 Mine, San Rafael District, Utah; navajosite, a hydrated vanadium pentoxide (first described in 1954) which forms as a soft, fibrous, dark brown coating on pebbles and sand grains, or makes seams in sandstone and clay of the Monument #2 Mine in Apache County, Ariz.; goldichite, a hydrous potassium-ferric sulfate, formed in radiating clusters of pale green crystals and fine-grained crystalline encrustations at the Dexter #7 Mine, Calf Mesa, in the San Rafael Swell in Utah; and garselite, a hydrous barium-calcium-magnesium borosilicate in minute colorless crystals from a drill core in Uintah County, Utah.

Another newly described mineral is neomeselite, a greenish white, triclinic secondary phosphate mineral from the phosphate-rich Palermo pegmatite, North Groton, N.H., which is composed of calcium, iron, and manganese in addition to the phosphate radical and water. Beta-roselite is a hydrous calcium-cobalt arsenate found in a suite of roselite specimens at Schneeberg, Saxony. It appears to be a triclinic dimorphic modification of roselite. Murdochite, from the Mammoth Mine, Tiger, Ariz. (first described in 1953) appears as small black octahedrons of lead-copper oxide, to be found on the typical wulfenite-diopside specimens. Hewleyite, another new mineral, closely resembles its more common cadmium-sulfide polymorph, greenockite, and forms similarly bright yellow earthy coatings on sphalerite and siderite at the Hector-Calumet Mine, Galena Hill, Yukon Territory, Canada.

A number of minerals have been discredited, having proved on re-examination to be identified with older minerals. Most interesting was the discarding of wenzelite and baldaufite, two phosphates from Bavarian pegmatites now shown to be identical with hureaulite. Beyrichite is now considered identical with violarite.

Other developments in 1955 included the addition of valuable data for a number of other minerals. Most interesting of these, perhaps, if it is considered how long it has been known as a mineral, was a description of small free-growing crystals of jadeite. These were found projecting into a calcite vein in a boulder in the Russian River, near Cloverdale, Calif. They appear to have formed in two generations, the earlier making slightly larger milky monoclinic prisms on which are perched smaller clear crystals with green tips.



GENERAL ELECTRIC CO.

Synthetic diamonds in the photo at right were made by the Hall-Wentorf process in General Electric's 1,000-ton press (shown at left), which is capable of delivering pressures greater than 1.6 million pounds per square inch.

To collectors, the multiplication of mineral names which has resulted from uranium research is frustrating. In most cases it is impossible to identify the newer substances (and the older ones too, since so many turn out to be newer after all) without calling upon techniques and equipment beyond the reach of the amateur. One development, however, produced the most notable mineral find of the year. This was the discovery of an autunite occurrence in the Daybreak Mine, near Spokane, Wash., containing specimens of outstanding quality. Solid veins of greenish-yellow crystallized material were so vastly superior to anything previously known that they were difficult to recognize as autunite.

The announcement by the General Electric Company of the successful synthesis of diamonds startled the diamond trade, although it was inevitable that the day would come when this mineral, too, would succumb to research. More important than the actual cubic carbon created, however, was the proof that the expensive tool which was used—a press capable of combining enormous pressures with high temperatures—was able to create conditions for mineral growth previously unattainable in the laboratory. Its eventual importance may well lie in the formation of other polymorphic crystals now unknown, as other elements and combinations are forced to crystallize in closer-packed atomic arrangements. (See also GEOLOGY; MINING.)

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MINING. U.S. Bureau of Mines.—Highlights of Bureau of Mines attainments during 1955 included record helium production, progress in improving petroleum-recovery techniques, advances toward more effective utilization of coal (particularly lignite and anthracite), improvements in methods of extracting certain essential metals from ores and scrap, and expansion of safety training activities. These activities are reviewed briefly below.

Helium.—Helium shipments of 212 million cubic feet in 1955—25% above those of 1954—failed to pace demand, and the bureau contracted for a new \$6 million plant at Exell, Texas. An improved helium-separation cycle promised to reduce power requirements. Natural gas samples from new fields were analyzed for

helium content, liquefaction of helium was studied, and added uses for this inert gas were investigated.

Petroleum and Natural Gas.—A study of the effect of different drilling fluids on the permeability to oil of reservoir sands immediately around a well neared completion, and laboratory research indicated that iridium-192 promises to be a useful radioactive tracer of the flow of water injected into a formation to force oil to wells and increase recovery.

Underground natural-gas storage was studied in cooperation with industry in several fields. A significant study of the flow of gas through experimental pipelines was completed.

The bureau began studying nitrogen in petroleum, and made progress in developing methods for separating sulfur compounds from complex mixtures. Cooperating with an oil refiners' group and the U.S. Navy, it investigated causes of instability of diesel fuels in storage, and began preliminary stability studies on gasoline. It issued reports on the quality of motor gasoline, aviation fuels, and diesel fuels, and began a survey of burner fuels.

Experimental retorting of oil shale at Rifle, Colo., ceased, but Congress made funds available for further mining research. Meanwhile, laboratory experiments on retorting shale and treating shale oil continued at Laramie, Wyo.

Coal.—Besides studying the operation of continuous mining machines and completing its part of a national inventory of minable reserves of coking coal, the bureau continued efforts to develop effective methods of cleaning and recovering fine sizes of coal. Chars for mixing with metallurgical coke were prepared from low-rank western coals.

Fuel charges containing as much as 40% anthracite in the bureau's experimental blast furnace at Pittsburgh, Pa., yielded low-sulfur pig iron with good rates of production and fuel consumption. Anthracite also showed promise when used in a metallurgical blast cupola in amounts varying from 10 to 40% of the coke-anthracite fuel charge.

Coal was converted to liquid fuel by reaction with hydrogen at high temperatures in a one-step instead of the conventional two-step process in a small continuous reactor, but the product was mostly heavy oil with relatively little gasoline and gaseous hydrocarbons. Pilot-plant tests of

this process yielded similar products, but the reactor had to be redesigned because of overheating.

Development of a pilot plant for gasifying coal with oxygen and steam at high pressures was under way. In cooperation with the Atomic Energy Commission, the bureau began research to determine whether steam alone, created by nuclear energy, can be used to gasify coal. The AEC plans to develop a reactor, and the bureau will test materials and attempt to work out a practicable chemical process.

Research on production of high-B.t.u. gas from synthesis gas produced from coal developed a pilot-scale reactor that gave higher gasification rates and gas of higher heating value than those previously tested. In addition, experimental gasification of unmined coal was resumed at Gorgas, Ala., in cooperation with industry, including tests of a hydraulic fracturing method to open passages in the coal bed.

Metals and Other Minerals.—The bureau's research on metals and nonmetallic minerals was concentrated heavily on strategic commodities and low-grade ores. Development of equipment for photographing the inside of 3-inch boreholes up to 2,000 feet in length added to knowledge of the basic physics of mining. Long-range cooperative studies with industry at copper mines added to understanding of the structural behavior of rocks, and promised to improve ore extraction. Other research aimed at broadening the nation's lead and zinc reserve base dealt with ore discovery, beneficiation, recovery from scrap, and zinc-base alloys. Treatment of oxidized ores was studied, along with methods for reducing metal losses at the government's tin smelter in Texas. Methods of utilizing Alaskan mercury-antimony ores were sought.

Successful beneficiation tests were made on low-grade iron ores from the Pacific Northwest, the Southeast, and Texas, and more than 100 samples of Lake Superior taconites were classified. Other work on iron and steel included study of the effects of rare-earth elements on carbon and low-alloy steels, production of standard ferromanganese from Artillery Peak, Ariz., ore, and development of a manganese-copper alloy with exceptional vibration-damping qualities.

A two-year agreement with the General Services Administration will permit acceleration of research to improve beneficiation of nickel ore near Nicaro, Cuba, and recover the iron, chromium, and cobalt contents.

Having halted titanium production at its Boulder City, Nev., pilot plant, the bureau began research there, in cooperation with industry, to improve the process for making titanium sponge. More was learned about the extractive and physical metallurgy of titanium. In addition, a wider range of magnesium-lithium-aluminum alloys was developed, and research progressed in the reduction of low-grade aluminous materials.

During the year, American industrial plants, employing a process developed by the U.S. Bureau of Mines, attained high enough production of zirconium and hafnium to permit cessation of bureau production. The bureau, however, continued fundamental research on these new metals. For the AEC, the bureau discovered several potentially important deposits of fissionable elements, and analyzed some 25,000 samples submitted by the public and believed to contain fissionable elements; this compares with approximately 11,000 samples tested in 1954. Also for

the AEC, the bureau began a new thorium research program.

A new realm of research was entered to devise extraction and separation methods and determine the physical properties and uses of the rare earth metals and their compounds. Important industrial uses are anticipated for many of these, which only recently became available in quantity through ore discoveries and as byproducts of thorium production.

Studies on nonmetallic minerals included development of a "planer" for mining phosphate rock; research on recovering byproduct fluorine at phosphate mills; and a survey of cement materials and production facilities for the proposed national highway building program.

Safety Activities.—Investigations to determine the causes of accidents and injuries and make appropriate recommendations continued. Inspections of coal mines and enforcement of the Federal Coal Mine Safety Act resulted in elimination of many hazards. A national campaign was launched, in cooperation with labor and management, to reduce the number of fatalities due to roof falls. A new experimental coal mine was opened at Bruceton, Pa., for testing drill-dust collectors and studying other health hazards. The number trained in coal mine accident prevention since 1947 reached 125,000, and 130 chapters and six councils of the Holmes Safety Association were organized. A coal mine explosion occurred in West Virginia. This was only the second major disaster since enforcement of the Federal Coal Mine Safety Act began in 1952.

Other Activities.—The bureau also continued fact-finding and analysis of foreign mineral production and consumption, technical assistance to underdeveloped countries, and training foreign technologists in its laboratories. Its economic and statistical studies covered the whole range of mineral commodities. An 86-chapter volume, *Mineral Facts and Problems*, considered one of the most valuable reference publications on minerals ever prepared by the bureau, was compiled for publication early in 1956.

JOHN J. FORBES,
Director, U.S. Bureau of Mines.

MINNESOTA. North Central state, United States; admitted to the Union, May 11, 1858. The "Gopher State" ranks 11th in area and 18th in population (1955) among the 48 states.

Area and Population.—Area: 84,068 square miles (land, 80,009; inland water, 4,059), divided into 87 counties. Population: (1950) 2,982,483; (est., July 1, 1955) 3,169,000. Urban places (with 1950 populations unless otherwise indicated) above 10,000 are as follows:

Albert Lea.....	13,545	Mounds View twp...	10,892 ²
Austin.....	23,100	New Canada twp....	12,062 ²
Bemidji.....	10,001	Owatonna.....	10,191
Brainerd.....	12,637	Red Wing.....	10,645
Crystal.....	13,724 ¹	Richfield.....	31,756 ¹
Duluth.....	104,511	Robbinsdale.....	11,289
Faribault.....	16,028	Rochester.....	29,885
Fergus Falls.....	12,917	St. Cloud.....	28,410
Hibbing.....	16,276	St. Louis Park.....	35,292 ¹
Mankato.....	18,809	St. Paul (capital)...	311,349
Minneapolis.....	521,718	South St. Paul.....	15,909
Minnetonka twp....	12,800	Virginia.....	12,486
Moorhead.....	14,870	Winona.....	25,031

¹ Special census, 1954. ² Special census, 1955.

Executive.—Chief state officers in 1955:

Governor: Orville L. Freeman (Democrat)

Lieutenant Governor: Karl F. Rolvaag

Secretary of State: Joseph L. Donovan

Treasurer: Arthur Hansen

Attorney General: Miles Lord

Commissioner of Education: Dean M. Schweickhard

Constitution and Judiciary.—The present constitution went into effect in 1858. The Supreme Court comprises 7 justices; chief justice in 1955: Roger L. Dell.

Legislature.—The Legislature (Senate, 67 members; House of Representatives, 131) convenes in odd-numbered years commencing on the first Tuesday after the first Monday in January.

The 59th legislature passed a record 881 new laws during its 1955 regular session. The legislators approved, after an eight-year campaign, a fair employment practices law; increased old age assistance and liberalized aid to the disabled; created a new Water Resources Board and gave it powers over watersheds and water control projects; authorized investigations of trade barriers to outside sales of Minnesota dairy products; provided for better enforcement of traffic laws and for reflectorized license plates; increased benefits under the workmen's compensation law; and authorized reorganization of the state government.

At the end of the regular session the Conservative-controlled Senate and the Liberal-controlled House were deadlocked on the tax and educational bills, and a one-day extra session on April 26 was needed to complete the legislature's work. During the extra session the legislators agreed to boost individual income taxes and taxes on iron ore, corporations, noncigarette tobacco, motor vehicle transfers, and insurance annuities. They also approved a new program of equalization aids to school districts and set basic school aid at \$82 per pupil, \$2 higher than in the 1953-55 biennium.

Total appropriations for the 1955-57 biennium set a new high of \$325,492,922.

Finances.—Net state treasury receipts (1954-55 fiscal year), \$495,937,575.74; net expenditures, \$532,836,605.10; cash balance, \$33,823,557.16; investments, \$445,082,348.70; long-term indebtedness, \$83,509,566.70.

Taxation.—Net state tax revenue (1954-55 fiscal year): \$242,595,560.31, including \$159,708,201.60 from selective sales and gross receipts taxes; \$45,892,420.85 from individual income taxes; \$15,356,472.11 from corporate taxes; and \$15,679,607.81 from property taxes. The state has no general sales tax or poll tax.

Banking.—As of June 30, 1955, the state's 178 national banks had \$2,505,574,000 in assets, \$1,696,995,000 in demand deposits, and \$592,366,000 in time deposits; the state's 503 other banks, had \$1,367,322,519.14 in assets.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$153,715,822 (\$306 per pupil) for public elementary and secondary education in the 1953-54 fiscal year comprised \$83,880,559 from local school districts, \$66,130,192 from the state, and \$3,705,071 from the federal government. Expenditures for construction and improvements totaled \$54,916,857. Teachers' salaries averaged \$3,479 (elementary school teachers, \$2,988; high school teachers, \$3,922).

MINNESOTA SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary	3,977	13,182	255,053
Public secondary	652	10,167	204,081
Public and private junior colleges	9	125	1,309
State teachers colleges (1954-55)	5	405	5,645

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institu-

MINNESOTA WELFARE INSTITUTIONS

(As of June 30, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic	5	4,506
Hospitals for the mentally ill	8	11,246
Sanatoriums for the tubercular	1	161
Schools for the blind (April 30, 1955)	1	125
Schools for the deaf	1	255
Hospitals for crippled children	1	147
Homes for dependent children	1	20
Soldiers and sailors homes	1	473 ¹
Institutions for defective delinquents	12	45
Training schools for delinquent boys	1	237
Training schools for delinquent girls	1	134
Reformatories for males	1	854
Reformatories for females	1	55
Prisons	1	1,095

¹ Includes 82 widows and mothers of veterans. ² Part of reformatory for males.

tional costs) for the 1954-55 fiscal year totaled \$67,411,864.80, including \$39,751,657.26 for old-age assistance, \$10,837,903.70 for dependent chil-

dren, and \$1,229,929.70 for the needy blind; a monthly average of 99,488 persons received public assistance. Operating expenditures for health and welfare institutions totaled \$19,788,052.07; for correctional and penal institutions, \$2,549,219.95.

Labor Force.—Wage and salary workers in non-agricultural establishments numbered 861,004 on July 1, 1955, and for the full year 1954 averaged 845,818. The state paid \$26,698,183 in unemployment compensation during 1954.

Manufacturing.—In 1953, 214,494 employees in manufacturing establishments earned \$868,804,000 in salaries and wages. Value added by manufacture amounted to \$1,554,405,000, and investment in new plant and equipment totaled \$96,113,000. Earnings of production workers in manufacturing averaged \$74.03 for an average work week of 40.6 hours in 1954, and \$76.65 for 40.9 hours in the first half of 1955.

MAJOR MINNESOTA MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ²
Food and kindred products	44,330	\$169,319	\$356,578
Nonelectrical machinery	27,536	112,213	190,124
Printing and publishing	19,933 ³	86,087 ³	105,343 ³
Fabricated metal products	12,612	51,148	88,182
Chemicals and allied products	3,924 ³	15,104 ³	68,205 ³
Paper and allied products	9,842 ³	40,592 ³	61,942 ³
Electrical machinery	7,501	32,008	45,640
Primary metal industries	5,519	25,306	35,545

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work.

³ Figures for 1952. (Source: *Annual Survey of Manufactures, 1953*.)

Mining.—Minnesota normally ranks first among the states in its production of iron ore. In 1953 it ranked 7th in the value of its mineral output, with 3.77% of the United States total.

MINNESOTA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays	91,401	\$ 149,384
Coke ¹	862,151	15,362,688
Iron ore (long tons)	80,533,670	517,850,509
Iron, pig ¹	643,513	...
Manganiferous ore	1,091,491	...
Sand and gravel	19,774,411	7,304,351
Stone ²	2,270,528	6,587,096
Other minerals	...	10,655,634
Total	...	\$542,546,974

¹ Values for processed materials are not included in the total. ² Value included in "Other minerals." ³ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$621,897,000, and for the full year 1954 comprised \$879,119,000 from livestock and livestock products, \$377,378,000 from crops, and \$9,161,000 from government payments. Receipts from principal crops and livestock in 1954 included: hogs, \$257,973,000; dairy products, \$232,969,000; cattle, \$216,742,000; corn, \$128,368,000; eggs, \$91,834,000; and soybeans, \$85,518,000.

The state's 165,225 farms (32,284,539 acres; harvested cropland, 19,492,565) had an average of 195.4 acres and \$21,054 in value of land and buildings per farm in 1954. There were 112,896 farms with telephones and 155,555 with electricity. Livestock on farms (Jan. 1, 1955) included 3,939,000 cattle, 961,000 sheep, 3,668,000 hogs, and 24,335,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2,

1954, there were 330,876 family and hired workers engaged in farming.

MINNESOTA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Barley (1,000 bu.)	26,116	28,050	28,298
Corn (1,000 bu.)	236,380	277,043	284,935
Flaxseed (1,000 bu.)	12,106	8,928	8,008
Hay (1,000 tons)	6,205	6,683	6,944
Oats (1,000 bu.)	189,929	181,685	197,948
Potatoes (1,000 bu.)	15,190	16,605	13,989
Rye (1,000 bu.)	2,154	1,334	1,680
Soybeans (1,000 bu.)	15,194	42,294	45,162
Sugar beets (1,000 short tons)	447	819	773
Wheat (1,000 bu.)	19,548	10,157	12,015

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in 1954-55 totaled \$46,971,697, and newly completed construction and reconstruction aggregated 944 miles.

Highways and roads on Jan. 1, 1955, totaled 122,726 miles (89,043 surfaced). Registered motor vehicles numbered 1,359,493 on Aug. 1, 1955, including 1,064,322 passenger cars. There were 28 railroads (1954) operating 8,327.61 line miles and, on Sept. 1, 1955, 5 regularly scheduled airlines and 439 airports and airfields (136 commercial and municipal, 1 military, and 302 private).

Communications media included (1955) 52 AM and 6 FM radio stations and 6 operating television outlets; 30 daily newspapers (circulation, 982,074) and 395 other newspapers; and (Jan. 1, 1955) 260,235 business and 782,165 residential telephones.

Principal Events, 1955.—Minnesota medical men continued to make advances in heart surgery. At the Mayo Clinic in Rochester a new heart-lung machine was developed, the first to work successfully in more than one case. University of Minnesota surgeons expanded their work in rerouting the blood stream during operations by the use of a dog's lung. At the end of 1955 the university's surgical team which developed the controlled cross-circulation technique received the Albert Lasker Award.

In November, two University of Minnesota scientists announced the development of a new principle for controlling certain diseases by the use of "protective milk." The university also announced completion of the most powerful straight-line "atom-smasher" in the world, a new linear accelerator for the energy region of 40 to 68 million electron volts.

Eric Hoyer was elected to his fourth term as mayor of Minneapolis on June 13. Liberals retained control of the City Council, 8-5. St. Paul voters rejected a charter amendment to raise taxing and spending limitations. As a result, schools and other services face a financial crisis.

In one of the first projects of its kind in the United States, three companies—Northern States Power, Minneapolis-Honeywell, and General Mills—joined with the University of Minnesota to form the Minnesota Nuclear Operations Group. The members will pool their resources to study peaceful uses of atomic energy of benefit to the state.

Minnesota's first large commercial taconite processing plant, the E. W. Davis Works of the Reserve Mining Company, began operations at Silver Bay in October. The \$190 million plant has an estimated capacity of 3,750,000 long tons of concentrate. Earlier in 1955 the world's biggest coated abrasives plant, a division of the Minnesota Mining and Manufacturing Company, opened in St. Paul.

For the first time in its 94-year history the Minnesota State Fair broke the million mark in

attendance with 1,006,688 visitors. Although it was a drought year, the state harvested 285 million bushels of corn and 45.5 million bushels of soybeans for new all-time records. Minnesota was the only major corn state to set a new high in production in 1955.

Legislature and Principal Events by:

JEANNE SINNEN,
Editor, University Press, University of Minnesota.

MINT ESTABLISHMENT, U.S. The U.S. Mint, a bureau of the Treasury Department, administers laws dealing with coinage of money, and the purchase, sale, deposit, assay, refining, and custody of the government's stock of monetary gold and silver. The Mint also administers in part Treasury controls over the acquisition, ownership, possession, and use of gold and silver. The Office of the Director in Washington, D.C., supervises operations of the coinage mints in Philadelphia, San Francisco, and Denver; the New York Assay Office; the gold bullion depository at Fort Knox, Ky.; and the silver bullion depository at West Point, N.Y. Coinage was discontinued at San Francisco in March 1955, but the institution continued to operate as an assay office. The Seattle Assay Office was closed in March 1955.

During the fiscal year 1955, production included 936,900,000 United States coins with a face value of \$38,600,000, and 69,530,000 coins for Costa Rica, the Dominican Republic, and Venezuela.

United States monetary stocks of gold and silver held by the Mint during the fiscal year 1955 totaled approximately \$24 billion.

LELAND HOWARD,
Assistant Director of the Mint.

MIQUELON ISLAND. See SAINT PIERRE AND MIQUELON.

MISSILES, Guided. See the Index entry, *Guided Missiles*.

MISSISSIPPI. South Central state, United States; admitted to the Union, Dec. 10, 1817. The "Magnolia State" ranks 31st in area and 28th in population (1955) among the 48 states.

Area and Population.—Area: 47,716 square miles (land, 47,248; inland water, 468), divided into 82 counties. Population: (1950) 2,178,914; (est., July 1, 1955) 2,085,000. Urban places with 1950 populations above 10,000 are as follows:

Biloxi	37,425	Laurel	25,038
Clarksdale	16,539	McComb	10,401
Columbus	17,172	Meridian	41,893
Greenville	29,936	Natchez	22,740
Greenwood	18,061	Pascagoula	10,805
Gulfport	22,659	Tupelo	11,527
Hattiesburg	29,474	Vicksburg	27,948
Jackson (capital)	98,271		

Executive.—Chief state officers in 1955:

Governor: Hugh White (Democrat)
Lieutenant Governor: Carroll Gartin
Secretary of State: Heber Ladner
Treasurer: Newton James
Attorney General: J. P. Coleman
Supt. of Public Education: J. M. Tubbs

Constitution and Judiciary.—The present constitution went into effect in 1890. The Supreme Court comprises nine justices; chief justice in 1955: Harvey McGehee.

Legislature.—The Legislature (Senate, 49 members; House of Representatives, 140) meets for a regular session in even-numbered years commencing the first Tuesday after the first Monday in January.

At a special session of the legislature (January 11-April 7), major enactments included those which authorized the Bond Commission to issue notes, not exceeding \$10 million, to prevent a General Fund deficit, and provided for additional General Fund revenue through various surtaxes; created a wholesale compensating tax; levied a use tax on motor vehicles purchased outside the state; altered the excise taxes on tobacco products; increased the retail sales tax from 2% to 3% and removed certain exemptions; created a municipal aid fund and a

Division of Budget and Accounting to prepare a balanced budget by December 1 preceding each regular biennial session; set up an adoption procedure; changed various election laws; and imposed fines and possible jail sentences for white persons attending Negro state-supported schools.

Finances.—State treasury receipts (1954-55 fiscal year), \$182,057,890.11; expenditures, \$204,634,533.09; treasury balance, \$45,491,097.16; long-term indebtedness, \$72,317,000 (in highway construction bonds payable from the gasoline tax).

Taxation.—State tax revenue (1954-55 fiscal year); \$125,302,320, including \$90,500,484 from a 2% general sales tax and selective sales and gross receipts taxes; \$10,360,146 from corporate income taxes; \$10,188,105 from licensing; and \$3,977,399 from individual income taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 26 national banks had \$280,068,000 in assets, \$203,926,000 in demand deposits, and \$55,343,000 in time deposits; the state's 170 other banks (Dec. 31, 1954) had \$758,851,000 in assets, \$432,695,000 in demand deposits, and \$113,046,000 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 14, inclusive. Operating expenditures of \$59,935,737 (\$135.37 per pupil) for public elementary and secondary education in the 1954-55 school year comprised \$26,191,917 from local school districts, \$32,844,784 from the state, and \$899,036 from the federal government. Expenditures for construction and improvements amounted to \$4,153,350. Teachers' salaries averaged \$2,352 (elementary school teachers, \$2,023; high school teachers, \$2,614).

Mississippi opened its first four-year medical school at Jackson in the \$9 million Medical Center, which also includes a 350-bed teaching hospital.

MISSISSIPPI SCHOOL STATISTICS, 1954-55

Type of school	No.	Teachers	Students
Public elementary (1-8).....	813	10,725	448,780
Public secondary (9-12).....	462	5,510	93,158
Private and parochial elementary and secondary.....	65	---	15,436
Junior colleges.....	26	---	9,624
Colleges and universities.....	16	---	16,683

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) for the fiscal year 1954-55 totaled \$8,500,000, including \$8,000,000 for old-age assistance, \$200,000 for dependent children, and \$206,000 for the needy blind. Operating expenditures for health and welfare institutions totaled \$3,250,000; for correctional and penal institutions, \$1,185,000.

MISSISSIPPI WELFARE INSTITUTIONS

(As of June 30, 1955)

Type of institution	No.	Pop.
Hospitals for the mentally ill.....	3	6,200
Sanatoriums for the tubercular.....	1	448
Schools for the blind.....	1	150
Schools for the deaf.....	1	162
Hospitals for spastic children.....	1	20
Reformatories.....	2	365
Prisons.....	1	2,101

Labor Force.—Insured nonfarm employment was 204,021 on March 15, 1955, and for the previous 12 months averaged 199,933. On Aug. 13, 1955, the number of insured unemployed workers totaled 8,679, and the state paid \$9,312,104 in unemployment compensation during the year ending June 30, 1955.

Manufacturing.—Establishments numbering 3,300 in 1954 produced \$351,722,000 in value added by manufacture. Investment in new plant and equipment in 1953 amounted to \$31,369,000. Earnings of production workers in manufacturing averaged \$48.14 in 1954 for an average work

week of 40.8 hours, and \$51.65 for 43.4 hours in the first half of 1955.

MAJOR MISSISSIPPI MANUFACTURES, 1954

	Persons engaged	Payroll & profits income (millions of dollars)	Value of output (millions of dollars)
All manufactures.....	96,000	\$811	\$1,032
Food products.....	13,000	36	214
Lumber.....	25,000	57	177
Paper and pulp.....	8,000	47	148
Apparel.....	21,000	37	133
Chemicals.....	6,000	31	96
Transportation equipment.....	6,000	35	87
Textiles.....	4,000	13	48
Furniture.....	2,000	9	32
Stone-clay-glass products.....	3,000	12	24
Machinery.....	3,000	11	18

(Source: *Blue Book of Southern Progress*, 1955.)

Mining.—Because of its growing output of petroleum and natural gas, Mississippi now ranks 25th among the states in value of mineral production, with 0.75% of the United States total.

MISSISSIPPI MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	560,047	\$ 3,158,385
Natural gas (1,000 cu. ft.).....	154,254,000	12,340,000
Natural gasoline (bbl.).....	767,000	2,295,000
Petroleum (bbl.).....	35,620,000	84,060,000
Petroleum gases (bbl.).....	422,000	713,000
Sand and gravel.....	2,653,646	2,173,871
Stone.....	38,000	43,700
Other minerals.....	---	3,083,749
Total.....	---	\$107,867,705

(Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$144,121,000, and for the full year 1954 comprised \$151,855,000 from livestock and livestock products, \$375,310,000 from crops, and \$5,939,000 from government payments. Receipts from principal crops and livestock in 1954 included: cotton lint, \$285,722,000; dairy products, \$44,740,000; cattle, \$43,300,000; cottonseed, \$33,510,000; and broilers, \$25,055,000.

The state's 215,915 farms (20,702,412 acres; harvested cropland, 5,529,981) had an average of 95.9 acres and \$6,102 in value of land and buildings per farm in 1954. There were 29,715 farms with telephones and 183,346 with electricity. Livestock on farms (Jan. 1, 1955) included 2,080,000 cattle, 631,000 hogs, and 7,188,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 468,992 family and hired workers engaged in farming.

MISSISSIPPI CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Corn (1,000 bu.).....	40,087	27,234	46,620
Cotton lint (1,000 bales).....	1,693	1,571	2,000
Cottonseed (1,000 tons).....	681	654	814
Hay (1,000 tons).....	913	618	905
Oats (1,000 bu.).....	8,402	17,080	15,360
Peanuts (1,000 lb.).....	4,270	1,740	2,700
Pecans (1,000 lb.).....	8,385	4,600	5,500
Potatoes (1,000 bu.).....	1,158	560	390
Rice (1,000 bags).....	680	2,214	1,510
Soybeans (1,000 bu.).....	3,479	5,190	12,464
Sweet potatoes (1,000 bu.).....	3,363	1,083	2,000
Wheat (1,000 bu.).....	331	784	286

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$34,541,234, and newly completed construction and reconstruction aggregated 277.5 miles.

Highways and roads on Dec. 31, 1954, totaled 60,-478.6 miles (8,793.3 surfaced). Registered *motor vehicles* numbered 625,975 on Aug. 30, 1955, including 402,545 passenger cars. There were 18 *railroads* (1955) operating 3,742 main line miles, and 3 regularly scheduled *airlines* and 81 *airports and airfields* (54 commercial and municipal, 4 military, and 23 private).

Communications media (1955) included 54 AM and 3 FM *radio stations* and 4 operating *television outlets*; 21 daily *newspapers* (circulation, 245,540) and 121 other newspapers; and (Jan. 1, 1955) 83,252 business and 204,611 residential *telephones*.

Principal Events, 1955.—As a result of the Democratic primary held in August, Attorney General J. P. Coleman was nominated (or for practical purposes elected) governor, to take office on Jan. 17, 1956. The choice was surprising for several reasons, but above all because it was Coleman's first time to run for that office. Popular and handsome Lieut. Gov. Carroll Gartin was re-elected. The governor-elect's campaign addresses and his subsequent remarks indicated no major change in general policies.

Occurrences which attracted unusual attention followed the strange disappearance of a 14-year-old Negro, Emmett Till, from Money, Miss., on August 28. A body was found in the Tallahatchie River on August 31, but no absolute identification of it as that of Till was legally established. Two white citizens of the Delta community were alleged to have murdered him, but the case against them was not proved in court. In September they were acquitted by a jury in Sumner. They were then held (on bail) for consideration by a grand jury in Greenwood on the charge of kidnaping, but in November the grand jury declined to indict them. Pressure by groups outside the state made a national and even an international *cause célèbre* of the incident. (See also **NEGROES, AMERICAN.**)

Several petitions by Negro groups asked for school desegregation in several leading towns, but later most of the persons requested withdrawal of their signatures. According to press reports, they stated that they signed the petitions under a misapprehension of their contents. Integration, therefore, did not begin to appear in Mississippi during 1955, but external pressure was seeking to provoke court cases. Meanwhile the Citizens Councils (white groups advocating the maintenance of segregation by peaceful and lawful means) continued their phenomenal growth.

In Mississippi journalism, a new major daily-Sunday newspaper, the Jackson *State Times*, began publication on February 28. Within six months it had achieved a circulation of more than 28,000 (see also **JOURNALISM**).

MISSOURI. Central state, United States; admitted to the Union, Aug. 10, 1821. The "Show-Me" State" ranks 18th in area and 12th in population (1955) among the 48 states.

Area and Population.—Area: 69,674 square miles (land, 69,226; inland water, 448), divided into 114 counties and the city of St. Louis. Population: (1950) 3,954,653; (est., July 1, 1955) 4,094,000. Urban places with 1950 populations above 10,000 are as follows:

Cape Girardeau.....	21,578	Maplewood.....	13,416
Carthage.....	11,188	Mexico.....	11,623
Clayton.....	16,035	Moberly.....	13,115
Columbia.....	31,974	Overland.....	11,566
Ferguson.....	11,573	Poplar Bluff.....	15,064
Fulton.....	10,052	Richmond Heights.....	15,045
Hannibal.....	20,444	St. Charles.....	14,314
Independence.....	36,963	St. Joseph.....	78,588
Jefferson City*.....	25,099	St. Louis.....	856,796
Jennings.....	15,282	Sedalia.....	20,354
Joplin.....	38,711	Sikeston.....	11,640
Kansas City.....	456,622	Springfield.....	66,731
Kirkville.....	11,110	University City.....	39,892
Kirkwood.....	18,640	Webster Groves.....	23,390

* Capital

Executive.—Chief state officers in 1955:

Governor: Phil M. Donnelly (Democrat)
Lieutenant Governor: James T. Blair, Jr.
Secretary of State: Walter H. Toberman
Treasurer: George Hubert Bates
Attorney General: John M. Dalton
Commissioner of Education: Hubert Wheeler

Constitution and Judiciary.—The present constitution went into effect in 1945. The Supreme Court comprises seven justices; chief justice in 1955 was C. A. Leedy, Jr. (succeeding Ernest M. Tipton who died on February 25).

Legislature.—The General Assembly (Senate, 34 members; House of Representatives, 157) convenes regularly in odd-numbered years commencing the first Wednesday after the first day of January and must adjourn by May 31.

At the regular 1955 session, a record-breaking \$806 million biennial appropriation was passed, but it was reduced through the veto of certain items by the governor to approximately \$800 million. Other enactments revised the state mental hospitals program and provided six traveling psychiatric clinical teams; set up a new probation and parole system; further revised the Criminal Code; and promulgated new laws affecting state banking, slum clearance, and redevelopment projects in the cities.

Four important matters were referred to the people. The first two, passed overwhelmingly at a special election on Oct. 4, 1955, provided for a \$22 million increase in state aid for public elementary and secondary schools, guaranteeing in state and local aid a minimum of \$185 per pupil in average daily attendance; and for a 2-cent cigarette tax for the partial financing of this program. The third, to be voted on on Jan. 24, 1956, proposed a \$75 million bond issue to provide funds for rebuilding the penal and eleemosynary institutions and for construction of facilities at the state universities and colleges. The fourth, a constitutional amendment providing for an annual legislative session which could extend for six months, instead of the present five-month session in odd-numbered years, will be voted on in November 1956.

Finances.—State treasury receipts (1954-55 fiscal year), \$338,025,253.31; expenditures, \$335,240,607.66; treasury balance, \$143,251,361.26; long-term indebtedness, \$6,500,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$225,824,392, including \$92,383,996 from a 2% general sales tax; \$54,791,899 from selective sales taxes; \$39,-217,388 from licensing; and \$27,382,446 from individual and corporate income taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 77 national banks had \$2,115,692,000 in assets, \$1,671,857,-000 in demand deposits, and \$290,979,000 in time deposits; the state's 527 other banks had \$3,397,393,084 in assets, \$2,434,202,193 in demand deposits, and \$664,-021,686 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 14, inclusive. Operating expenditures of \$138,129,262 (\$229.86 per pupil) for public elementary and secondary education in the 1953-54 school year comprised 66.1% from local school districts, 31.5% from the state, and 2.4% from the federal government. Expenditures for construction and improvements totaled \$41,647,488. Teachers' salaries averaged \$3,240 (elementary teachers, \$3,010; high school teachers, \$3,637).

MISSOURI SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (K-8).....	5,113 ¹	18,299	548,854 ²
Public secondary (9-12).....	650 ¹	7,299	154,815
Junior colleges.....	17	560	5,803
State teachers colleges.....	5	488	8,421
Colleges and universities.....	21	4,424	43,266

¹ 1952-53 figures. ² Including 32,176 kindergarten pupils.

Labor Force.—The state's labor force on July 15, 1955, numbered 2,041,300, including 296,-700 agricultural workers. Nonagricultural employment totaled 1,264,200, and for the year ending July 15, 1955, averaged 1,264,200. There were 75,700 unemployed workers on July 15, 1955, and the state paid \$29,608,343 in unemployment benefits for the year ending Aug. 31, 1955.

Social Welfare.—Public welfare expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled

MISSOURI WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic (1954-55).....	2	2,467
Hospitals for the mentally ill (1954-55).....	5	12,169
Trachoma hospitals (Aug. 1, 1955).....	1	35
Cancer hospitals (July 1, 1955).....	1	100
Sanatoriums for the tubercular (Nov. 1, 1954).....	1	509
Schools for the blind (October 1955).....	1	160
Schools for the deaf (October 1955).....	1	300
Soldiers and sailors homes (Aug. 1, 1955).....	1	146
Training schools for delinquent boys (1954-55).....	1	331
Training schools for delinquent girls (1954-55).....	1	121
Reformatories for males (1954-55).....	1	555
Prisons (1953-54).....	1	3,122

\$110,348,703.60, including \$79,211,161 for old-age assistance, \$17,214,092 for dependent children, and \$2,326,425 for the needy blind; a monthly average of 215,770 persons received public assistance. Expenditures for health and welfare institutions totaled \$136,017,757.42; for correctional and penal institutions, \$4,192,654.69.

Manufacturing.—Establishments numbered over 7,000 in 1953, and produced \$2,786,829,000 in value added by manufacture. Investment in new plant and equipment was \$112,844,000. Earnings of production workers in manufacturing averaged \$67.63 for an average work week of 39 hours in 1954, and \$69.86 for 39.5 hours in the first half of 1955.

MAJOR MISSOURI MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
<i>All manufactures</i>	381,000	\$1,933	\$5,963
Food products.....	55,000	314	1,716
Transportation equipment.....	48,000	292	727
Machinery.....	53,000	292	679
Chemicals.....	20,000	152	473
Leather.....	41,000	121	364
Apparel.....	40,000	113	364
Fabricated metals.....	24,000	125	296
Petroleum & coal products.....	3,000	42	214
Printing.....	23,000	105	214
Stone-clay-glass products.....	15,000	94	201
Primary metals.....	13,000	85	200

(Source: *The Blue Book of Southern Progress*, 1955.)

Mining.—Missouri usually ranks first among the states in production of lead, second in barite and tripoli, and third in lime. In 1953 it ranked 23d among the states in value of mineral output, which comprised 0.89% of the United States total. There were 8,396 persons employed in the state's mineral industries in 1954.

MISSOURI MINERAL PRODUCTION, 1954¹

(In short tons, except as noted)

Mineral	Quantity	Value
Barite.....	300,000	\$ 3,150,000
Cement (bbl.).....	11,000,000	30,250,000
Clays ²	1,900,000	11,750,000
Coal.....	2,500,000	12,500,000
Copper.....	1,850	1,098,900
Iron ore (long tons).....	260,000	3,466,880
Lead.....	123,040	10,900,000
Lime.....	1,120,000	5,800,000
Sand and gravel.....	6,500,000	256,672
Silver (oz.).....	15,000,000	22,500,000
Stone ⁴	283,600	1,287,600
Zinc.....	5,800	2,558,000
Other minerals.....	.....	\$135,518,052
Total.....	.....	.....

¹ Preliminary. ² Excluding plays sold or used for cement. ³ Value included in "Other minerals." ⁴ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$405,161,000, and for the full year 1954 comprised \$724,698,000 from livestock and livestock products, \$310,937,000 from

crops, and \$9,068,000 from government payments.

Receipts from principal crops and livestock in 1954 included: hogs, \$261,803,000; cattle, \$223,088,000; dairy products, \$129,586,000; cotton lint, \$81,138,000; wheat, \$71,023,000; soybeans, \$67,475,000; and eggs, \$54,312,000.

The state's 201,614 farms (34,195,379 acres; harvested cropland, 12,365,630) had an average of 169.6 acres and \$13,468 in value of land and buildings per farm in 1954. There were 106,306 farms with telephones and 188,595 with electricity. Livestock on farms (Jan. 1, 1955) included 3,910,000 cattle, 3,610,000 hogs, and 18,642,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 336,653 family and hired workers engaged in farming.

MISSOURI CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	1,135	1,000	780
Corn (1,000 bu.).....	149,188	69,201	165,204
Cotton lint (1,000 bales).....	358	450	405
Cottonseed (1,000 tons).....	152	197	176
Hay (1,000 tons).....	4,188	2,786	3,758
Oats (1,000 bu.).....	35,789	63,993	60,440
Popecorn (1,000 lb.).....	20,778	8,800	15,000
Soybeans (1,000 bu.).....	19,214	27,540	35,154
Strawberries (1,000 crates).....	280*	82	45
Tobacco (1,000 lb.).....	5,801	5,698	3,680
Wheat (1,000 bu.).....	25,825	42,563	49,632

* Average, 1949-53. (Source: U.S. Department of Agriculture.)

Transportation and Communications.—State funds disbursed for roads and highways in 1954 totaled \$69,328,000.

Highways and roads on Dec. 31, 1953, comprised 11,676 miles of municipal roads and 99,482 miles of rural roads (78,714 surfaced; 20,768 unsurfaced). Registered *motor vehicles* (1954) numbered 1,513,831, including 1,137,095 passenger cars. There were 23 *railroads* operating 8,169 line miles, and 9 regularly scheduled *airlines* and 127 *airports and airfields* (97 commercial and municipal, 3 military, 14 private, and 13 personal use).

Communications media (1955) included 66 AM and 7 FM *radio stations* and 13 operating *television outlets*; 58 daily *newspapers* (circulation, 1,770,686) and 371 other newspapers; and (Jan. 1, 1955) 367,988 business and 967,084 residential *telephones*.

Principal Events, 1955.—Agricultural production in Missouri during 1955 was much higher than during any of the previous three years. The corn crop of 165 million bushels was above the 10-year average and, for the second year in succession, there were record wheat and near-record oat crops. Soybean, cotton, and hay production were approximately normal. Good crop yields coupled with a very high population of hogs and cattle led to a heavy outpouring of farm products. Farmers, however, were plagued by the low prices paid for their livestock products, causing their income to go down despite larger output.

Missouri cities were prosperous in 1955, and manufacturing and building were going forward at a rapid pace. Home building was at an all-time high, and public works were being pushed forward swiftly, especially in Kansas City and St. Louis, where important arterial highways were also recently completed. Kansas City's new airport was scheduled to be ready some time in 1956.

No general elections were held in the state in 1955. Kansas City elected Fusionist H. Roe Bartle as mayor by an overwhelming majority in its April election. Municipal elections in the smaller towns generally favored the Democrats.

Dr. Elmer Ellis was elected the new president



Former President Truman breaks ground, May 8, 1955, in Independence, Mo., for the Harry S. Truman Library.

of the University of Missouri in April. The university, the state colleges, and the public junior colleges showed greatly increased enrollments in the fall of 1955.

Kansas City public schools began their school year on September 7 on a new nonsegregated basis. The 90 schools in the city limits achieved integration without any noticeable friction.

The former Philadelphia Athletics were enthusiastically welcomed to their new home in Kansas City on April 11. In a completely refurbished stadium the new Kansas City Athletics attracted 1,393,054 fans (compared with 304,666 in Philadelphia in the 1954 season) and improved the team's American League finish from last to sixth place.

On May 8, former President Harry S. Truman broke ground for the \$1,750,000 Harry S. Truman Library at Independence.

(See also SAINT LOUIS.)

Legislature; Constitution and Judiciary; and Principal Events by:

W. FRANCIS ENGLISH,
Dean, College of Arts and Sciences,
University of Missouri.

MITCHELL, James Paul, American public official: b. Elizabeth, N.J., Nov. 12, 1902. Appointed U.S. secretary of labor on Oct. 8, 1953, he was sworn in on the following day.

After taking a position with the Western Electric Company in 1929, Mitchell gravitated toward personnel work. From 1942 to 1945 he was director of the industrial personnel division at the headquarters of the Army Service Forces. Following two years as director of personnel and industrial relations for R. H. Macy & Co., he became, in 1947, vice president in charge of labor relations and operations at Bloomingdale Bros. in New York. In May 1953, he went on leave from Bloomingdale's to serve as assistant secretary of the army.

Since his appointment as secretary of labor, Mitchell has favored an increase in the minimum wage, and in August 1955 he recommended that President Dwight D. Eisenhower sign the law raising it to \$1.00 an hour, which was 10 cents

more than the administration had requested. A strong opponent of racial and religious discrimination, Mitchell stated on August 27 that the administration would increase its efforts to eliminate such discrimination from plants doing business with the government.

MITCHELL, William DeWitt, American lawyer: b. Winona, Minn., Sept. 9, 1874; d. Syosset, Long Island, N.Y., Aug. 24, 1955. Regarded during his lifetime as one of the foremost lawyers in the United States, he served as attorney general in the cabinet of President Herbert Hoover.

After graduating from the University of Minnesota (A.B. 1895; LL.B. 1896), he began practice in St. Paul, Minn. During the Spanish-American War, he served as a 2d lieutenant in the 15th Minnesota Volunteer Infantry and later as engineering officer of the 3d Brigade, 1st Division. In 1899 he returned to legal practice as a junior partner in a St. Paul law firm.

During World War I, he had duty as a colonel in the 6th Minnesota Infantry Regiment and later entered the Officers' Training School at Camp Taylor, Ky. In 1925, Mitchell was appointed U.S. solicitor general by President Calvin Coolidge, and on March 4, 1929, despite his Democratic Party affiliations, he was appointed U.S. attorney general by President Hoover. One of his chief duties during his tenure was the enforcement of the controversial Prohibition (18th) Amendment.

In April 1933, after the defeat of President Hoover, Mitchell returned to private practice in New York City. In 1935 he was appointed chairman of the Supreme Court's advisory committee on federal rules of procedure, retaining the post until his death. On Sept. 26, 1945, he was chosen chief counsel for the joint congressional committee investigating the Pearl Harbor disaster, but resigned in December because of what he believed to be the Republican members' obstruction of the committee's work. His last major case came in December 1952, when he served as one of three members of a board of jurists which upheld the right of the United Nations secretary general to discharge any staff employee who was found to belong to the U.S. Communist Party.

MOHAMMEDANISM. See Index entry, *Moslems*.

MOLOTOV, Vyacheslav Mikhailovich, Soviet public official: b. Kukarka (now Sovetsk), Kirov District, Russia, March 9, 1890. As the USSR's foreign minister, he reflected the fluctuating course of Soviet international policy in 1955.

Prominent in Communist affairs since 1917, Molotov became a full member of the Politburo in 1925. He served as chairman of the Council of People's Commissars (premier) from 1930 to 1941, and as foreign minister from 1939 to 1949 and again from 1953. He concluded the non-aggression pact with Nazi Germany in 1939, and he was present at the Teheran, Yalta, San Francisco, and Potsdam conferences.

In a widely reported speech to the Supreme Soviet on Feb. 8, 1955, Molotov claimed leadership for the USSR in atomic arms production. He was a signatory of the Austrian State Treaty on May 15, and in June visited the United States for the first time since 1946 to participate in the celebration of the 10th anniversary of the signing of the U.N. Charter. In the following month he met with the other Big Four foreign ministers at the Geneva Conference (q.v.). When the ministers met again at Geneva on October 27–November 16, Molotov's adamant expression of

Soviet views on German unity and European security made the West realize that there was little left of the Geneva spirit.

A possible indication that Molotov's importance as a Soviet political leader had declined in 1955 was a letter, published on October 8, in which he confessed that he had made a "theoretically and politically dangerous" error in his February speech to the Supreme Soviet.

MOLYBDENUM. Production of molybdenum (metal content of concentrates) in the United States reached 58,426,000 pounds in 1954, which was about 90% of the world output. Production in 1953 was 57,243,000 pounds, and it reached 36,184,000 pounds in the first 7 months of 1955. Consumption declined substantially, from 31,193,000 pounds in 1953 to 24,710,000 in 1954; but increased to 23,191,000 during the first 7 months of 1955. Although consumption was low in 1954, exports attained an all-time high of 13,546,510 pounds. Accordingly, stocks of concentrates were reduced from 11,326,000 pounds in 1953 to 5,317,000 pounds in 1954. (See also MINERAL PRODUCTION for table showing output of major producing countries.)

MONACO. A principality on the Mediterranean shore of France. Area, 370 acres; pop. (est. 1954), 22,000. Language and currency are French. Prince Rainier III (acceded in 1949) is the titular ruler. The National Council of 18 members is elected for 4 years. The ministry is headed by a minister of state. The budget for 1954 was: revenue, 2,121,371,000 francs; expenditure, 2,512,555,000. Tourism is of chief importance; 70,276 tourists entered Monaco in 1953. In late June 1955 a run took place on the Société Monégasque de Banque et de Metaux Precieux, following a decline in stocks in which the bank had invested heavily. Despite a government advance of 250 million francs, the bank went into bankruptcy on August 1 and did not reopen until November 14. The incident resulted in the resignation of the government ministry on July 3. Prince Rainier III arrived in New York on December 16 on a two-month tour of the United States; and on Jan. 5, 1956, his engagement to Grace Kelly (q.v.), American actress, was announced.

MONETARY AFFAIRS. See Index entries, *Money* and *Financial and Economic Review*.

MONETARY FUND, International. See INTERNATIONAL MONETARY FUND.

MONEY. See Index entry.

MONGOLIA. A vast plateau region of east-central Asia between China and Siberia, traditionally separated into Inner Mongolia (q.v.) in the south, and Outer Mongolia (Mongolian People's Republic, q.v.) in the north.

MONGOLIAN PEOPLE'S REPUBLIC (OUTER MONGOLIA). A republic of central Asia, lying between Soviet Siberia and China. Estimated area, 591,100 square miles; pop. (est. 1954), 920,000, chiefly Khalkha, with some Mongols, Kazakhs, Tuvinians, Chinese, and Russians. Ulan Bator (est. 100,000) is the capital.

Government.—Soviet influence has been paramount since the 1920's. The Great Hural (Huraldan), or People's Assembly, is elected every 8 years by universal suffrage and meets at least once a year. It chooses from its number a 7-member presidium which carries on current functions. Yumzhagiyn Tsedenbal, leader of the Politburo of the Mongolian People's Revolutionary Party, has been premier since 1952. Revenue in 1954 was estimated at 439.3 million tughricks; expenditure, 434.8 million. The tughrick is equal to the Soviet ruble.

Education and Religion.—There were 420 elementary schools, 32 middle schools, and 15 secondary schools in 1952, with 73,000 pupils; and 15 technical schools and 3 higher schools with 3,500 students. National Choy-Balsan University at Ulan Bator has about 1,100 students. An Academy of Sciences was founded in 1953. Buddhist Lamaism is the chief religion. The once-powerful lamasteries have been stripped of their power and wealth by the revolutionary government.

Economy.—Livestock raising is the chief economic activity. Sheep and goats number in the millions of head, and the breeding of cattle, horses, and camels is also important. Cultivation of grains and other crops is on a relatively small scale. Industry is either nationalized or organized in cooperatives and consists mainly of the processing of meat and dairy products and the manufacture of leather goods, sheepskin coats, woolen garments, and felt. Gold, coal, marble, and building materials are mined in small quantities. The country's Second Five-Year Plan (1953-57) is in progress. Foreign trade consists principally of the export of cattle, skins, furs, and other animal products to Soviet Russia and Communist China in exchange for industrial equipment and other manufactures. Transport is largely by caravan. Railways and airlines connect Ulan Bator with Soviet Siberia and Communist China.

Principal Events, 1955.—Track-laying on the Ulan Bator-Tsining (China) railway was completed to the Chinese border in the early spring; while the Chinese segment (Tsining to Erhlien) was finished in November. The entire line, linking Communist China and Soviet Siberia via the Mongolian People's Republic, was to be open to traffic in early 1956.

Ho Chi Minh, president of North Viet-Nam, visited Ulan Bator en route to Moscow on July 8. East German Premier Otto Grotewohl headed an East German delegation which visited Ulan Bator on December 27, on its return route from Peking. Admission of the Mongolian People's Republic to the United Nations was vetoed in the U.N. Security Council by Nationalist China on December 13.

MONTANA. Northwestern state, United States; admitted to the Union, Nov. 8, 1889. The "Treasure State" ranks 3d in area and 42d in population (1955) among the 48 states.

Area and Population.—Area: 147,138 square miles (land, 145,878; inland water, 1,260), divided into 56 counties. Population: (1950) 591,024; (est., July 1, 1955) 628,000, including 16,606 Indians. Major urban places with 1950 census figures and 1955 local estimates are as follows:

	1955 est.	1950 census		1955 est.	1950 census
Anaconda...	12,927	11,244	Havre.....	10,286	8,086
Billings.....	41,177	31,854	Helena*	21,581	17,581
Bozeman.....	13,223	11,325	Kalispeul.....	12,785	9,737
Butte.....	41,528	33,251	Missoula.....	30,128	22,485
Great Falls...	46,187	39,214			* Capital

Executive.—Chief state officers in 1955:

Governor: J. Hugo Aronson (Republican)
Lieutenant Governor: George M. Gosman
Secretary of State: S. C. Arnold (succeeded Sam Mitchell, who died in June 1955)
Attorney General: Arnold H. Olsen
Treasurer: Mrs. Edna J. Hinman
Auditor: John J. Holmes
Supt. of Public Instruction: Mary Condon

Constitution and Judiciary.—The present constitution went into effect in 1889. The Supreme Court comprises five justices; chief justice in 1955, Hugh Adair.

Legislature.—The Legislative Assembly (Senate, 56 members; House of Representatives, 94) meets in odd-numbered years commencing the first Monday in January.

The 1955 legislative session appropriated more than \$49 million for each year of the 1955-57 biennium. It also adopted a 1% withholding tax on wages and salaries after exemptions; raised the gasoline tax from 6 to 7 cents a gallon and the diesel fuel tax from 6 to 9 cents; and

extended the coverage limits of the gross vehicle weight taxes. Other legislation created a "Little Hoover" Commission (see below, *Principal Events, 1955*) to consider governmental reorganization and an appointive State Pardon Board. Legislators' salaries were raised from \$10 to \$20 a day and those of the president of the Senate and the speaker of the House from \$12 to \$25 daily. A new salary schedule for elective officers was set up, ranging from an increase from \$4,500 to \$6,000 for Supreme Court clerk to one of from \$10,000 to \$12,500 for governor. The level of minimum foundation support for public school districts was raised about \$1.3 million a year; and \$3 million extra was appropriated for the University of Montana system. A Uniform Highway Code was also enacted, as was a measure ordering racial equality in places of public accommodation, although no enforcement machinery was provided.

Finances.—State treasury receipts (1954-55 fiscal year): \$111,827,440; expenditures, \$109,358,260; treasury net cash balance (June 30, 1955), \$65,292,021; long-term indebtedness (Aug. 1, 1955), \$36,449,250. Permanent assets on June 30, 1955, included 4,240,000 acres of land, valued at \$89,670,420, and \$54,798,778 in invested funds.

Taxation.—State tax revenue (1954-55 fiscal year): \$41,581,000, including \$21,134,000 from selective sales and gross receipt taxes; \$6,259,000 from licensing; \$5,308,000 from individual income taxes; \$1,573,000 from corporate income taxes; and \$4,336,000 from property taxes (at a rate of \$7.50 per \$1,000 assessed valuation). The state has no general sales or poll taxes.

Banking.—On June 30, 1955, Montana's 40 national banks had \$347,064,000 in assets, \$258,694,000 in demand deposits, and \$67,555,000 in time deposits; the state's 71 other banks held \$349,315,129 in assets, \$205,792,105 in demand deposits, and \$57,630,608 in time deposits. Montana's 15 building and loan associations had \$45,981,905 in resources and \$41,657,115 in real estate loans.

Education.—School attendance is compulsory for all between the ages of 8 and 16, inclusive. Operating expenditures for public elementary and secondary education in the 1954-55 fiscal year amounted to \$35,159,209 (\$330 per pupil). Teachers' salaries (1954-55) averaged \$2,782 in rural elementary and \$3,824 in city elementary schools; and \$4,120 in high schools.

There were 1,296 public elementary schools (4,452 teachers; 91,635 pupils), 178 public secondary schools (1,784 teachers; 29,794 students), 84 private and parochial schools (476 teachers; 14,541 students), and two junior colleges (51 teachers; 747 students). Registration in the various units of the University of Montana system totaled 6,238 on Oct. 1, 1954.

Social Welfare.—Public assistance expenditures for the 1954-55 fiscal year included \$6,431,556 for old-age assistance; \$2,664,909 for 2,154 needy families and 5,714 dependent children; \$347,767 for 451 needy blind; and \$1,087,015 for aid to 1,438 disabled.

MONTANA WELFARE INSTITUTIONS, 1953-54

Type of institution	Operating cost	Population
Training school.....	\$ 464,782	544
Hospital for mentally ill.....	2,035,376	1,914
Sanatorium for the tubercular.....	601,020	163
School for the blind and deaf.....	156,602	92
Orphans' home.....	166,708	100
Home for the aged.....	119,000	60
Soldiers and sailors home.....	80,698	77
Training school for delinquent boys.....	213,210	75
Vocational school for delinquent girls.....	98,672	28
State prison.....	553,419	673

Labor Force.—Nonagricultural employment in August 1955 numbered 163,000 but declined later in the year; during 1954 it averaged 150,157. In 1954, unemployment compensation benefits of \$3,463,083 were paid to 18,369 insured workers. The number of unemployed in September 1955 was greater than that for the corresponding month of 1954. On the whole, employment in Montana is subject to more seasonal variations than in most states, especially in lumbering, construction, mining, and agriculture.

Mining shows the highest employment increase in February; the others, in August.

Manufacturing.—Establishments numbering 1,604 had 19,100 employees who received \$81,208,586 in salaries and wages in 1954. Value added by manufacture amounted to \$153,000,000. Earnings of production workers in manufacturing averaged \$79.20 for an average work week of 39.9 hours in 1954 (\$79.76 for 41.4 hours in 1953) and for the first six months of 1955 averaged \$81 for 39.9 hours.

Major manufactured or processed products in 1954 included: 276,000,000 board feet of lumber; 298,473,000 gallons of gasoline; 2,038,666 hundredweight of beet sugar; 5,775,000 pounds of cheese; 6,370,000 pounds of butter; 2,893,000 gallons of ice cream; and 229,088 barrels of beer. A total of 4,616,507,000 kilowatt-hours of electricity were generated. Metal manufactures achieved a wholesale value of \$47,000,000.

Mining.—Montana, which in 1953 ranked first in the production of manganese and zinc, fell to second place in 1954 in manganese production, with a drop of 55%; zinc declined 24% from its 1953 level. Copper was also down 24% and lead output fell 26%. The declines were due in part to smaller demand and in part to strikes. Mineral production in 1954 was valued at \$125,629,685, and involved an average of 7,400 employees.

During the first eight months of 1955, zinc output continued to decline, although copper, lead, and crude oil showed increases.

MONTANA MINERAL PRODUCTION, 1954

(In short tons, except as noted)

Mineral	Quantity	Value
Chromite concentrate.....		\$ 4,132,475
Coal.....	1,500,961*	3,875,730
Copper.....	59,349	35,015,910
Gold (fine ounces).....	23,660	828,100
Lead.....	14,820	4,060,680
Natural gas (1,000 cubic feet).....	30,946,000*	1,800,000
Petroleum (bbl.).....	14,195,447*	31,279,890
Sand and gravel.....	13,340,544	7,460,260
Silver (fine ounces).....	5,177,942	4,686,299
Stone.....	1,319,829	1,385,239
Zinc.....	60,952	13,165,632
Other minerals.....		17,939,470

* Preliminary. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$115,166,000, and for the full year 1954 comprised \$160,027,000 from livestock and livestock products, \$230,641,000 from crops, and \$5,493,000 from government payments. Receipts from principal crops and livestock in 1954 included: wheat, \$187,274,000;

MONTANA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Barley (1,000 bu.).....	16,861	33,332	41,910
Beans, dry edible (1,000 bags).....	199	252	217
Corn (1,000 bu.).....	2,698	3,492	4,410
Flaxseed (1,000 bu.).....	728	600	612
Hay (1,000 tons).....	2,574	2,863	3,038
Oats (1,000 bu.).....	11,307	11,151	13,875
Peas, dry (1,000 bags).....	144	48	61
Potatoes (1,000 bu.).....	2,410	2,401	2,695
Rye (1,000 bu.).....	173	138	304
Sugar beets (1,000 short tons).....	709	683	726
Wheat (1,000 bu.).....	80,013	82,833	109,524

(Source: U.S. Department of Agriculture.)

cattle, \$104,170,000; dairy products, \$15,346,000; barley, \$14,235,000; and sheep, \$13,199,000.

The state's 33,059 farms (61,359,303 acres; harvested cropland, 8,415,208) had an average of 1,856.1 acres and \$43,258 in value of land and buildings per farm in 1954. (While the number

of farms had decreased from the 35,085 of 1950, the average size of the farms had increased from 1,689 acres.) Livestock on farms on Jan. 1, 1955, included 2,441,000 cattle, 1,741,000 sheep, 125,000 hogs, and 1,700,000 chickens (not including commercial broilers), and was valued at almost \$250 million. During the week of Sept. 26—Oct. 2, 1954, 63,761 family and hired workers were engaged in farming. There were 12,784 farms with telephones; 29,187 with electricity.

Transportation and Communications.—State and federal funds disbursed for highways in the 1954–55 fiscal year totaled \$24,625,913, of which \$16,533,913 was for construction.

Highways and roads in 1955 comprised 16,860 miles of primitive roads, 18,122 miles of unimproved roads, 14,619 miles of graveled roads, 13,999 miles of graded and drained roads, 6,608 miles of surfaced roads, and 800 miles of improved streets. Registered *motor vehicles* on June 30, 1955, numbered 293,413; trailers, 16,590. There were 9 *railroads* operating 5,241 track miles, and 2 regularly scheduled *airlines* and 450 *airports and airfields* (139 municipal, military, and forest service and 321 private).

Communications media (1955) included 26 AM *radio stations* and 4 operating *television outlets*; 18 daily *newspapers* (circulation, 159,836) and 78 other newspapers; and (Jan. 1, 1955) 51,574 business and 129,856 residential *telephones*.

Principal Events, 1955.—State governmental operations were somewhat confused in 1955 by conflicts between Republican and Democratic officials. Ex-officio boards largely direct administration, and these boards are composed generally of the governor (a Republican in 1955) and of the attorney general, secretary of state, and superintendent of schools (all Democrats in 1955). The death in June of the Democratic secretary of state, Sam W. Mitchell, allowed the governor to appoint S. C. Arnold, a Republican, to succeed him, thus shifting the balance of power.

The state attorney general appealed to the courts to upset laws limiting royalties on oil leases to 10% and establishing a second "Little Hoover" commission, and succeeded in having the latter declared unconstitutional.

Some results of legislative actions were the ordering of an investigation into the high cost of gasoline; reduction of the number of inmates of the state penitentiary by 250, following liberalization of the parole law; and the joining of the federal social security system by state employees. (See also above, *Legislature*.)

The Anaconda Aluminum Company formally opened its new \$65 million primary aluminum plant at Columbia Falls on August 15. This marked the first venture into the primary aluminum field in the United States since 1946. The plant was expected to reach its planned capacity of 120 million pounds by Jan. 1, 1956. (See also ALUMINUM.)

The year 1955 was notable for unseasonable weather, including a late spring, hail in July, which damaged an estimated \$10 million in crops, and an unprecedented cold spell in November. (See also DAMS.)

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MONTREAL. The largest metropolis of Canada, Montreal, in the Province of Quebec, is considered the second largest French-speaking city of the world, although most of its inhabi-

tants (two thirds French, one third English and foreign) speak both official French and English languages. The population of the city proper (1955 est.) is 1,080,000; of the metropolitan area, 1,565,000.

The city's government, elected every third year, is operated by a council (legislature) of 99 members, of whom 66 are elected from 11 electoral districts and 33 are appointed by public bodies. The council appoints a 6-man executive committee which, with a popularly elected mayor, administers the city.

The city possesses the world's largest inland port. In 1955 the harbor was opened on April 5; by the end of October, port tonnage totaled 12,751,143; 4,398 vessels had arrived with 171,527 passengers, and 79,933,338 bushels of wheat had been shipped. Also the site of an international airport, Montreal is the headquarters of International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA), which celebrated their tenth anniversaries in 1955. Air France's improved Chicago-Montreal-Paris flight, with Super Constellations, has been reduced to 11 hours 30 minutes.

Montreal is Canada's manufacturing, financial, and transportation center. Major production items include railway rolling stock, aircraft, electrical supplies, tobacco, and textiles and clothing; it also has expanding refineries and a large petrochemical industry. Construction contracts (residential, commercial, industrial and engineering) awarded in Greater Montreal during 1955 amounted to a record \$394 million; the number of new dwellings (19,700) also set a record. The city's 1955 budget totaled \$91.5 million, with school appropriations amounting to \$112.9 million. Bank debits in the first 9 months of 1955 totaled \$43 billion. Tourists spent more than \$70 million in the city in 1955; convention business alone accounted for \$15 million.

On Nov. 20, 1955, Mayor Jean Drapeau and Executive Committee Chairman Pierre Desmarais, addressing a large public meeting, gave a report of the Civic Action League's first year in office.

The "clean-up" drive is to continue throughout their three-year term (in spite of reprisals), and will be aimed especially at enforcing night club closing hours set by the Quebec liquor licensing laws, closing gambling dens, destroying pinball machines, and arresting publishers of scandal sheets and obscene literature. This reform campaign is being facilitated by a complete reorganization of the Police Department.

Following a ten-year modernization program, the newly created Circulation Service has already completed 105 miles of street widening and resurfacing, finished the 2½-mile, 6-lane-wide Dorchester Boulevard in the heart of the city, opened two tunnels and completed plans for one under Mount Royal, arranged 11 new parking sites, and planned a two- or three-story garage for 1,000 cars under Champ-de-Mars.

The creation of the St. Lawrence Municipal Bureau, to study Montreal interests while canalization is going on, resulted in a federal decision to build a \$25 million bridge to south shore Laprairie, spanning the newly acquired Nun's Island, a future residential development.

Following an announcement by the Montreal Transportation Commission of an increase in tram and bus fares (from three for 30 cents to two for 25 cents), a demonstration was held by some 2,500 students at City Hall on December 9. Although the demonstration began good-naturedly, it turned into a riot when others joined the students and began inciting the crowd to violence. Before the night was over, 62 buses and 172 streetcars were wrecked, shops were looted, a few people were injured, and the transportation system was nearly halted. Student leaders refused to accept responsibility for the incident.

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MONTERRAT. See LEeward ISLANDS.
MORMONS. See CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS.

MOROCCO. A sultanate of northwestern Africa, divided into the French and Spanish zones and Tangier. The majority of the population are Sunni Moslems, chiefly Berbers and Arabs. The



NORTH AFRICAN TROUBLE SPOTS

French Zone in 1951 had 362,814 Europeans (304,000 French) and 199,156 native Jews. The Spanish Zone contained 72,184 Europeans and 14,196 native Jews in 1945. Tangier in 1953 had 64,110 non-natives (40,000 Spanish) and 15,000 native Jews. Chief cities in the French Zone (1951-52 census): Casablanca, 682,388; Marrakech, 245,312; Fes, 179,372; and Rabat, 156,209; and in the Spanish Zone (1945): Tetuán (93,658); Larache, 41,286; and Alcazarquivir, 35,786.

Zone	Area (sq. mi.)	Population (est. 1954)	Capital
French.....	150,888	8,340,000	Rabat (156,209)
Spanish:*			
Northern Zone....	7,589	1,017,000	Tetuán (93,658)
Southern Zone....	10,039	13,000	
Tangier.....	135	183,000	
Total.....	168,651	9,553,000	

* Not including the Spanish settlements in North Africa (see SPANISH COLONIES).

FRENCH ZONE

Government.—French Morocco has been a protectorate of France since the Treaty of Fez (1912). Authority

French Foreign Legionnaires on guard duty at the desert village of Oued Zem, Morocco, following nationalist riots of Aug. 20, 1955, which took a heavy toll of lives.



nominally emanates from the sultan, but actual power under the protectorate has been exercised by the French resident general. André Dubois was appointed French resident general on Nov. 9, 1955. Sultan Sidi Mohammed ben Youssef returned to the throne on Nov. 16, 1955, after having been deposed and exiled on Aug. 20, 1953. Sultan ben Youssef dismissed the Makhzen (sultan's viziers and ministers) on November 12, and on December 7 a representative cabinet took office, headed by Premier M'barek Bekkai. Under agreements between French and Moroccan leaders arrived at in 1955, Morocco is to obtain home-rule within a relationship of interdependence with France. The United States maintains four airbases in French Morocco. (See also below, *Principal Events, 1955.*)

Education.—Less than a third of the indigenous school-age population attends school. In 1953 there were 1,716 public primary schools (219,942 indigenous and 61,563 nonindigenous pupils); 30 public secondary schools (7,775 indigenous and 13,513 nonindigenous pupils); 15 vocational schools (8,971 indigenous and 6,350 nonindigenous pupils); and 5 higher institutions (400 indigenous and 1,490 nonindigenous students). In addition, 16,453 pupils attended independent primary and vocational schools, and about 224,700 indigenous pupils attended modernized traditional schools and Koranic schools.

Finance.—The budget estimate for 1954 was: revenue, 68,692 million francs; expenditure, 68,688 million. Additional funds (including appropriations by France) are devoted to the modernization and equipment program. The Moroccan franc is equal to the metropolitan franc.

Production.—About 80% of the population derives a livelihood from agriculture. Chief crops and 1954 yields in thousands of bushels were: wheat, 46,410; barley, 93,120; oats, 4,750; maize, 10,080; and flaxseed, 1,024. Output of citrus fruits (mainly oranges) in 1954 (prelim.) was 6,554,000 boxes; olive oil (1954 prelim.), 27,560 short tons; and wine (1953), 1,200,000 hectoliters. Other crops include sorghum, beans, peas, and other vegetables, and almonds, oilseeds, dates, and tobacco. Large herds of sheep and goats, as well as some 2 million cattle, provide animal products. Coastal fishing is important.

Chief industries are foodstuffs, chemicals, construction materials, textiles, oils, fats, tobacco products, glassware, engineering, metal-lurgy, and petroleum products. Handicraft items include rugs and leather goods. Electricity output totaled 825.3 million kw.-hr. in 1954, a rise of 10% over 1953. Output of chief minerals in 1954, in metric tons, was: phosphates, 5,020,000; manganese ore, 357,000; lead ore, 114,500; zinc ore, 62,800; iron ore, 334,500; cobalt, 7,360; anthracite, 486,100; and petroleum, 117,948.

Foreign Trade.—Exports in 1954 totaled 99,898 million francs; imports, 168,031 million. Chief exports in order of value were: phosphates (4,943,000 metric tons valued at 19,550 million francs), barley, preserved fish, wheat, and manganese ore. Imports are mainly sugar, petroleum products, machinery and parts, cotton fabrics, and other manufactures and foodstuffs. France took 43% of 1954 exports and supplied 54% of imports.

Transportation and Communications.—Permanent roads adequate for heavy traffic totaled 9,920 miles in 1954. Railroads totaled 1,089 miles. The principal airport is at Casablanca; there are 5 other major airports and 20 secondary fields. Motor vehicles in 1954 included 80,418 passenger cars and 38,224 trucks. Telephones numbered 89,538 in 1955; licensed radio receivers, 261,000 (1954).

Principal Events, 1955.—The deposition and exile of the nationalist-minded Sultan Sidi Mohammed ben Youssef in 1953 backfired against the French in 1955. The exiled sultan became a symbol for the Moslem nationalists, and his return their rallying cry, while the French-sup-

ported Sultan Sidi Mohammed ben Moulay Arafa was castigated as a usurper and a puppet. The mounting toll of violence in 1955 finally convinced the Paris government that the Moroccan nationalist movement had somehow to be conciliated, and a policy of home-rule was projected by French Premier Edgar Faure. By the end of the year the nationalists had secured the restoration of ben Youssef and the formation of a representative cabinet to negotiate with the French on the institutions of self-government.

The first large-scale outbreak of violence in 1955 took place in mid-May, when 23 persons were killed in Casablanca in the week ending May 23. On July 14 a bomb explosion among a group of Europeans in Casablanca set off a chain of lynchings and counter-riots by Europeans, and further riots, arson, and pillage which took a toll of 60 lives. Clashes between police and nationalists resulted in over 55 deaths in Marrakech, Meknes, and Khénifra in late July and early August. The peak of violence came in the 48 hours beginning on August 20, the second anniversary of ben Youssef's deposition. Outbreaks throughout French Morocco, followed by repressive operations by French infantry, tanks, and aircraft, resulted in over 800 killed and thousands injured. Some 50 French, including women and children, were massacred by hitherto pro-French Berber tribesmen in Oued Zem, in the Middle Atlas region.

Meanwhile, French policy in Paris had taken a decisive turn following the disorders of mid-July. Gilbert Grandval, who had been appointed on July 20 to succeed Francis Lacoste as resident general, developed a plan looking toward Moroccan self-rule. At a major policy conference at Aix-les-Bains, France, August 22-27, between French leaders including Premier Faure and Foreign Minister Antoine Pinay, and Moroccan leaders including Thami el-Glaoui and Grand Vizier Mohammed el-Mokri, it was agreed that Sultan ben Moulay Arafa would vacate the throne in favor of a regency council, and that a Moroccan cabinet would be selected to negotiate on home-rule. Grandval, whose plan had antagonized French colonial interests, was replaced as resident general by Lieut. Gen. Pierre Georges Boyer de Latour du Moulin on August 30, although the substance of the Grandval plan was retained. French consultations with ben Youssef at Antsirabé, Madagascar, September 8-9, secured the exiled sultan's assent to the plan. The French cabinet then voted its approval of the plan on September 12 and issued a declaration (made public on October 1) terming the projected French-Moroccan relationship one of "interdependence," including recognition of the permanency of French interests in Morocco.

The first step in the implementation of the new policy took place on October 1, when, at the behest of the French government, Sultan ben Moulay Arafa left the throne and went to Tangier, delegating his powers to his cousin, Moulay Abdallah ben Moulay Abdel Hafid. A four-man Council of the Guardians of the Throne was installed on October 17, and Fatmi ben Slimane, independent nationalist, sought to form a cabinet. However, the Istiqlal, the strongest nationalist force in Morocco, refused to enter a government which still theoretically derived from ben Moulay Arafa, and continued its pressure for the return of ben Youssef. A decisive turn was taken on October 25, when Thami el-Glaoui, the powerful pasha of Marrakech who had played a leading role in ben Youssef's ouster



UNITED PRESS

Smala tribesmen, who participated in August 1955 uprisings against the French, gather near Oued Zem, Morocco, with their wives and children, to surrender their arms.

in 1953, went over to the side of the nationalists and urged the restoration of ben Youssef. After the issue had been decided, ben Moulay Arafa announced his own abdication on October 30, and also called for the return of the deposed sultan. On November 5 the Faure cabinet declared France's recognition of ben Youssef as sultan, appointing André Dubois as resident general on November 9 to implement the new French policy in Morocco.

Ben Youssef, who had arrived in France from Madagascar on October 31, returned to Rabat on November 16 and was acclaimed by some 200,000 triumphant nationalists. A nationalist cabinet headed by Premier M'barek Bekkai, independent, was sworn in on December 7, comprising a coalition of nationalist parties with the Istiqlal holding the largest number of posts.

The return of the sultan produced no auto-

Thami el-Glaoui, pasha of Marrakech, pledges his loyalty to Sultan Sidi Mohammed ben Youssef (seated), before the latter's return to French Morocco on Nov. 16, 1955.

INTERNATIONAL NEWS PHOTO



matic end to the bloodshed in French Morocco. Although anti-French violence had abated following the severe French reprisals in late August, attacks by Berber tribesmen in the northern Riff Mountains region on October 1 began a period of guerrilla warfare which continued to the end of the year. The rebel forces in Morocco and Algeria were united within a "North African Liberation Army," according to an announcement from Cairo, Egypt, on October 4 by Istiqlal leader Si Allal el-Fassi. The rebels, representing the extreme nationalist wing, refused to accept the permanency of French interests in North Africa and demanded total independence. A large-scale clash between the rebels and French forces took place near Tamchecht, close to the Spanish Moroccan border on December 30, with French planes and artillery taking part in the engagement. The French charged on several occasions that the rebels were obtaining sanctuary and aid in the Spanish Zone.

SPANISH ZONE

The population consists largely of Berber mountain tribesmen. The powers of the sultan are delegated to a caliph subject to control by the Spanish governor general. Chief crops are wheat, barley, sorghum, and olives. Livestock raising is important. Output of iron ore (60% metal content) totaled 933,600 metric tons in 1954. Lead, antimony, manganese ore, and graphite are mined in small quantities. Imports in 1952 totaled 933.9 million paper pesetas; exports, 571.5 million.

TANGIER ZONE

A temporary international administration was established by a Big Four agreement in 1945. Government is vested in an administrator, an appointive Legislative Council presided over by a mendoub representing the sultan, and a Committee of Control consisting of the consuls general of Britain, Belgium, France, Italy, the Netherlands, Portugal, Spain, and the United States. Spain controls the zone's special police. The official currency is the Moroccan franc. Pupils in primary schools numbered 4,793 in 1952; in secondary and technical schools, 850. There is some agriculture and fishing. The zone serves as an entrepôt point for the Mediterranean area. Imports were valued at 11,628.2 million francs in 1953; exports, 969.6 million.

M. J. G.

MORTGAGES. See Index entry.

MOSLEMS (MUSLIMS). See Index entry.

MOTION PICTURES. Encouraged at the end of 1954 by standing solidly on its feet again, the motion picture industry became elated during 1955 when it realized that it had already gone through the period of recovery and now was enjoying a boom. Audiences were again spending money at the box offices. Thanks to the new, large-screen processes, motion pictures could offer an entertainment form different from that of TV; and furthermore, some of the novelty of TV was wearing off. Theaters were being redecorated by their owners. The foreign market was picking up. There were fewer pictures made, but they were bigger and better. And the main topic of discussion in this boom year was not profits and losses but an abstract subject that in the long run increased interest at the box office: censorship.

Most leaders in the film industry agreed that the biggest factor in the rise of the industry since the slump of the early 1950's was the new

screening processes. Starting in 1952 with Cinemascope (which gave the illusion of depth and third dimension through the use of an enormous curved screen and three cameras) and then continuing in 1953 with CinemaScope (which used a camera with an anamorphic lens that compressed a large scene to a 35-mm. size, and another lens on its projector that expanded this scene to a 2.55-to-1 proportion on a large curved screen) and advancing in 1954 with VistaVision (which ran the negative horizontally rather than vertically through the camera, and had picture frames with almost three times the area of an ordinary 35-mm. frame, thus providing an especially sharp, clear image), these large-screen processes definitely rekindled interest in motion pictures.

All of the processes were improved in 1955. CinemaScope, which by 1955 was installed in 15,979 theaters in the United States and Canada, demonstrated (in advance showings of a few scenes from *Carousel*, a 1956 release) its new 55-mm. development with its greater depth of focus and elimination of print grain and distortion on the sides. SuperScope, which did not require expensive installation and could be transformed to fit any screen of reasonable proportions, was used by many of the independent producers. Cinerama, installed in only 15 theaters in the United States because of its expensive equipment, grossed more than \$21 million with its first picture, which was still running, and came out in 1955 with its second, *Cinerama Holiday*, which also did phenomenal business.

The new Todd-AO process (named for Producer Michael Todd and the American Optical Company, which developed it under Dr. Brian O'Brien) released its long-awaited *Oklahoma!* in New York in October 1955. This very expensive process, which used a 70-mm. film and one camera with a large lens capable of taking a 128-degree shot, flashed a picture 50 feet wide and 25 feet high on a large curved screen. Its effect was more like that of Cinerama than any of the other processes, but while it had great depth of focus in the outdoor scenes, its third-dimensional qualities were evident only when the camera moved across plains or through cornfields, and distortions from the off-center theater seats were disconcerting. Its six-channel, high-fidelity Orthosonic sound track, however, was excellent and did full justice to the magnificent score.

Undoubtedly the ultimate in audience participation and large-screen processes was demonstrated at the Walt Disney Studio where Circarama was displayed. This was a 360-degree screen with a continuous image that completely surrounded and engulfed the audience. Although made for Disneyland Amusement Park and not planned for theatrical presentation, Circarama interested film makers who were impressed with its possibilities.

If the day ever comes when the motion picture and TV industries are really one, Walt Disney will undoubtedly get as much credit as anyone for the amalgamation. It was he, more than any other movie producer, who used TV first and most daringly. He publicized his *20,000 Leagues under the Sea* by showing (on his TV show, *Disneyland*) how the film was made; he showed parts, and in some cases the whole, of many of his old films; and he successfully released as a theatrical picture a shortened version of *Davy Crockett* after using it first as a three-part TV presentation. While the Disney Studio happily made films for TV and for theaters (the

full-length cartoon, *The Lady and the Tramp*; nature films, such as *The African Lion*; and *Peoples and Places* (shorts) the other studios slowly decided to follow suit. Warners, 20th Century-Fox, and MGM started their own TV programs—but without too much success, because the shows were unimaginative and crowded with commercial advertising of the studios' forthcoming movies. Columbia and Republic started making half-hour "telefilms" to be sold directly to advertisers.

When the Screen Producers Guild (which represented some 140 top producers) was asked to do an annual series of 39 weekly TV shows, the producers refused, saying that the present standards and practices of TV might impair the producers' prestige; they referred mainly to the time limits imposed by a TV program, the insertions of commercials, and the lack of worthy dramatic material. But the producers shut no doors on the possibility of the motion picture and TV industries working together in the future. Each group had much to offer the other; and furthermore, TV proved a good training ground for new actors, writers, directors, and even ideas and controversial issues.

Hollywood released only some 250 pictures in 1955, and of these about 60 were made by independent producers. The rise of the "independents" was inevitable during the past few years as the major studios realized more and more that big pictures were more profitable than little ones. Color was more in demand than ever (about 60 per cent of the 1955 crop was in color), and the color-processing companies were kept busy. This was undoubtedly due to the extensive use of CinemaScope, VistaVision, and SuperScope—all of which utilized color. Of course, color and large-screen techniques added to the cost of a film. Whether or not the new five-day workweek contract (signed in October by the studios and the International Alliance of Theatrical Stage Employees) would add to production costs could not be foreseen by studio executives; but in any case, the cost of motion pictures was on the increase.

Because of the shortage of films in 1955, the year saw the revival of many old films, which were welcomed both by the exhibitors and by the moviegoers. It was mainly the theater owners who complained about the major studios' policy of making fewer pictures. In 1955 there were in the United States 15,039 regular motion picture houses and 4,062 drive-ins. So successful were the open-air drive-in theaters that some of them stayed open all year and even provided electric heaters for the customers' automobiles. Exhibitors were especially grateful to the independent producers who eased the shortage of pictures a little; and in some cases, the exhibitors helped finance the "independents." The major studios, realizing that they need the theaters (although they own very few since the government forced the divorcement of theaters and studios), also encouraged independent producers and frequently aided them by financing and distributing their films.

Many of the film stars (Danny Kaye, John Wayne, Burt Lancaster, Tyrone Power, and others) formed their own film companies and produced their own pictures. This was due partly to the stars' preference for working independently and because some of the studios no longer kept stars under contract.

While the well-known older actors were still the favorites, many newcomers were rising in popularity. An audience poll, the first of its kind,

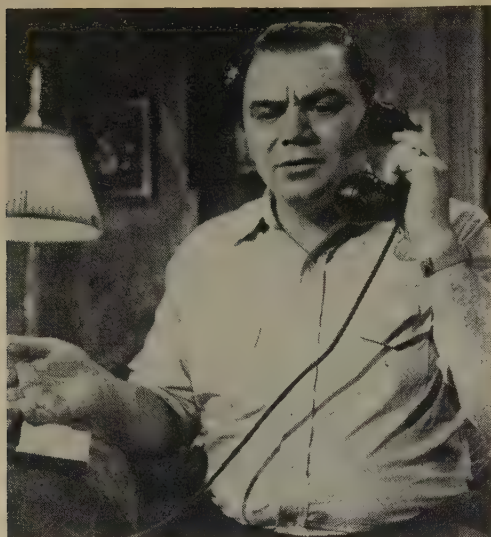
held in November in 6,500 theaters at which more than 15 million moviegoers voted, and conducted by the Council of Motion Picture Organizations, resulted in the following choices: best actress, Jennifer Jones in *Love Is a Many Splendored Thing*; best actor, the late James Dean in *East of Eden*; best picture, *Mister Roberts*; most promising new personalities, Tab Hunter and Peggy Lee.

Outstanding among the pictures made by independent producers were *Summertime*, *Not As a Stranger*, *Guys and Dolls*, *Marty*, *End of the Affair*, *Cinerama Holiday*, *Unchained*, *Night of the Hunter*, *Vera Cruz*, *Oklahoma!*, *Man with the Gun*, and *The Man with the Golden Arm*. The year saw very few trends. Best of the war pictures were *The Bridges at Toko-Ri*, *Mister Roberts*, and *To Hell and Back*. Concerned with preparedness in the air were *The Court-Martial of Billy Mitchell* and *Strategic Air Command*. There were fewer outdoor and Western films than usual, and the best of these spoke up for social justice: *Bad Day at Black Rock*, *The Man from Laramie*, and *Man with the Gun*. Speaking in favor of better understanding for American Indians were: *White Feather* and *Chief Crazy Horse*. Among the many films about juvenile delinquency (such as *Running Wild*, *Teen-Age Crime Wave*, *Cell 2455*, *Death Row*) two created much pro-and-con comment: *Blackboard Jungle* and *Rebel without a Cause*, both being praised for their approach to the subject and criticized adversely for their frank visualization of delinquents' misbehavior. *Trial* won applause for its vigorous anti-communism message and its good entertainment as a courtroom thriller. Anna Magnani won huzzahs for her first-rate performance in *The Rose Tattoo* as the obsessed widow in Tennessee Williams' script.

Although comedy teams Abbott and Costello, Martin and Lewis, Majorie Main and Percy Kilbride continued to appear, there were too few such light and joyous comedies as Director Charles Walters' *The Tender Trap* and Alfred Hitchcock's funny thriller, *To Catch a Thief*. Musical comedies tended to be big and elaborate, like *Guys and Dolls* and *Oklahoma!*, but few had the delightful buoyancy of *Daddy Long Legs* and *It's Always Fair Weather*.

The one cycle that boomed in a boom year was the unusually large group of biographical and historical films. Those dealing with American history included *Seven Angry Men* (John Brown), *Far Horizons* (Lewis and Clark), *Davy Crockett*, *The Last Command* (the Alamo), *Seven Cities of Gold* (Father Junípero Serra), and *The Scarlet Coat* (Major André). Those going farther back in history included *The Virgin Queen* (Bette Davis as Queen Elizabeth I, Richard Todd as Sir Walter Raleigh), *Lady Godiva*, and *Land of the Pharaohs*. Among those dealing with outstanding modern personalities were *A Man Called Peter* (Peter Marshall), *The Eternal Sea* (Rear Admiral John M. Hoskins), *The McConnell Story* (Capt. Joseph McConnell), and *The Long, Gray Line* (Marty Maher at West Point). And those dealing with famous musicians and entertainers included *Love Me or Leave Me* (Ruth Etting), *Magic Fire* (Richard Wagner and his contemporaries), *The Seven Little Foys*, *Prince of Players* (Edwin Booth), and *Interrupted Melody* (Marjorie Lawrence).

Fortunately for exhibitors, films from abroad continued to flow into the United States—from Italy, France, England, Mexico, the Soviet Union, Japan, Germany, Spain, Sweden and other coun-



UNITED ARTISTS CORPORATION

Ernest Borgnine plays the title role in *Marty*, voted the best picture of 1955 by the New York Film Critics.

tries—but unfortunately those of high quality were few. Critics and audiences appreciated *The Sheep Has Five Legs*, *The Wages of Fear*, and *Diabolique* from France; *The Divided Heart*, *The Prisoner*, *The Dam Busters*, *Doctor in the House*, and *The Deep Blue Sea* from England; *Green Magic* and *Umberto D.* from Italy; and *The Great Adventure* from Sweden. Hollywood film makers were anxious to keep up good relations with foreign producers and foreign audiences. Many American films were made abroad; and furthermore, 45 per cent of the American companies' profit came from outside the United States.

Hollywood had two brush-ins with the federal government in 1955, although neither proved serious. In an antitrust action, the government

Umberto D., the tragic story of an Italian pensioner, with Maria Pia Casilio and Carlo Battisti.

HARRISON AND DAVIDSON



insisted that studios that made 16-mm. prints of their regular feature films for nontheatrical distribution must license them for TV exhibition. In this strange suit, the federal court ruled in favor of the motion picture companies, which were allowed to regulate their own distribution of films.

The other minor disturbance came when Sen. Estes Kefauver appeared in Los Angeles as a one-man Senate subcommittee to investigate juvenile delinquency, especially as it resulted from brutality, violence, and sex in motion pictures. The investigation ended in generalities and nothing conclusive, especially when Senator Kefauver made it clear that the purpose of his study was not government censorship, and the producers made it clear that they followed and continued to approve of the Production Code.

The Production Code was first written in 1930 as a self-regulating series of rules, mostly "don'ts," to guide the picture makers who belonged to the Motion Picture Association (then known as the Hays Office). It was hoped that the code would rid film makers of the state censorship boards. But in 1955 there were still five states and about 60 cities that had censors. Through the years the code has changed little, but in 1955 the Roman Catholic Legion of Decency reminded the studios that they were getting lax about adhering to the code, and as a consequence the legion found it necessary to put a larger number of films on its objectionable list.

Two of the year's pictures that brought the issues out into the open violated the code so blatantly that they were refused the necessary seal of approval: *I Am a Camera*, a comedy about an amoral woman; and *The Man with the Golden Arm*, a very serious and grim picture about a code-taboo subject: dope addiction. In spite of pressure from the distributors in both cases, who insisted that the code administrators were not as fair to them as to the large producing studios, the seal was still withheld after the pictures were released. United Artists, distributors of *The Man with the Golden Arm*, resigned from the Motion Picture Association. The issues were further confused by the fact that since the divorcement of studios from exhibitors, the studios no longer controlled theaters, so both of these pictures could be shown in whatever theaters wanted to exhibit them.

Also complicating the issue, the state and city boards of censorship had been put in an ambiguous, almost useless, position when the U.S. Supreme Court ruled in *The Miracle* case in 1952, as well as in several subsequent suits, that motion pictures were included in the free-speech and free-press guaranty of the 1st and 14th amendments to the Constitution. No one denied that the Legion of Decency had the right to list for its members films that it found objectionable. Nor did anyone deny the need for some form of a motion picture code. But almost everyone entering into the involved argument agreed that the code should be flexible and that each film should be judged on its own merits—or demerits.

Perhaps the trouble lay with the film makers, who insisted on pleasing too large an audience with each film. Their problem was in mass appeal. Lacking a certain degree of courage and imagination, the producers wanted every film to be a moneymaker—a guarantee not possible in the entertainment business. They needed only to remember that motion pictures were an art as well as a business, and not every film could attain the success of *Gone with the Wind*, which

grossed \$35 million since it appeared in 1939, or *The Robe*, which has taken in more than \$20 million since 1953.

(See also CENSORSHIP; LAW; PHOTOGRAPHY; PRIZES AND AWARDS.)

MOTION PICTURES OF 1955

The following, although not a complete list of films released in 1955, represents a cross-section of the work of the leading producers, directors, writers, and actors in the motion picture field. Because funds, sources, and the film makers themselves in connection with any single picture are not necessarily confined to one country, the nationality labels indicated below are somewhat arbitrary.

AMERICAN FILMS

The African Lion (Buena Vista). Producer, Walt Disney; director, James Algar; photography by Alfred C. and Elma Milotte; narration by James Algar, Winston Hibler, Ted Sears, Jack Moffitt; read by Winston Hibler.

Bad Day at Black Rock (MGM). Producer, Dore Schary; director, John Sturges; screenplay by Millard Kaufman. With Spencer Tracy, Robert Ryan, Anne Francis, Dean Jagger, Walter Brennan, Ernest Borgnine, John Ericson.

Battle Cry (Warners). Director, Raoul Walsh; screenplay by Leon M. Uris from his novel. With Van Heflin, Aldo Ray, Mona Freeman, Nancy Olson, James Whitmore, Raymond Massey, Tab Hunter, Dorothy Malone, Anne Francis, Fess Parker, John Lupton.

The Big Knife (United Artists). Producer-director, Robert Aldrich; screenplay by James Poe, from the play by Clifford Odets. With Jack Palance, Ida Lupino, Shelley Winters, Wendell Corey, Rod Steiger, Jean Hagen, Everett Sloane.

Blackboard Jungle (MGM). Producer, Pandro S. Berman; director-writer, Richard Brooks; based on the novel by Evan Hunter. With Glenn Ford, Anne Francis, Louis Calhern, Richard Kiley, Margaret Hayes, Vic Morrow, Sidney Poitier.

Blood Alley (Warners). Producer-director, William A. Wellman; screenplay by A. S. Fleischman from his novel. With John Wayne, Lauren Bacall, Paul Fix, Joy Kim, Berry Kroger, Mike Mazurki.

The Bridges at Toko-Ri (Paramount). Producers, William Perlberg, George Seaton; director, Mark Robson; screenplay by Valentine Davies, from the novel by James A. Michener. With William Holden, Fredric March, Mickey Rooney, Grace Kelly, Robert Strauss.

Cinerama Holiday (Stanley Warner-Cinerama Corp.). Producer, Louis de Rochemont; directors, Robert Bendick, Philippe de Lacy; adaptation by Otis Carney, Louis de Rochemont III; narration by John Stuart Martin, read by Martin Weldon. This second film to be made in the three-dimensional Cinerama process shows an American couple, John and Betty Marsh, touring Europe and a Swiss couple, Fred and Beatrice Troller, sight-seeing in the United States.

The Cobweb (MGM). Producer, John Houseman; director, Vincente Minnelli; screenplay by John Paxton, from the novel by William Gibson. With Richard Widmark, Lauren Bacall, Charles Boyer, Gloria Grahame, Lillian Gish, John Kerr, Susan Strasberg, Oscar Levant.

The Court-Martial of Billy Mitchell (Warners). Producer, Milton Sperling; director, Otto Preminger; screenplay by Emmet Lavery, Milton Sperling. With Gary Cooper, Charles Bickford, Ralph Bellamy, Rod Steiger, Elizabeth Montgomery, Jack Lord, Fred Clark.

Daddy Long Legs (20th Century-Fox). Producer, Samuel G. Engel; director, Jean Negulesco; music by Johnny Mercer; screenplay by Phoebe and Henry Ephron, from the novel by Jean Webster. With Fred Astaire, Leslie Caron, Thelma Ritter, Fred Clark.

Davy Crockett (Buena Vista). Producer, Bill Walsh; director, Norman Foster; screenplay by Tom Blackburn. With Fess Parker, Buddy Ebsen, Basil Ruysdael, Hans Conried. Made by Walt Disney for his TV program; later edited for presentation in theaters.

Day of Triumph (Century Films). Producer, James K. Friedman; directors, Irving Pichel, John T. Coyle;

(Top to bottom): (1) Gordon MacRae and Shirley Jones in film version of Rodgers and Hammerstein's *Oklahoma!* (2) William Powell "manufactures" scotch in *Mister Roberts*, with Henry Fonda (center) and Jack Lemmon. (3) Burt Lancaster cajoles Anna Magnani, the distraught widow in *The Rose Tattoo*. (4) A tense scene from *Bad Day at Black Rock*, starring Spencer Tracy (seated at left).



- screenplay by Arthur T. Horman, based on events in the last three years of the life of Christ. With Robert Wilson, Lee J. Cobb, Joanne Dru, James Griffith, Lowell Gilmore.
- The Desperate Hours* (Paramount). Producer-director, William Wyler; screenplay by Joseph Hayes from his novel. With Humphrey Bogart, Fredric March, Arthur Kennedy, Martha Scott, Dewey Martin, Gig Young, Mary Murphy, Robert Middleton, Richard Eyer.
- East of Eden* (Warners). Producer-director, Elia Kazan; screenplay by Paul Osborn, from the novel by John Steinbeck. With Julie Harris, James Dean, Raymond Massey, Burl Ives, Richard Davalos, Jo Van Fleet.
- End of the Affair* (Columbia). Producer, David E. Rose; director, Edward Dmytryk; screenplay by Lenore Coffee, from the novel by Graham Greene. With Deborah Kerr, Van Johnson, Peter Cushing, John Mills, Michael Goodliffe, Stephen Murray.
- The Eternal Sea* (Republic). Producer, Herbert J. Yates; director, John H. Auer; screenplay by Allen Rivkin, from the story by William Wister Haines, based on the life of Rear Admiral John M. Hoskins. With Sterling Hayden, Alexis Smith, Dean Jagger, Ben Cooper, Virginia Grey.
- The Far Country* (Universal). Producer, Aaron Rosenberg; director, Anthony Mann. With James Stewart, Ruth Roman, Corinne Calvet, Walter Brennan, John McIntire.
- Far Horizons* (Paramount). Producers, William H. Pine, William C. Thomas; director, Rudolph Mate; screenplay by Winston Miller, Edmund H. North, from Della Gould Emmons' novel, *Sacajawea of the Shoshones*. With Fred MacMurray, Charlton Heston, Donna Reed, Barbara Hale, William Demarest.
- Five Against the House* (Columbia). Producers-writers, Stirling Silliphant, John Barnwell; director, Phil Karlson; based on a novel by Jack Finney. With Guy Madison, Kim Novak, Brian Keith, Alvy Moore, Kerwin Matthews.
- Francis in the Navy* (Universal). Producer, Stanley Rubin; director, Arthur Lubin; screenplay by Devery Freeman, based on the *Francis* character created by David Stern. With Donald O'Connor, Martha Hver, Richard Erdman, Jim Backus and Francis the talking mule.
- Gentlemen Marry Brunettes* (United Artists). Producers, Richard Sale, Robert Waterfield; director, Richard Sale; screenplay by Mary Loos, Richard Sale. With Jane Russell, Jeanne Crain, Alan Young, Scott Brady, Rudy Vallee.
- The Glass Slipper* (MGM). Producer, Edwin H. Knopf; director, Charles Walters; screenplay by Helen Deutsch, stemming from *Cinderella*. With Leslie Caron, Michael Wilding, Keenan Wynn, Estelle Winwood, Elsa Lanchester.
- Good Morning, Miss Dove* (20th Century-Fox). Producer, Samuel G. Engel; director, Henry Koster; screenplay by Eleanor Griffin, from the novel by Frances Gray Patton. With Jennifer Jones, Robert Stack, Kipp Hamilton, Robert Douglas, Peggy Knudsen, Marshall Thompson, Chuck Connors, Biff Elliot.
- Guys and Dolls* (MGM). Producer, Samuel Goldwyn; director-writer, Joseph L. Mankiewicz; music and lyrics by Frank Loesser; choreography by Michael Kidd; based on the stage musical comedy from a Damon Runyon story. With Marlon Brando, Jean Simmons, Frank Sinatra, Vivian Blaine, Robert Keith, Stubby Kaye, B. S. Pully, Johnny Silver, Sheldon Leonard, Regis Toomey.
- House of Bamboo* (20th Century-Fox). Producer, Buddy Adler; director, Samuel Fuller; screenplay by Harry Kleiner. With Robert Ryan, Robert Stack, Shirley Yamaguchi, Cameron Mitchell, Sessue Hayakawa.
- How To Be Very, Very Popular* (20th Century-Fox). Producer-director-writer, Nunnally Johnson. With Betty Grable, Sherree North, Bob Cummings, Charles Coburn, Tommy Noonan, Orson Bean.
- Interrupted Melody* (MGM). Producer, Jack Cummings; director, Curtis Bernhardt; screenplay by William Ludwig, Sonya Levien, from the life story of Marjorie Lawrence. With Eleanor Parker, Glenn Ford, Roger Moore, Cecil Kellaway, Peter Leeds.
- It Came from Beneath the Sea* (Columbia). Producer, Charles H. Schneer; director, Robert Gordon. With Kenneth Tobey, Faith Domergue, Donald Curtis, Ian Keith.
- It's a Dog's Life* (MGM). Producer, Henry Berman; director, Herman Hoffman; screenplay by John Michael Hayes, from Richard Harding Davis' story, *The Bar Sinister*. With Jeff Richards, Jarna Lewis, Edmund Gwenn, Dean Jagger.
- It's Always Fair Weather* (MGM). Producer, Arthur Freed; directors, Gene Kelly, Stanley Donen; music, Andre Previn; screenplay by Betty Comden, Adolph Green, with Gene Kelly, Dan Dailey, Michael Kidd, Cyd Charisse, Dolores Gray, David Burns.
- Jupiter's Darling* (MGM). Producer, George Wells; director, George Sidney; music David Rose; screenplay by Dorothy Kingsley, from the play, *Road to Rome*, by Robert E. Sherwood. With Esther Williams, Howard Keel, Marge and Gower Champion, George Sanders, Richard Haydn.
- The Kentuckian* (United Artists). Producer, Harold Hecht; director, Burt Lancaster; screenplay by A. B. Guthrie, Jr., based on Felix Holt's novel, *The Gabriel Horn*. With Burt Lancaster, Dianne Foster, Diana Lynn, John McIntire.
- Kismet* (MGM). Producer, Arthur Freed; director, Vincente Minnelli; screenplay by Charles Lederer, Luther Davis from their musical play which was based on the play by Edward Knoblock; music adapted from themes by Alexander Borodin. With Howard Keel, Ann Blyth, Dolores Gray, Vic Damone, Monty Woolley, Mike Mazurki.
- The Lady and the Tramp* (Buena Vista). Producer, Walt Disney; directors, Hamilton Luske, Clyde Geronimi, Wilfred Jackson; screenplay by Ward Greene. A feature-length animated cartoon with the voices of Peggy Lee, Barbara Luddy, Larry Roberts, Bill Thompson.
- Land of the Pharaohs* (Warners). Producer-director, Howard Hawks; screenplay by William Faulkner, Harry Kurnitz, Harold Jack Bloom. With Jack Hawkins, Joan Collins, Dewey Martin, Alexis Minotis, James Robertson Justice, Luisa Boni, Sydney Chaplin.
- The Last Command* (Republic). Producer, Herbert J. Yates; director, Frank Lloyd; screenplay by Warren Duff. With Sterling Hayden, Anna Maria Alberghetti, Richard Carlson, Arthur Hunnicutt, Ernest Borgnine.
- The Left Hand of God* (20th Century-Fox). Producer, Buddy Adler; director, Edward Dmytryk; screenplay by Alfred Hayes, from the novel by William E. Barrett. With Humphrey Bogart, Gene Tierney, Lee J. Cobb, Agnes Moorehead, E. G. Marshall.
- The Long, Gray Line* (Columbia). Producer, Robert Arthur; director, John Ford; screenplay by Edward Hope, based on *Bringing Up the Brass* by Marty Maher and Nardi Reeder Campion. With Tyrone Power, Maureen O'Hara, Ward Bond, Betsy Palmer, Phil Carey, Robert Francis, Donald Crisp.
- Love Is a Many-Splendored Thing* (20th Century-Fox). Producer, Buddy Adler; director, Henry King; screenplay by John Patrick, based on the semi-autobiographical novel by Han Suyin. With Jennifer Jones, William Holden, Torin Thatcher, Isobel Elsom.
- Love Me or Leave Me* (MGM). Producer, Joe Pasternak; director, Charles Vidor; screenplay by Daniel Fuchs, Isobel Lennart. With Doris Day, James Cagney, Cameron Mitchell, Robert Keith, Tom Tulley.
- Magic Fire* (Republic). Producer-director, William Dieterle; screenplay by Bertita Harding, E. A. DuPont, David Chantler, based on the novel by Bertita Wagner, stemming from the life of Richard Wagner. With Alan Badel, Yvonne de Carlo, Carlos Thompson, Rita Gam, Valentina Cortese.
- A Man Alone* (Republic). Producer-director, Ray Milland; screenplay by John Tucker Battle. With Ray Milland, Mary Murphy, Ward Bond, Raymond Burr.
- A Man Called Peter* (20th Century-Fox). Producer, Samuel G. Engel; director, Henry Koster; screenplay by Eleanor Griffin, from Catherine Marshall's biography of Peter Marshall. With Richard Todd, Jean Peters, Marjorie Rambeau, Jill Esmond, Billy Chapin.
- The Man from Laramie* (Columbia). Producer, William Goetz; director, Anthony Mann; screenplay by Philip Yordan, Frank Burt, based on Thomas T. Flynn's story. With James Stewart, Arthur Kennedy, Donald Crisp, Cathy O'Donnell, Alex Nicol.
- The Man with the Golden Arm* (United Artists). Producer-director, Otto Preminger; screenplay by Walter Newman, Lewis Meltzer, from the novel by Nelson Algren. With Frank Sinatra, Eleanor Parker, Kim Novak, Arnold Stang, Darren McGavin, Robert Strauss, John Conte, Doro Merande, George Mathews.
- Man with the Gun* (United Artists). Producer, Samuel Goldwyn, Jr.; director, Richard Wilson. With Robert Mitchum, Jan Sterling, Karen Sharpe, Henry Hull, Emile Meyer.
- Marty* (United Artists). Producer, Harold Hecht; director, Delbert Mann; screenplay by Paddy Chayefsky from his original TV play. With Ernest Borgnine, Betsy Blair, Esther Minciotti, Augusta Ciolli, Joe Mantell.
- The McConnell Story* (Warners). Producer, Henry Blanke; director, Gordon Douglas; screenplay by Ted Sherdeman, Sam Rolfe. With Alan Ladd, June Allyson, James Whitmore, Frank Faylen, Robert Ellis.
- Mister Roberts* (Warners). Producer, Leland Hayward; directors, John Ford, Mervyn LeRoy; screenplay by Frank Nugent, Joshua Logan, based on the play by Thomas Heggen, Joshua Logan, from the novel by Thomas Heggen. With Henry Fonda, James Cagney, William Powell, Jack Lemmon, Betsy Palmer, Ward Bond, Phil Carey.
- Moonfleet* (MGM). Producer, John Houseman; director, Fritz Lang; screenplay by Jan Lustig, Margaret

- Fitts, from the novel by J. Meade Falkner. With Stewart Granger, George Sanders, Joan Greenwood, Viveca Lindfors, Jon Whiteley.
- My Sister Eileen** (Columbia). Producer, Fred Kohlmar; director, Richard Quine; screenplay by Blake Edwards, Richard Quine, based on the play by Joseph Fields, Jerome Chodorov, adapted from the stories by Ruth McKenney. With Betty Garrett, Janet Leigh, Jack Lemmon, Robert Fosse, Kurt Kasznar, Tommy Hall.
- Naked Sea** (RKO). Producer-director-photographer, Allen H. Miner; narration written by Gerald Schnitzer, read by William Conrad. A 70-minute documentary about tuna fishing in the Pacific.
- Night of the Hunter** (United Artists). Producer, Paul Gregory; director, Charles Laughton; screenplay by James Agee, from the novel by Davis Grubb. With Robert Mitchum, Shelley Winters, Lillian Gish, Evelyn Varden, Peter Graves, Billy Chapin, Sally Jane Bruce.
- Not As a Stranger** (United Artists). Producer-director, Stanley Kramer; screenplay by Edna and Edward Anhalt, from the novel by Morton Thompson. With Olivia de Havilland, Robert Mitchum, Frank Sinatra, Gloria Grahame, Broderick Crawford, Charles Bickford, Myron McCormick.
- Oklahoma!** (Magna Theatre Corp.). Producer, Arthur Hornblow, Jr.; director, Fred Zinnemann; screenplay by Sonya Levien, William Ludwig, based on the musical comedy with music by Richard Rodgers, book and lyrics by Oscar Hammerstein II, which was based on Lynn Riggs' play, *Green Grow the Lilacs*. Dances staged by Agnes de Mille; production designed by Oliver Smith. The first film produced in the Todd-AO process. With Gordon MacRae, Shirley Jones, Gene Nelson, Charlotte Greenwood, Rod Steiger, Gloria Grahame, Eddie Albert, James Whitmore, Bambi Linn, James Mitchell.
- One Desire** (Universal). Producer, Ross Hunter; director, Jerry Hopper; based on *Tacey Cromwell* by Conrad Richter. With Anne Baxter, Rock Hudson, Julie Adams, Carl Benton Reid, Natalie Wood.
- Pete Kelly's Blues** (Warners). Director, Jack Webb; screenplay by Richard L. Breen. With Jack Webb, Janet Leigh, Edmond O'Brien, Peggy Lee, Andy Devine, Lee Marvin, Ella Fitzgerald.
- The Phenix City Story** (Allied Artists). Producers, Samuel Bischoff, David Diamond; director, Phil Karlson; screenplay by Crane Wilbur, Dan Mainwaring. With John McIntire, Richard Kiley, Kathryn Grant, Edward Andrews, James Edwards.
- Prince of Players** (20th Century-Fox). Producer-director, Philip Dunne; screenplay by Moss Hart, from the book by Eleanor Ruggles. With Richard Burton, Maggie McNamara, John Derek, Raymond Massey, Charles Bickford, Eva Lee Gallienne.
- The Private War of Major Benson** (Universal). Producer, Howard Pine; director, Jerry Hopper; screenplay by William Roberts, Richard Alan Simmons. With Charlton Heston, Julie Adams, William Demarest, Tim Hovey, Nana Bryant, Tim Considine, Sal Mineo.
- A Prize of Gold** (Columbia). Producers, Irving Allen, Albert R. Broccoli; director, Mark Robson; screenplay by Robert Buckner, John Paxton, from the novel by Max Catto. With Richard Widmark, Mai Zetterling, Nigel Patrick, George Cole, Donald Wolfelt.
- The Prodigal** (MGM). Producer, Charles Schnee; director, Richard Thorpe; screenplay by Maurice Zimm, adapted from the Biblical parable. With Edmund Purdom, Lana Turner, Louis Calhern, Audrey Dalton, James Mitchell, Neville Brand.
- The Purple Mask** (Universal). Producer, Howard Christie; director, Bruce Humberstone; screenplay by Oscar Brodney. With Tony Curtis, Colleen Miller, Daniel O'Herlihy, Gene Barry, Angela Lansbury, George Dolenz.
- Queen Bee** (Columbia). Producer, Jerry Wald; director-writer, Randal MacDougall. With Joan Crawford, Barry Sullivan, Betsy Palmer, John Ireland, Lucy Marlow, Fay Wray.
- Quentin Durward** (MGM). Producer, Pandro S. Berman; director, Richard Thorpe; screenplay by Robert Ardrey, from Walter Scott's novel. With Robert Taylor, Kay Kendall, Robert Morley, George Cole, Marius Goring, Wilfred Hyde White, Alec Clunes, Duncan Lamont.
- The Racers** (20th Century-Fox). Producer, Julian Blaustein; director, Henry Hathaway; screenplay by Charles Kaufman, from the novel by Hans Ruesch. With Kirk Douglas, Bella Darvi, Gilbert Roland, Cesar Romero, Lee J. Cobb.
- The Rains of Ranchipur** (20th Century-Fox). Producer, Frank Ross; director, Jean Negulesco; screenplay by Merle Miller, from *The Rains Came* by Louis Bromfield. With Lana Turner, Richard Burton, Fred MacMurray, Joan Caulfield, Michael Rennie, Eugenie Leontovich, Madge Kennedy, Beatrice Kraft.
- Rebel Without a Cause** (Warners). Producer, David Weisbart; director, Nicholas Ray; screenplay by Stewart Stern. With James Dean, Natalie Wood, Sal Mineo, Jim Backus, Ann Doran, Rochelle Hudson, Corey Allen.
- Revenge of the Creature** (Universal). Producer, William Alland; director, Jack Arnold; screenplay by Martin Berkeley. With John Agar, Lori Nelson, John Bromfield, Robert B. Williams, Nestor Paiva.
- The Rose Tattoo** (Paramount). Producer, Hal B. Wallis; director, Daniel Mann; screenplay by Tennessee Williams from his play. With Anna Magnani, Burt Lancaster, Marisa Pavan, Ben Cooper, Virginia Grey, Jo Van Fleet, Sandro Giglio.
- Run for Cover** (Paramount). Producers, William H. Pine, William C. Thomas; director, Nicholas Ray; screenplay by Winston Miller, Jr., Irving Ravetch. With James Cagney, Viveca Lindfors, John Derek, Jean Hersholt, Grant Withers.
- The Scarlet Coat** (MGM). Producer, Nicholas Nayfack; director, John Sturges; screenplay by Karl Tunberg. With Cornel Wilde, Michael Wilding, George Sanders, Anne Francis, Robert Douglas, Bobby Driscoll.
- The Sea Chase** (Warners). Producer-director, John Farrow; screenplay by James Warner Bellah, John Twist, from the novel by Andrew Geer. With John Wayne, Lana Turner, David Farrar, Tab Hunter, Lyle Bettger.
- The Second Greatest Sex** (Universal). Producer, Albert J. Cohen; director, George Marshall; screenplay by Charles Hoffman. With Jeanne Crain, George Nader, Kitty Kallen, Bert Lahr, Mamie Van Doren, Tommy Rall.
- Seven Angry Men** (Allied Artists). Producer, Vincent M. Fennelly; director, Charles Marquis Warren; screenplay by Daniel B. Ullman. With Raymond Massey, Debra Paget, Jeffrey Hunter, Larry Pennell, Leo Gordon, James Edwards.
- Seven Cities of Gold** (20th Century-Fox). Producers, Robert D. Webb, Barbara McLean; director, Robert D. Webb. With Michael Rennie, Richard Egan, Anthony Quinn, Jeffrey Hunter, Rita Moreno.
- The Seven Little Foys** (Paramount). Producer, Jack Rose; director, Melville Shavelson; screenplay by Jack Rose, Melville Shavelson, based on the career of Eddie Foy, Sr. With Bob Hope, Milly Vitale, Angela Clarke, George Tobias, Billy Gray.
- The Seven Year Itch** (20th Century-Fox). Producers, Charles K. Feldman, Billy Wilder; director, Billy Wilder; screenplay by Billy Wilder, George Axelrod, from the play by George Axelrod. With Marilyn Monroe, Tom Ewell, Evelyn Keyes, Sonny Tufts, Robert Strauss, Oscar Homolka.
- The Shrike** (Universal). Producer, Aaron Rosenberg; director, Jose Ferrer; screenplay by Ketti Frings, from the play by Joseph Kramm. With Jose Ferrer, June Allyson, Joy Page, Kendall Clark, Isabel Bonner.
- The Silver Chalice** (Warners). Producer-director, Victor Saville; screenplay by Lesser Samuels, from the novel by Thomas B. Costain, with Paul Newman, Virginia Mayo, Jack Palance, Pier Angeli, Walter Hampden, Joseph Wiseman, Alexander Scourby.
- Sincerely Yours** (Warners). Producer, Henry Blanke; director, Gordon Douglas; screenplay by Irving Wallace. With Liberace, Joanne Dru, Dorothy Malone, Alex Nicol, William Demarest, Lurene Tuttle.
- Soldier of Fortune** (20th Century-Fox). Producer, Buddy Adler; director, Edward Dmytryk; screenplay by Ernest K. Gann. With Clark Gable, Susan Hayward, Michael Rennie, Gene Barry, Alex D'Arcy, Anna Sten, Tom Tully.
- Son of Sinbad** (RKO). Producer, Robert Sparks; director, Ted Tetzlaff; screenplay by Aubrey Wisber, Jack Pollexfen. With Dale Robertson, Sally Forrest, Lili St. Cyr, Vincent Price, Mari Blanchard.
- Strange Lady in Town** (Warners). Producer-director, Mervyn LeRoy; screenplay by Frank Butler. With Greer Garson, Dana Andrews, Cameron Mitchell, Lois Smith, Walter Hampden.
- Strategic Air Command** (Paramount). Producer, Samuel J. Briskin; director, Anthony Mann; screenplay by Valentine Davies, Beirne Lay, Jr. With James Stewart, June Allyson, Frank Lovejoy, Barry Sullivan, Alex Nicol, Bruce Bennett, Rosemary De Camp.
- Summertime** (United Artists). Producer, Ilya Lopert; director, David Lean; screenplay by H. E. Bates, David Lean, from Arthur Laurents' play, *The Time of the Cuckoo*. With Katharine Hepburn, Rossano Brazzi, Isa Miranda, Darren McGavin, Gaitano Audi-ero.
- The Tall Men** (20th Century-Fox). Producers, William A. Bacher, William B. Hawks; director, Raoul Walsh; screenplay by Sydney Boehm, Frank Nugent, from the novel by Ray Fisher. With Clark Gable, Jane Russell, Robert Ryan, Cameron Mitchell.
- Tarzan's Hidden Jungle** (RKO). Producer, Sol Lesser; director, Harold Schuster; screenplay by William Lively. With Gordon Scott, Vera Miles, Peter Van Eyck, Jack Elam.
- The Tender Trap** (MGM). Producer, Lawrence Weingarten; director, Charles Walters; screenplay by

- Julius Epstein, from the play by Max Shulman, Robert Paul Smith. With Frank Sinatra, Debbie Reynolds, David Wayne, Celeste Holm, Jarma Lewis, Tom Helmore.
- Three for the Show* (Columbia). Producer, Jonie Taps; director, H. C. Potter; screenplay by Edward Hope, Leonard Stern, from a play by W. Somerset Maugham. With Betty Grable, Marge and Gower Champion, Jack Lemmon, Myron McCormick.
- Three Ring Circus* (Paramount). Producer, Hal B. Wallis; director, Joseph Pevney. With Dean Martin, Jerry Lewis, Joanne Dru, Zsa Zsa Gabor, Wallace Ford.
- Tight Spot* (Columbia). Producer, Lewis J. Rachmil; director, Phil Karlson; screenplay by William Bowers, from Lenard Kantor's play, *Dead Pigeon*. With Ginger Rogers, Edward G. Robinson, Brian Keith, Lucy Marlow, Katherine Anderson.
- To Catch a Thief* (Paramount). Producer-director, Alfred Hitchcock; screenplay by John Michael Hayes, from the novel by David Dodge. With Cary Grant, Grace Kelly, Jessie Royce Landis, John Williams, Charles Vanel, Brigitte Auber.
- To Hell and Back* (Universal). Producer, Aaron Rosenberg; director, Jesse Hibbs; screenplay by Gil Doud, based on Audie Murphy's autobiography. With Audie Murphy, Marshall Thompson, Charles Drake, Gregg Palmer.
- The Treasure of Pancho Villa* (RKO). Producer, Edmund Grainger; director, George Sherman; screenplay by Niven Busch. With Rory Calhoun, Shelley Winters, Gilbert Roland, Joseph Calleja.
- Trial* (MGM). Producer, Charles Schnee; director, Mark Robson; screenplay by Don Mankiewicz from his novel. With Glenn Ford, Dorothy McGuire, Arthur Kennedy, John Hodiak, Katy Jurado, Rafael Campos, Juano Hernandez.
- The Trouble with Harry* (Paramount). Director, Alfred Hitchcock; screenplay by John Michael Hayes, from the novel by Jack Trevor Story. With Edmund Gwenn, John Forsythe, Shirley MacLaine, Mildred Natwick, Mildred Dunnock, Royal Dano, Jerry Mathers.
- Unchained* (Warners). Producer-director-writer, Hall Bartlett; suggested by the life and work of Kenyon J. Scudder and his book, *Prisoners Are People*. With Elroy Hirsch, Barbara Hale, Chester Morris, Todd Duncan, Johnny Johnston, Peggy Knudsen, Jerry Paris.
- Underwater* (RKO). Producer, Harry Tatelman; director, John Sturges; screenplay by Walter Newman. With Jane Russell, Gilbert Roland, Richard Egan, Lori Nelson, Robert Keith.
- Untamed* (20th Century-Fox). Producers, Bert E. Friedlob, William A. Bacher; director, Henry King. With Tyrone Power, Susan Hayward, Richard Egan, John Justin, Agnes Moorehead.
- Vera Cruz* (United Artists). Producer, James Hill; director, Robert Aldrich; screenplay by Roland Kibbee, James R. Webb. With Gary Cooper, Burt Lancaster, Denise Darcel, Cesar Romero, Sanita Montiel.
- The View from Pompey's Head* (20th Century-Fox). Producer-director-writer, Philip Dunne; based on the novel by Hamilton Basso. With Richard Egan, Dana Wynter, Cameron Mitchell, Sidney Blackmer, Marjorie Rambeau.
- Violent Saturday* (20th Century-Fox). Producer, Buddy Adler; director, Richard Fleischer; screenplay by Sydney Boehm, from the novel by William L. Heath. With Victor Mature, Richard Egan, Stephen McNally, Virginia Leith.
- The Virgin Queen* (20th Century-Fox). Producer, Charles Brackett; director, Henry Koster; screenplay by Harry Brown, Mindret Lord. With Bette Davis, Richard Todd, Joan Collins, Jay Robinson, Herbert Marshall, Dan O'Herlihy.
- We're No Angels* (Paramount). Producer, Pat Duggan; director, Michael Curtiz; screenplay by Randal MacDougall, based on Albert Husson's play, *La Cuisine des Anges*. With Humphrey Bogart, Aldo Ray, Peter Ustinov, Joan Bennett, Basil Rathbone, Leo G. Carroll, Gloria Talbott, John Baer.
- White Feather* (Universal). Producer, Robert L. Jacks; director, Robert Webb; screenplay by Delmer Daves, Leo Townsend. With Robert Wagner, John Lund, Eduard Franz, Debra Paget, Jeffrey Hunter.
- Wichita* (Allied Artists). Producer, Walter Mirisch; director, Jacques Tourneur; screenplay by Daniel B. Ullman. With Joel McCrea, Vera Miles, Lloyd Bridges, Wallace Ford, Edgar Buchanan.
- Young at Heart* (Warners). Producer, Henry Blanke; director, Gordon Douglas; screenplay by Julius J. Epstein, Lenore Coffee, from a story by Fannie Hurst. With Doris Day, Frank Sinatra, Gig Young, Ethel Barrymore, Dorothy Malone, Elisabeth Fraser.
- The Bed* (Kingsley). French film comprising four stories. Producer, Niccolo Theodoli; directors, Henri Decoin, Jean Delannoy, Ralph Habib, Gianni Franciolini. With Richard Todd, Vittorio De Sica, Dawn Adams, Martine Carol, Marcel Mouloudji, Francoise Arnoul.
- Chance Meeting* (Pacemaker). English film. Producer, Anthony Havelock-Allan; director, Anthony Asquith; screenplay by George Tabori, Robin Estridge. With Odile Versois, David Knight, Joseph Tomelty, Theodore Bikel.
- Companions of the Night* (Arlan). French film. Producer, Robert Woog; director, Ralph Habib; screenplay by Jacques Companeaz. With Francoise Arnoul, Raymond Pellegrin, Pierre Cressoy, Suzy Prim, Christian Fourcade, Nicole Maurey.
- Court Martial* (Kingsley). English film. Producer, Teddy Baird; director, Anthony Asquith; screenplay by John Hunter, from Dorothy and Campbell Christie's play, *Carrington*, V. C. With David Niven, Margaret Leighton, Noelle Middleton, Allan Cuthbertson, Geoffrey Keen.
- The Dam Busters* (Warners). English film. Director, Michael Anderson; screenplay by R. C. Sherriff, from the book by Paul Brickhill and on Wing Comdr. Guy Gibson's *Enemy Coast Ahead*. With Michael Redgrave, Richard Todd, Ursula Jeans, Basil Sydney, Raymond Huntley.
- The Deep Blue Sea* (20th Century-Fox). English film presented by Alexander Korda. Producer-director, Anatole Litvak; screenplay by Terence Rattigan from his play. With Vivien Leigh, Kenneth More, Eric Portman, Emlyn Williams, Moira Lister, Arthur Hill.
- Devotion* (Artkino). Russian film. Mosfilm production; director, I. Pyryev; screenplay by the Tur Brothers and I. Pyryev. With S. Romodanov, N. Ladygina, L. Gallis, V. Toporkov.
- Diabolique* (United Motion Picture Organization). French film. Producer-director, Henri-Georges Clouzot; screenplay by H. G. Clouzot and G. Geronimi, based on *Celle Quix N'était Plus* by Pierre Boileau, Thomas Narcejac. With Simone Signoret, Vera Clouzot, Paul Meurisse, Charles Vanel, Pierre Larquey, Michel Serrault.
- The Divided Heart* (Republic). English film. Producer, Michael Truman; director, Charles Crichton; screenplay by Jack Whittingham, based on a case (about a boy and his two mothers) judged by the United States Court of the Allied High Commission for Germany. With Cornell Borchers, Yvonne Mitchell, Armin Dahlen, Alexander Knox, Geoffrey Keen, Michel Ray, Martin Keller.
- Doctor in the House* (Republic). English film. Producer, Betty E. Box; director, Ralph Thomas; screenplay by Nicholas Phipps, based on the novel by Richard Gordon. With Dirk Bogarde, Kenneth More, Donald Sinden, Donald Houston, James Robertson Justice, Kay Kendall, Muriel Pavlow, Suzanne Cloutier.
- Five from Barska Street* (Artkino). Polish film. Producers, Kazimierz Gaszewski, Ignacy Taub; director, Aleksander Ford; screenplay by Kazimierz Kozniowski from his novel. With Aleksandra Slaska, Tadeusz Janczar, Andrzej Kozak, Tadeusz Lomnicki, Marian Rulka.
- Footsteps in the Fog* (Columbia). English film. Producers, M. J. Frankovich, Maxwell Setton; director, Arthur Lubin; screenplay by Dorothy Reid, Lenore Coffee, based on a story by W. W. Jacobs. With Stewart Granger, Jean Simmons, Bill Travers, Belinda Lee, Finlay Currie.
- Frisky* (DCA). Italian film. Producer, Marcello Girosi; director, Luigi Comencini. With Gina Lollobrigida, Vittorio De Sica, Roberto Risso, Marisa Merlini.
- Front Page Story* (Associated Artists). English film. Producer, Jay Lewis; director, Gordon Parry; screenplay by Jay Lewis, Jock Howells. With Jack Hawkins, Elizabeth Allan, Eva Bartok, Derek Farr, Michael Goodliffe.
- The Great Adventure* (Louis de Rochemont). Swedish film about nature. Producer-director-writer, Arne Sucksdorff. With Anders Norborg, Kjell Sucksdorff, Arne Sucksdorff.
- Green Magic* (I.F.E.). Italian film. Producer, Leonardo Bonzi; director, Gian Gaspare Napolitano; English commentary written by James Agee, narrated by Brett Morrison, Carlos Montalban. Documentary film made by the 1952 Bonzi Expedition in Brazil, Paraguay, Bolivia, and Peru.
- The Green Scarf* (Associated Artists). English film. Producers, Bertram Ostrer, Albert Fennell; director, George More O'Ferrall. Screenplay by Gordon Wellesley, from Guy Des Cars' *The Brute*. With Michael Redgrave, Ella Milne, Jane Griffiths, Kieron Moore, Michael Golden, Ann Todd, Leo Genn.
- Hill 24 Doesn't Answer* (Continental). Israeli film. Director, Thorold Dickinson; screenplay by Ziv Kilitz, Peter Frye. With Michael Wager, Haya Harari, Edward Mulhare, Margalit Oved, Arieh Lavi.
- Hiroshima* (Continental). Japanese film. Director, Hideo Sekigawa; screenplay by Yasutaro Yagi. With Yoshi

FILMS FROM ABROAD

- The Adventures of Sadie* (20th Century-Fox). English film. Producer, George Minter; director-writer, Noel Langley. With Joan Collins, George Cole, Kenneth More, Robertson Hare, Hermione Gingold.

- Katoh, Eiji Okada, Isuzu Yamada, Yasuaki Takano, Masayuki Tsukida, Yumeji Tsukioka.
- Holiday for Henrietta* (Ardee Films). French film. Director, Julien Duvivier; screenplay by Henri Jeanson, Julien Duvivier. With Dany Robin, Hildegarde Neff, Michel Auclair, Michel Roux, Louis Seigner, Henri Cremieux.
- I Am a Camera* (DCA). English film. Director, Henry Cornelius; screenplay by John Collier, from the play by John Van Druten, based on the stories by Christopher Isherwood. With Julie Harris, Laurence Harvey, Shelley Winters, Ron Randall, Lea Seidl.
- The Intruder* (Associated Artists). English film. Producer, Ivan Foxwell; director, Guy Hamilton; screenplay by Robin Maugham, John Hunter, from Robin Maugham's *Line on Ginger*. With Jack Hawkins, Hugh Williams, George Cole, Dennis Price, Duncan Lamont, Michael Medwin.
- Maddalena* (I.F.E.). Italian film. Producer, Giuseppe Bordogni; director, Augusto Genina; photographer, Claude Renoir; screenplay by Genina, Alianello, Stefani, Prosperi, from Madeleine Masson de Belleville's play, *Servant of God*. With Marta Toren, Gino Cervi, Charles Vanel, Jacques Sernas.
- Mambo* (Paramount). Italian film. Producers, Dino De Laurentis, Carlo Ponti; director, Robert Rossen; screenplay by Guido Pivovne, Ivo Perilli, Ennio De Concini, Robert Rossen. With Silvana Mangano, Michael Rennie, Vittorio Gassman, Shelley Winters, Katherine Dunham, Mary Clare, Eduardo Cianelli.
- The Man Who Loved Redheads* (Lopert-United Artists). English film. Producer, Josef Somlo; director, Harold French; screenplay by Terence Rattigan. With Moira Shearer, John Justin, Roland Culver, Gladys Cooper, Denholm Elliott, Patricia Cutts, Jeremy Spenser.
- Naked Amazon* (Times Film). Brazilian film. Producer-photographer-director, Zygmunt Sulistowski. Narration by Herb Meadow, Jan Lechon, E. Egan. A semi-documentary adventure film made on an expedition in Brazil led by Zygmunt Sulistowski. With Monique Jaubert, Andrea Byard and others including the Canayura Indian Tribe.
- The Night My Number Came Up* (Continental). English film. Producer, Michael Balcon; director, Leslie Norman; screenplay by R. C. Sherriff, from the article by Air Marshal Sir Victor Goddard. With Michael Redgrave, Sheila Sim, Alexander Knox, Denholm Elliott, Ursula Jeans.
- No Way Back* (Fine Arts). German film. Producer, Stuart Schulberg; director, Victor Vicas; screenplay by Gerhard T. Buchholtz, Victor Vicas. With Ivan Desny, Ruth Niehaus, Rene Deltgen, Karl John.
- Othello* (United Artists). International film. Producer-director, Orson Welles. Based on the play by William Shakespeare. With Orson Welles, Michael MacLiammoir, Suzanne Cloutier, Robert Coote, Fay Compton, Milton Edwards.
- The Prisoner* (Columbia). English film. Producers, Sydney Box, Vivian A. Cox; directed by Peter Glenville; screenplay by Bridget Boland. With Alec Guinness, Jack Hawkins, Raymond Huntley, Wilfred Lawson, Ronald Lewis.
- The Purple Plain* (United Artists). English film. Producer, John Bryan; director, Robert Parrish; screenplay by Eric Ambler, from the novel by H. E. Bates. With Gregory Peck, Win Min Than, Brenda De Banzie, Bernard Lee, Maurice Denham, Lyndon Brook, Ram Gopal.
- The Safety Match* (Artkino). Russian film. Director, K. Yudin; screenplay by N. Erdman, from the story by Anton Chekhov. With A. Gribov, A. Popov, M. Yanshin, M. Kuznetsova, M. Nazvanov.
- The Sheep Has Five Legs* (United Motion Picture Organization). French film. Producer, Raoul Ploquin; director, Henri Verneuil. With Fernandel playing six roles.
- Simba* (Lippert). English film, made in Africa. Producer, Peter de Sarigny; director, Brian Desmond Hurst; screenplay by John Baines, Robin Estridge, from a story by Anthony Perry. With Dirk Bogarde, Donald Sinden, Virginia McKenna, Basil Sydney, Joseph Tomelty, Earl Cameron, Orlando Martins, Ben Johnson.
- The Stranger's Hand* (DCA). English film. Producers, John Stafford, Peter Moore; director, Mario Soldati; screenplay by Guy Elmes, Giorgio Bassani, from a story by Graham Greene. With Trevor Howard, Richard Basehart, Alida Valli, Eduardo Cianelli, Richard O'Sullivan.
- Sunderin* (Producers Representatives). German film. Producer, Helmuth Volmer; director-writer, Willy Forst, from a story by Gerhard Menzel. With Hildegarde Neff, Gustav Froehlich, Anne Bruck, Robert Meyn, J. Wolfgang Meyn, Andreas Wolf.
- Scengali* (MGM). English film. Producer, George Minter; director-writer, Noel Langley; based on George du Maurier's novel, *Tilbury*. With Hildegarde Neff, Donald Wolfelt, Terence Morgan, Derek Bond, Paul Rogers and the voice of Elisabeth Schwarzkopf.
- This Strange Passion* (Omnifilms). Mexican film. Producer, Oscar Dancigers; director-writer, Luis Bunuel; based on Mercedes Pinto's story, *El*. With Arturo De Cordova, Delia Garcés, Luis Beristain, Carlos Martinez Baena.
- Three Cases of Murder* (Associated Artists). English film. Producers, Ian Dalrymple, Hugh Perceval; directors, Wendy Toye, David Eady, George More O'Ferrall; screenplay by Ian Dalrymple, Donald Wilson, Sidney Carroll, from stories by Roderick Wilkinson, Brett Halliday, W. Somerset Maugham. With Emrys Jones, John Gregson, Elizabeth Sellars, Alan Badel, Leueen MacGrath, Orson Welles.
- Tonight's the Night* (Allied Artists). English film. Producer-director, Mario Zampi; screenplay by Jack Davies, Michael Pertwee. With David Niven, Yvonne De Carlo, Barry Fitzgerald, George Cole.
- To Paris With Love* (Continental). English film. Producer, Antony Darnborough; director, Robert Hamer; screenplay by Robert Buckner, from a story by Sterling Noel. With Alec Guinness, Odile Versois, Vernon Gray, Jacques Francois, Elina Labourdette, Austin Trevor.
- Ulysses* (Paramount). Italian film. Producers, Dino De Laurentis, Carlo Ponti; director, Mario Camerini; screenplay by Franco Brusati, Ennio de Concini, Hugh Gray, Ben Hecht, Ivo Perilli, Irwin Shaw, from Homer's *Odyssey*. With Kirk Douglas, Silvana Mangano, Anthony Quinn, Rossana Podesta, Sylvie, Umberto Silvestri, Franco Interlenghi, Jacques Dumesnil.
- Umberto D.* (Harrison and Davidson). Italian film. Producers, Rizzoli, De Sica, Amato; director, Vittorio De Sica; screenplay by Cesare Zavattini, Vittorio De Sica, from a story by Cesare Zavattini. With Carlo Battisti, Maria Pia Casilio, Lina Gennari.
- The Wages of Fear* (DCA). French film. Director-writer, Henri-Georges Clouzot; based on the novel by Georges Arnaud. With Yves Montand, Charles Vanel, Peter Van Eyck, Folco Lulli, Vera Clouzot.
- The Wayward Wife* (I.F.E.). Italian film. Producer, Attilio Riccio; director, Mario Soldati; based on a story by Alberto Moravia. With Gina Lollobrigida, Gabriele Ferzetti, Franco Interlenghi, Marilyn Buford, Renato Baldini, Alda Mangini.

PHILIP T. HARTUNG,

Motion Picture Critic, "The Commonweal."

MOTOR VEHICLES. See AUTOMOBILES.

MOTORBOAT RACING. See SPORTS, GAMES, AND SHOWS.

MOTT, John Raleigh, American religious and social worker: b. Livingston Manor, N.Y., May 25, 1865; d. Orlando, Fla., Jan. 31, 1955. A co-winner of the Nobel Peace Prize in 1946, he dedicated his entire life to the promotion of international understanding and goodwill through the medium of Christianity.

Considering religion an obstacle to his political aspirations, John Mott in 1885 transferred from Upper Iowa University, a Methodist institution in Fayette, Iowa, to Cornell University, a nondenominational institution, where, ironically, he experienced in the following year a religious awakening. On graduating from Cornell in 1888, Mott became student secretary of the International Committee of the Young Men's Christian Association (YMCA) until 1915, when he assumed the position of general secretary (1915-31). He also successfully undertook the chairmanship (1888-1920) of the founding Student Volunteer Movement for Foreign Missions.

In 1895, Mott helped establish the World's Student Christian Federation, which he led as general secretary (1895-1920) and chairman (1920-28). In June 1910 he was chosen chairman of the World Missionary Conference in Edinburgh, Scotland. As presiding officer of the committee appointed to continue the work between conferences, he journeyed to the Far East and organized conferences from which developed national missionary councils in India, China, Japan, and other areas. In 1921 the Continuation Committee was succeeded by the International Missionary Council, the chairmanship of which Mott held until 1942.

He was general secretary of the National Council of the YMCA's of the United States from 1915 to 1928, and chairman of the World's Committee of YMCA's from 1926 to 1937. With the entrance of the United States into World War I, he directed the YMCA-sponsored welfare work among the Allied armies and prisoner-of-war camps. For his efforts as general secretary of the National War Work Council and chairman of the United War Work Campaign, which in 1918-19 raised \$203 million for the YMCA and various other organizations, he was awarded the Distinguished Service Medal by the United States government.

Acclaimed by governments and universities the world over, Dr. Mott received his greatest honors in 1946 when he was awarded, first, the Prince Carl Medal for distinguished humanitarian service, and later, with Emily Greene Balch, the Nobel Peace Prize. He was further honored in 1948 with appointment as honorary president of the World Council of Churches, a position he retained until his death.

Among Mott's numerous publications, several of which have been translated into as many as six languages, are included *Strategic Points in the World's Conquest* (1897); *Evangelization of the World in This Generation* (1900); *Pastor and Modern Missions* (1904); *The Future Leadership of the Church* (1909); *The Present World Situation* (1914); *World Student Christian Federation* (1920); *The Moslem World of Today* (1924); *Liberating the Lay Forces of Christianity* (1932); *Five Decades and a Forward View* (1939); and *The Larger Evangelism* (1944).

MOUNTAIN CLIMBING. See GEOGRAPHY AND EXPLORATION.

MOZAMBIQUE. See PORTUGUESE TERRITORIES.

MUNICIPAL GOVERNMENT. See Index entry.

MUNITIONS. See Index entry, *Weapons*.

MUSEUMS. See Index entries on specific names of museums.

MUSIC. Orchestras.—Charles Munch began his sixth year as conductor of the Boston Symphony when the orchestra began its 74th season, which extended from Oct. 6, 1954, through April 30, 1955. A total of 70 concerts were presented in Boston and Cambridge, Mass. In addition, the orchestra gave its customary concerts in New York City, Brooklyn, N.Y., Washington, D.C., and Providence, R.I., and went on a national tour, beginning on October 18. On October 9 the Boston Symphony, replacing the NBC Symphony, began broadcasting its Saturday night concerts (except during tour) over the National Broadcasting Company radio network. After the orchestra's regular season, many of its members formed the Boston Pops orchestra, which played in the Esplanade Concerts in Boston during July and August under Arthur Fiedler's direction. Also during the summer the orchestra appeared at the Berkshire Music Festival. (See below, *Summer Music and Festivals*.)

The Philadelphia Orchestra Association, under Eugene Ormandy's direction, originally scheduled its 1954 opening for October 8. Union difficulties, however, forced a postponement of the opening until October 11 and the cancellation of the Conductors' Workshop, which had been planned for the first week of the season. During the 1954-55 season, the orchestra's 55th, 28 pairs of concerts, as well as a children's series, were presented. In May 1955 the orchestra embarked on an European tour, arranged under the sponsorship of the U.S. Department of State and the American National Theater and Academy (ANTA). Three concerts were given in Paris as part of ANTA's "Salute to France" program, as

well as concerts in Belgium, Spain, Portugal, Italy, Austria, Switzerland, West Germany, and Finland.

The Philharmonic-Symphony Society of New York, in addition to its regular season (Oct. 7, 1954, to April 17, 1955), toured the United States and Europe, the latter tour being under the auspices of the U.S. Department of State. The orchestra gave 6 concerts at the Edinburgh Festival, 2 in London, and 18 on the Continent. Dimitri Mitropoulos (the orchestra's permanent conductor), George Szell, and Guido Cantelli were the conductors.

The Symphony of the Air, its membership consisting of players from the former NBC Symphony, which had been disbanded by the National Broadcasting Company following Arturo Toscanini's resignation on April 4, 1954, made its debut, without a conductor, on Oct. 27, 1954, in New York's Carnegie Hall. With Don Gillis, producer of the radio concerts, as its general representative, the orchestra gave 24 concerts during the 1954-55 season. On two occasions (March 20 and 22, 1955) Kirsten Flagstad was soloist with the orchestra. In May and June 1955 the orchestra, under the sponsorship of the U.S. Department of State, undertook a tour of the Orient, with Walter Hendl and Thor Johnson as conductors.

The Chicago Symphony, under Fritz Reiner's direction, opened its season on Oct. 14, 1954. It replaced the Boston Symphony on NBC's Saturday night broadcasts while the latter orchestra was on tour. The Chicago orchestra was the beneficiary of more than a million dollars from the estate of Sarah and Alice Robson, two spinster sisters who had been subscribers to its concerts for 50 years.

In 1955 there were 30 orchestras in the United States and 4 in Canada which were classified as "major" by the Conference of Orchestra Managers. In addition to those mentioned above, these include, with their conductors and opening dates of their 1954-55 seasons, symphony orchestras in Baltimore (October 20; Massimo Freccia), Cincinnati (October 8; Thor Johnson), Cleveland (October 7; George Szell), Detroit (October 28; Paul Paray), Los Angeles (November 4; Alfred Wallenstein), St. Louis (October 23; Vladimir Golschmann), and San Francisco (November 11; Enrique Jorda).

Two foreign orchestras visited the United States in 1954-55: the Amsterdam Concertgebouw in October, under the direction of Eduard Van Beinum and Rafael Kubelik; and the Berlin Philharmonic in March, under the direction of Herbert von Karajan, who on April 5, 1955, succeeded the late Wilhelm Furtwängler as the Berlin orchestra's permanent conductor. Despite protests that both the conductor and the manager of the Berlin Philharmonic were former Nazis (both had formerly been cleared by a denazification board), the American tour was a critical success.

Opera.—For its 1954-55 season, the Metropolitan Opera Company of New York engaged two new conductors: Rudolf Kempe, music director of the Munich Opera since 1952, and Dimitri Mitropoulos. The Metropolitan gave a total of 215 performances, including 48 on its tour, which extended from April 10 to June 1, 1955. For the opening night of its 70th season (Nov. 8, 1954), it presented over closed-circuit television in 32 theaters throughout the country parts of four operas: the Prologue from *Pagliacci*, by Ruggiero Leoncavallo; Act I from *La*

Bohème, by Giacomo Puccini; Act II of *The Barber of Seville*, by Gioachino Rossini; and Act I, scene 1 and Act II of *Aida*, by Giuseppe Verdi.

On Feb. 10, 1955, the Metropolitan presented the American première of Richard Strauss' *Arabella*. The company's revivals included Richard Wagner's *Die Meistersinger von Nürnberg* (Nov. 11, 1954); Umberto Giordano's *Andrea Chénier* (November 16); Strauss' *Salome*, with Christel Goltz of the Vienna State Opera in the title role (December 15); and Christoph Willibald Gluck's *Orfeo ed Euridice* (Feb. 24, 1955).

Of the 13 new singers added to the personnel of the Metropolitan, two made notable debuts. On Jan. 7, 1955, Marian Anderson, the first Negro to be engaged by the Metropolitan, made her initial operatic appearance in the contralto role of Ulrica in Verdi's *Masked Ball*. (On January 27, Robert McFerrin, another Negro, made his debut as Amonasro in *Aida*.) On January 31, Renata Tebaldi of Milan's La Scala made her New York debut as Desdemona in Verdi's *Otello*.

The New York City Opera offered its usual fall and spring seasons at New York's City Center, beginning, respectively, on Sept. 29, 1954, with *Aida*, and on March 17, 1955, with Strauss' *Der Rosenkavalier*. Between its fall and spring seasons the opera company was the subject of much controversy because of the replacement of Lincoln Kirstein by Joseph Rosenstock as managing director of the City Center of Music and Drama. In spite of this, the New York City Opera's tour, beginning November 1, was highly successful and the most extensive that had yet been undertaken by the company.

The San Francisco Opera Company opened its 32d season on Sept. 17, 1954, with Verdi's *Rigoletto*, and gave 22 performances in San Francisco and 13 in Los Angeles. The principal novelties of the west coast company's season were the American première of Maria Cherbini's *The Portuguese Inn* on September 24, and the local première of Arthur Honegger's *Joan of Arc at the Stake* on October 15.

The highlight of Chicago's Civic Opera House season was the presence of Maria Callas with the newly-formed Lyric Theatre. Miss Callas opened the 1954 season (November 1 to 20) in the title role of Vincenzo Bellini's *Norma*. In addition, the Lyric Theatre performed six additional Italian works and one American opera, *The Taming of the Shrew*, by Vittorio Giannini.

In Philadelphia, the City Council's Recreation Committee granted \$25,000 to the Philadelphia Grand Opera Company, which represented a merger of the Philadelphia La Scala Opera Company and the Civic Grand Opera Company. During the 1954-55 season, however, the parent companies continued separate operations. In Boston, the New England Opera Theatre produced on March 27, 1955, the first American performance of Hector Berlioz's *The Trojans*, which was staged and conducted by Boris Goldowsky.

The NBC-TV Opera Theatre presented a televised performance of Bellini's *Norma* on Jan. 23, 1955, with the Negro soprano, Leontyne Price, in the title role. The television opera season also included *The Saint of Bleecker Street* on May 15 (see below, *New Music*) and the fifth annual Christmas performance of *Amahl and the Night Visitors*, both by Gian-Carlo Menotti (q.v.).

Summer Music and Festivals.—The 38th season of summer concerts at the Lewisohn Stadium in New York began on June 20, 1955, and con-

tinued for 6 weeks, with 30 concerts offered. In Chicago in June, the Ravinia Festival opened its 20th seven-week season, which included performances by the Ballet Theatre with the Chicago Symphony. In Philadelphia, nine conductors led the Philadelphia Orchestra in the 25th season of Robin Hood Dell Concerts, which ran from June 21 to July 28, 1955.

At California's Hollywood Bowl the "Symphony of the Stars" was presented from July 7 to Aug. 30, 1955, and included a five-day "Festival of the Americas," in which Leonard Bernstein conducted music of the United States and Carlos Chavez conducted music of Latin America. The Toronto Philharmonic gave its annual Thursday night Promenade Symphony Concerts from June 2 to Sept. 15, 1955. The Goldman Band in New York City began its 38th season in Central Park on June 17, 1955. This concert was the 2,079th since the inception of the series. Of the band's 50 concerts in 1955, four were given weekly in Central Park, and two were given weekly in Prospect Park, Brooklyn.

The Berkshire Festival at Tanglewood, Mass., ran from July 6 through Aug. 14, 1955. The 12 concerts by the Boston Symphony were variously conducted by Charles Munch, the festival's musical director, Leonard Bernstein, and Pierre Monteux, who had celebrated his 80th birthday on April 4, 1955. In addition, there were six chamber music programs and two weekends of chamber orchestra concerts. The Berkshire Music Center inaugurated a fund-raising campaign in order to take advantage of an offer from the Rockefeller Foundation, which agreed to match for five years all gifts in excess of \$15,000, the total not to exceed \$125,000.

Two newcomers entered the field of summer music festivals in 1955. A four-week festival was begun on July 10 at Stratford, Ont., in connection with the Stratford Shakespearean Festival Foundation, which gave \$50,000 toward the establishment of the new venture. At Ellenville, N.Y., the Empire State Music Festival offered concerts for the first time from August 3 through September 4. The Symphony of the Air presented three concerts each week, with Eduard Van Beinum, Alfred Wallenstein, and Erich Leinsdorf as its various conductors. In addition, two weekly performances of operas were given.

Altogether more than 85 summer music and dance festivals were held throughout the United States and Canada in 1955. These included the 95th Worcester (Mass.) Festival; the 62d Ann Arbor (Mich.) Festival; the 48th Bach Festival at Bethlehem, Pa.; and the 25th Festival of American Music in Rochester, N.Y. The United States was also represented at numerous European festivals in 1955. The Philadelphia Orchestra played in the Netherlands, France, Finland, and Germany; and the New York City Ballet danced in France, Switzerland, and the Netherlands. The Philharmonic-Symphony Society of New York played at the Edinburgh Festival, which was held from August 21 to September 10.

New Music.—To celebrate its 75th anniversary in 1955-56, the Boston Symphony, in collaboration with the Serge Koussevitzky Foundation and the Library of Congress, commissioned, for \$2,000 each, 15 new compositions by leading contemporary composers. The Americans so honored are: Samuel Barber, Leonard Bernstein, Aaron Copland, Howard Hanson, Bohuslav Martinu, Walter Piston, William Schuman, and Roger Sessions. The foreign composers include Benjamin Britten of Great Britain; Darius Mil-

haud, Jacques Ibert, and Henri Dutilleux of France; Gottfried von Einem of Austria; Goffredo Petrassi of Italy; and Heitor Villa-Lobos of Brazil.

The Louisville Philharmonic Society, under a \$400,000 grant from the Rockefeller Foundation, ended in January 1955 its first year of commissioning, performing, and recording new works, with a total of 32 compositions receiving their first performances. Twelve long-playing recordings of the music were released monthly to subscribers, and the commissioned compositions included Luigi Dallapiccola's *Variations for Orchestra*, Henry Cowell's *Symphony No. 11*, and Carlos Surinach's *Sinfonietta Flamenca*.

In January 1955 the New York Music Critics Circle made its awards for outstanding works performed during the preceding year. These included Menotti's *The Saint of Bleeker Street*, which had received its première performance at New York's Broadway Theatre on Dec. 27, 1954; Dimitri Shostakovich's *Tenth Symphony*; Carl Orff's choral work, *Carmina Burana*; and Vittorio Rietti's *String Quartet No. 3*. Vittorio Gianinni's *The Taming of the Shrew*, which had received its initial performance on the NBC-TV Opera Theatre, received a special citation. (See also, PRIZES AND AWARDS.)

Other significant first performances of operas included Sergei Prokofiev's fourth opera, *L'Angé de Feu* (*The Flaming Angel*), at the Champs-Élysée Théâtre, Paris, on Nov. 25, 1954; Sir William Walton's *Troilus and Cressida*, Covent Garden, London, Dec. 2, 1954; Darius Milhaud's *David*, La Scala, Milan, Jan. 2, 1955; and Louis Mennini's *The Rope* (the libretto of which is based on a play by Eugene O'Neill), Berkshire Music Center, Tanglewood, Mass., Aug. 8, 1955. At the festivals of Salzburg (July 24 to Aug. 30, 1955) and Wuppertal, Germany (June 4 to 6, 1955), première performances were given, respectively, of Werner Egk's opera, *Irish Legend*, and Paul Hindemith's oratorio, *Ite Angeli Verlores*.

Miscellany.—In 1955, two of New York City's

venerable music halls were threatened with future demolition. The Metropolitan Company decided on Oct. 17, 1955, to acquire land on Lincoln Square for the erection of a new opera house. The company hopes to vacate the present opera house, built in 1883, by the fall of 1959. In the spring of 1955, John J. Totten, manager of Carnegie Hall, formed the Committee to Save Carnegie Hall. The group sought to raise immediately \$50,000 as a guarantee for a fund to purchase the building, whose replacement by apartment houses is being considered.

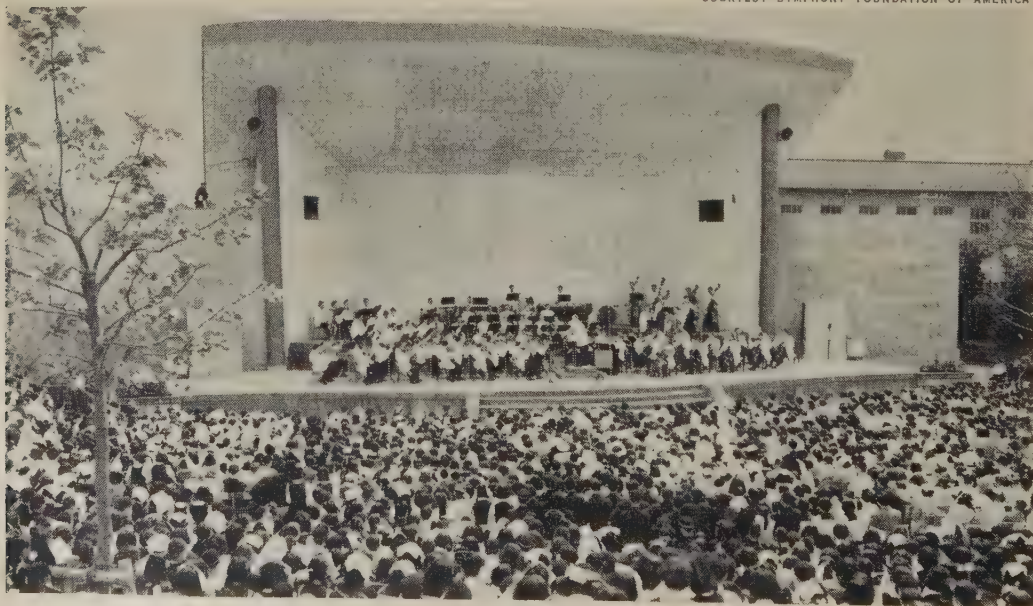
In Austria, the Vienna State Opera House was reopened on Nov. 5, 1955, for the first time since its demolition during World War II. Beethoven's *Fidelio* was presented for the opening performance, which was attended by world notables, including U.S. Secretary of State John Foster Dulles. The Berlin State Opera House on East Berlin's Unter den Linden held its postwar opening on Sept. 4, 1955. On the preceding March 19, Erich Kleiber, its renowned director, resigned his post and fled to West Berlin. Also in Europe in 1955, George Gershwin's *Porgy and Bess*, which is being presented by a touring American company, was a popular and critical success. The company, which played for 9 performances at Milan's La Scala, is planning to present the opera in Moscow.

The American Society of Composers, Authors, and Publishers (ASCAP) celebrated its 40th birthday in 1954. The society, which was formed for the purpose of protecting the performance rights of composers and authors of music, had a charter membership of 170 composers and lyricists and 22 music publishers. By June 1955, however, the membership had grown to 3,413 composers and authors and 736 publishers. The group licenses approximately 35,000 commercial users of music, including television and radio networks and stations, nightclubs, restaurants, and hotels, as well as symphony orchestras and concert artists.

Statistics tabulated by the National Music League showed that during 1953, 30,000,000

Japanese children attend a Tokyo concert by the Symphony of the Air, which toured the Orient in May and June 1955.

COURTESY SYMPHONY FOUNDATION OF AMERICA





(LEFT AND CENTER) SEDGE LEBLANG; (RIGHT) LYRIC THEATRE OF CHICAGO

(Left) Christel Goltz in *Salome*, presented by the Metropolitan Opera Company in New York on Dec. 15, 1955. (Center) Renata Tebaldi in the Metropolitan's production of *Orelio*. (Right) Nicola Rossi-Lemeni and Maria Callas in *Norma*, which opened the Chicago Lyric Theatre's 1954 season on November 1.

people attended performances of serious music, as compared with the 15,000,000 who attended major league baseball games during the same period. According to the American Music Conference, 7,250,000 children and young people are learning to play musical instruments or are participating in school bands and orchestras. During 1954, the sales of classical music phonograph rec-

ords totaled \$60,000,000, or 24% of all record sales.

JOHN TASKER HOWARD,
Musician, Composer, and Author.

MUTUAL DEFENSE ASSISTANCE PROGRAM. See Index entry.

MUTUAL SECURITY PROGRAM. See Index entry.



NARCOTICS. Increased awareness and interest in the social aspects of narcotic addiction were revealed during the tenth session of the U.N. Commission on Narcotic Drugs, held in New York from April 18 through May 12, 1955. The commission recommended the following significant resolutions for adoption by the U.N. Economic and Social Council:

(1) That governments comply with their obligations under the 1925 and 1931 international narcotics conventions to transmit to the Permanent Central Opium Board complete and accurate estimates and statistics, regularly and promptly, explaining methods used to calculate the quantities involved.

(2) That the U.N. Food and Agriculture Organization and the U.N. Secretariat act as a coordinating agency for research in developing strains of *Cannabis sativa*, Linn. devoid of harmful resins, and that they assist governments in this regard on request, and, if possible, report progress to the eleventh meeting of the Commission on Narcotic Drugs.

(3) That all states not parties to the Protocol of 1948 for control of synthetic narcotics report on steps taken to become parties in accordance with Article 5 thereof, and that they prohibit production and use of any synthetic narcotics they do not consider indispensable to public health.

(4) That the secretary-general, in consultation with the World Health Organization, the U.N. Social Commission, and other bodies concerned, continue to gather data and pursue his studies on drug addiction; that ambulatory treatment methods (including the so-called clinic method) in the treatment of drug addiction be

recognized as inadvisable; that the World Health Organization prepare a study of methods for treating drug addicts, and that it seek information on methods and precautions to assist the medical profession in prescribing narcotic drugs; that governments concerned which have not done so, collect and submit information on the extent and character of drug addiction in their countries.

Illicit International Traffic. *Opium.*—Incomplete figures for 1954 indicate seizures of 34,766 kilograms of raw opium and 3,529 kilograms of prepared opium. Burma has been suppressing illicit traffic in opium, much of which is smuggled into that country from Communist China, which produces more than 2,500 tons annually. Possible indication of a new trend in illicit traffic was the seizure of 3 kilograms of opium, thought to be of Bulgarian origin, in Milan, Italy. Mexico has exerted strenuous efforts to suppress opium traffic. In Lebanon, which is believed to be the source of large quantities of morphine base smuggled into Canada, France, Italy, and the United States, authorities seized considerable amounts of the drug in 1954.

Heroin.—Although therapeutic use of heroin has been discontinued in all except a few countries in the world, illicit traffic of the drug continues to flourish. Much heroin reaches Japan from Communist China via Korea. Heroin from Communist China was seized on both coasts of the United States in 1954.

Cocaine.—Addiction to cocaine has been increasing. In early 1955 more cocaine had been seized in the United States than in the entire year 1954. Traffic in France has also increased. Clandestine factories in Bolivia, Ecuador, and Peru have been manufacturing crude cocaine in

considerable quantities. Of these countries, Peru has exerted great effort to control the problem.

Cannabis.—Abuse of cannabis has become increasingly serious in many countries. In 1954, 127,781 kilograms were seized. About 3.5 tons of hashish were seized in Egypt. Lebanon has some illicit cultivation of cannabis and production of hashish; large seizures have been made there.

Synthetic Drugs.—In 1954, 2,187 grams of synthetic drugs were seized. Italy reported several seizures of pethidine, some of which was manufactured in an illicit laboratory in Milan. A recent study of pethidine addiction by the World Health Organization revealed an alarming extent of abuse of this drug by addicts and by medical and allied professions.

The Commission on Narcotic Drugs urged governments that have not already done so, to prohibit the manufacture, import, and export of ketobemidone and its derivatives.

United States.—A U.S. Senate committee has been investigating illicit narcotic traffic with a view to strengthening narcotic legislation. The total number of addicts in the United States is estimated at between 50,000 and 60,000, or an incidence of about 1 in 3,000 of the population. An interim report on the survey of drug addiction begun by the Bureau of Narcotics in January 1953 indicated that 28,514 addicts had been counted. It is believed that this count, consolidated monthly from reports received from federal, state, and local authorities throughout the United States, will approach the above estimate in two to three years.

About 80% of the addicts are men; about 50% are between the ages of 21 and 30 years; and 13% are under 21 years of age. Most addicts live in cities of at least 1,000,000 population. Addiction among adolescents reached its height about 1951; since then it has been decreasing, except in a few metropolitan areas.

H. J. ANSLINGER,
U.S. Commissioner of Narcotics.

NASSER, Gamal Abd el-, premier of Egypt; b. Beni Mor, Asyût Province, Egypt, Jan. 15, 1918. Founder of the Egyptian Revolutionary movement, Lieutenant Colonel Nasser planned the *coup d'état* which resulted in the dethronement of King Faruk and the rise to power of Gen. Mohammed Naguib in July 1952. Rivalry between the two leaders was resolved on Nov. 14, 1954, when Nasser deposed Naguib and assumed control of the government. As head of one of the principal states of the Arab League (q.v.), Premier Nasser endeavored in 1955 to influence its members to assume a neutralist position in world affairs and, with Prime Minister Jawaharlal Nehru of India and Marshal Tito of Yugoslavia, himself became one of the chief spokesmen for that position.

After the announcement of a proposed Turkish-Iraqi mutual defense treaty, Nasser called a conference of Arab League states, which met in Cairo on January 22–February 6. His proposal that Arab states refrain from concluding defense pacts outside the orbit of the league was rejected, however, and on February 24 the Iraqi government signed the treaty (the Baghdad Pact, q.v.) with Turkey. When Prime Minister Nehru visited Cairo on February 16 and July 12, the Indian and Egyptian heads of government issued joint communiqués denouncing military alliances as fomenting international tensions; and at the Asian-African Conference (q.v.) held in Bandung, Indonesia, on April 18–24, Nasser urged

peaceful coexistence between East and West.

With the intensification of violence on the Egyptian-Israeli border in 1955, Nasser attempted to solidify world—and particularly Arab—sentiment against Israel. On September 27, he caused widespread concern among the Western powers when he announced that Egypt had arranged to buy arms from a Soviet satellite, Czechoslovakia. On December 15, in a letter to U.N. Secretary General Dag Hammarskjöld, he warned that further Israeli attacks would force Egypt “to take matters into her own hands.”

At home, Nasser continued during the year to further industrial expansion and agricultural improvement, particularly land reclamation and redistribution. (See also EGYPT.)

NATIONAL ACADEMIES AND ASSOCIATIONS. For private organizations whose titles begin with the word National (excepting National Geographic Society, which is reviewed below) see the article SOCIETIES AND ORGANIZATIONS.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS. The discovery and experimental development of a new concept in airplane design, leading to very marked performance improvement in the transonic speed range, was announced in September 1955 by the NACA. Speed gains of as much as 25 per cent were attained by application of the new concept, without addition of power. Called the “area rule,” the new design principle was developed by Richard T. Whitcomb, research scientist at the Langley Aeronautical Laboratory. On Dec. 17, 1955, Whitcomb received the Collier Trophy for his work.

First made available on a highly classified basis to the nation's aircraft industry in September 1952, the area rule principle has been applied to two supersonic tactical airplanes which the military services have unveiled: the Grumman F11F-1 Tiger and the Convair F102-A. In simplest terms, it is a rational way of reducing very greatly the sharp drag rise which occurs at transonic speeds; its utilization often results in a pinch-waisted fuselage shape variously identified as “coke bottle,” “wasp waist,” and “Marilyn Monroe.”

During 1955 the NACA observed its 40th anniversary. Referring to the reasons for congressional establishment of the government's aeronautical research agency, Chairman Jerome C. Hunsaker* said that “a compelling reason for its creation was the fact that in the United States, birthplace of the airplane, aeronautical progress had been so slow that several other nations had gained leads over the United States . . . In the years that followed World War I, definite leadership in aeronautics was regained by the United States. This continuing achievement has been the result of a partnership in which the Congress, the military air services, the aircraft industries, and the NACA have joined. As its part, the NACA undertook research to provide basic information which talented designers in industry used in developing superior planes, both civil and military . . . We will do well to remember that to maintain such a lead depends on the vigor and skill with which we press our fundamental and applied research.”

In 1955, eight years after first attainment of faster-than-sound flight, it was apparent that

* Dr. Hunsaker was awarded the Langley Gold Medal for “specially meritorious investigations in connection with the science of aerodynamics and its application to aviation” by the Smithsonian Institution on April 14, 1955.

much remained to be done before the airplane could demonstrate its great potential as a supersonic vehicle of commerce and as a supersonic weapon of war. Stability and control remained vexing problems. The extension of speed from less than 100 mph. in 1915 to 1,000 mph. and more in 1955 served only to increase the airplane's complexity and severity. Respecting engines, lightest possible construction with reliable operation, and the maximum economy of fuel and oil consumption remain essential elements in the unending drive for more power.

Intensive research was concentrated on the difficult problems posed by flight at hypersonic speeds, thus to enable exploiting the potential advantages of intercontinental ballistic missiles traveling between 10,000 and 15,000 mph. Such a missile would be extremely difficult to intercept; only seconds would elapse between the time such a missile could be detected and the time it would reach its target.

The true ballistic missile is accelerated to hypersonic speed in the first 15 or 20 miles of its flight, and this initial push carries it to altitudes well beyond the earth's thin mantle of atmosphere. Its flight path, under the influence of gravity, resembles the trajectory of an artillery shell. As it re-enters the atmosphere, resistance of the air reduces its speed to about 5,000 mph. at the end of its flight. Aerodynamic heating—caused by the friction generated when the missile passes through the atmosphere—appears to be the most troublesome problem, although some progress is being made to overcome it. Temperatures high enough to melt or even vaporize most metals quickly develop in the air next to the skin of a hypersonic missile. Even at only half the speeds envisioned, or about 7,000 mph., sustained flight would produce temperatures of up to 8,000°F. Despite the magnitude of the temperatures to be dealt with, a number of promising techniques were under study as possible solutions to the problem. One of these, called transpiration cooling, requires a porous skin through which a liquid may be evaporated. The human body is cooled in this way, through sweating, and a similar system may be devised as the answer to the temperatures of hypersonic flight.

The successful effort in recent years for higher speeds has been marked by a rise in speed of other types of airplanes besides the more dramatic supersonic aircraft. A corollary problem has been that of how to hold down speed during landings and take-offs. Any means to slow down landing and take-off speeds, to permit operations from unprepared places, or ultimately to achieve vertical flight itself, is of great value both to civil and military aviation. Some research answers are evident in the helicopter, the vertical take-off (VTO) airplane, the seaplane hydro-ski, and the thrust vector. Use of boundary layer control, especially through devices which utilize the air supply of a turbojet engine, hold promise of giving a half-century-old idea new importance.

A new type of aircraft, disclosed for the first time in 1955, was the thrust vector, or "flying platform." It is based on a concept that holds that a man can fly naturally and control his movements without complex machinery or training. First studied with jets of air attached to a man's feet, the principle was extended to the teetering rotor platform design under development in industry in 1955.

The reduction of launching and landing speeds is best achieved in the vertical take-off or landing which the familiar helicopter performs

so well. But the helicopter has a limited top speed and is therefore not useful for some purposes. Research, however, is continuing on problems of rotary-wing aircraft and their application.

One type of VTO aircraft capable of a wide speed range is the one which rests on its tail. Provided with enough thrust to exceed its own weight, this type of VTO takes off vertically, then tips over to climb and cruise in the normal attitude. On landing, it "backs down" tail first.

Still another type of VTO utilizes the principle of deflecting the propeller slipstream downward through sets of large wings or turning vanes. The objective is a system which can produce vertical lift while the airplane remains in the horizontal position, or nearly so. This system, moreover, should be so devised that it can permit retraction, as of landing gear, to form a clean aerodynamic shape in flight. NACA research scientists are studying various flap and slot combinations, using models of transport and small airplane types in their work. Thrust may be provided by either propellers or turbojets.

Since World War II, hydrodynamic research has attacked the problems of cumbersome seaplane floats and hulls to find solutions without compromising performance either in flight or on water. From this work has come the hydro-ski, a flotation device which retracts into the airplane body like a set of wheels. The hydro-ski has been proved capable of attractive performance, and has reduced landing loads by as much as three fourths. Its use also permits landings on and take-offs from such surfaces as snow and ice. (See also AERONAUTICS.)

WALTER T. BONNEY,
Assistant to the Executive Secretary, NACA.

NATIONAL ARCHIVES AND RECORDS SERVICE.

This branch of the General Services Administration (q.v.) is responsible for developing and implementing an economical, efficient system for the management of federal records, including those that are preserved for their enduring value. It consists of the National Archives, the Records Management Division, the Federal Register Division, and the Franklin D. Roosevelt Library at Hyde Park, N.Y. Its head is the archivist of the United States, who also serves as chairman of the National Historical Publications Commission.

The National Archives Exhibition Hall, in which are enshrined the Declaration of Independence, the Constitution, and the Bill of Rights, has become one of the most popular tourist attractions in the nation's capital.

Among the 7,000 cubic feet of records deposited in the archives in 1955 were thousands of photographs relating to the design of monuments and buildings in Washington, and top-level administrative and policy records of the Department of Labor and the Reconstruction Finance Corporation.

The program of concentrating the most valuable records in the safest parts of the Archives Building and of bringing together related records that were received at different times was half completed. More than 1.5 million running feet of historically valuable motion pictures on deteriorating nitrate film were copied on safety acetate film.

As the importance and availability of the archives become known, their use by scholars constantly increases. Government officials and the public made 75,000 requests for information and consulted 340,000 documents in 1955.

The Records Management Division published

Plain Letters, a handbook showing how to write letters that are short and easily understood. More than 60,000 copies were sold in 3 months. It and its companion piece, *Form Letters*, should reduce the cost of the billion letters the federal government writes each year.

In connection with its work of publishing laws and agency rules, the Division of the Federal Register published a new type of guide, a list of federal requirements for the retention of records by industry.

Several thousand Roosevelt "family letters" and the official correspondence of Franklin D. Roosevelt as governor of New York and of Herbert Lehman as lieutenant governor were deposited in the Franklin D. Roosevelt Library. About 190,000 persons visited the museum in the library.

WAYNE C. GROVER,
Archivist of the United States.

NATIONAL BUDGET. See TREASURY OF THE U.S.

NATIONAL BUREAU OF STANDARDS. Established by act of Congress in 1901, the National Bureau of Standards serves the federal government as a scientific laboratory and provides basic standards for American science and industry. In carrying out these related functions, it conducts research, development, calibration, and testing programs in physics, mathematics, chemistry, and engineering.

At the close of 1955, the bureau staff numbered a little over 2,800, of whom about half were scientists and engineers. Most of the staff was stationed at the bureau's principal laboratories in Washington, D.C. However, the bureau also maintained major research laboratories in Boulder, Colo., as well as a number of field stations in various parts of the world. At the Washington laboratories technical programs were conducted in electricity and electronics, optics and metrology, heat and power, atomic and radiation physics, chemistry, mechanics, organic and fibrous materials, metallurgy, mineral products, building technology, applied mathematics, data processing systems, weights and measures, and basic instrumentation. The work at Boulder was concentrated in cryogenic (low-temperature) engineering and radio propagation.

Standards and Measurement.—As in previous years, the bureau's basic program in 1955 was primarily concerned with scientific standards of precise measurement. Several improvements in equipment and measurement techniques led to increased accuracy of electrical measurements, particularly at audio frequencies. Among these were improved guarding and shielding for resistance and capacitance standards and development of a bridge circuit for measuring core loss in steel alloys. A technique was devised for studying the performance of the highly sensitive microbalances used in such fields as atomic energy, where minute samples must be weighed with high accuracy. Two devices were developed that precisely measure radiation in terms of the heating effect it produces. One of these, a radiation-balance microcalorimeter, will aid materially in meeting the increased demand for calibration of radioactive sources. The other, an X-ray calorimeter, will serve as a basic standard for measurement of the high-energy X-rays now being used in medical treatment and industrial radiography.

During 1955 the bureau redetermined the velocity of light in two independent measurements

by quite different methods. The two values are in close agreement and thus provide confirmation for the higher values of electromagnetic wave velocity which have been consistently obtained by microwave measurements since World War II. In one method, the velocity of light was determined from measurement of the molecular constants of carbon monoxide by infrared spectroscopy. The other determination made use of phase-shift measurements on very-high-frequency radio waves to obtain their velocity of propagation. Before World War II, the value $299,776 \pm 4$ kilometers per second was generally accepted as an average of the findings of the various laboratories. However, since the war higher values have been obtained by most investigators (average value, $299,793 \pm 1$ km/sec.). The results obtained by the bureau give $299,792 \pm 6$ km/sec. by the molecular constants method and $299,795.1 \pm 3.1$ km/sec. by the radio interferometer.

Properties of Materials.—Much of the 1955 research program dealt with the basic properties of materials, particularly those inorganic materials which are stable at extremely high temperatures. Cermets—heat-resistant ceramic-metal combinations—were studied in connection with their use in jet engines and rockets. The need for nuclear reactor design data prompted an investigation of the high-temperature reactions of uranium dioxide with other heat-resistant compounds. High-temperature concretes were studied to obtain materials for jet aircraft aprons which can withstand exposure to high variable temperatures. As part of a cooperative interlaboratory study of the extractive metallurgy of titanium, the bureau prepared selected titanium compounds of high purity. Included were titanium tetrachloride of 99.999 per cent purity and 99.998 per cent titanium tetrabromide. Other work concerned ceramic coatings for protection of high-temperature alloys or for utilization as high-temperature insulation.

In the field of high polymers, pressure porosimeter and electron microscope studies provided new insight into the microstructure of leather. This work revealed the presence of large numbers of extremely small pores—less than a millionth of an inch in radius—in both leather and its parent substance, collagen. The quantitative information obtained on pore-size distribution within the individual collagen fibrils should aid the leather technologist in understanding the swelling and shrinkage accompanying water-leather interactions. The research findings are also expected to shed additional light on the ability of leather to transmit or absorb water vapor, tannins, or impregnants.

Electronic Computing.—A comprehensive program was conducted during 1955 in the field of high-speed data processing. Combining work in electronic digital and analog computers, this program includes research, development, and systems design and analysis. It also includes technical advisory services to other government agencies on the use of high-speed computing techniques in new areas of potential application, such as massive paperwork operations, automatic control systems, and simulation.

During 1955 the bureau's high-speed electronic digital computer, SEAC, was operated continuously seven days a week except for a six-week period required to move it to a new permanent location on the bureau grounds. Problems were solved in government procurement and industrial mobilization as well as in aerodynamics, atomic energy, meteorology, thermome-

try, optics, nuclear physics, thermodynamics, sound, and navigation.

In computer components work sponsored by the Naval Research Laboratory, a gas-diode memory circuit was developed for use in a data correlator and classifier. This circuit should find application wherever computed data must be presented for rapid visual analysis. In another project sponsored by the U.S. Air Force, packaged circuitry was designed which combines increased logical capabilities with greatly decreased power consumption. These computer packages should make feasible the building of larger and more powerful computing machines without the need for excessively large power supplies and air conditioning equipment.

Services.—The technical service activities of the bureau in 1955 included the performance of nearly 174,000 calibrations and tests and the distribution of 32,500 standard samples of certified chemicals, metals, and alloys. Typical services included the following calibrations and tests: 694 standard cells, 994 water current meters, 757 hydrometers, 839 radium sources, 491 radioactive cobalt sources, 2,400 dilution pipettes, 33,110 clinical thermometers, and the sample testing of 3 million lamps and 15 million barrels of cement.

Publications.—Results of the bureau's work are available through three monthly periodicals (*Journal of Research*, *Technical News Bulletin*, and *Basic Radio Propagation Predictions*) and a series of nonperiodical publications. An indexed list of publications (*Publications of the National Bureau of Standards*, Circular 460 and Supplement, \$2.00) is available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.

WALLACE R. BRODE,
Associate Director, National Bureau of
Standards.

NATIONAL DEBT. See DEBT, PUBLIC AND PRIVATE; TREASURY OF THE U.S.

NATIONAL DEFENSE. See the Index entries, *Civil Defense* and *National Security*.

NATIONAL FORESTS. See FORESTRY.

NATIONAL GEOGRAPHIC SOCIETY. With 2,150,000 members on its rolls in 1955, the society is numerically the largest scientific and educational organization in the world. Founded in 1888 "for the increase and diffusion of geographic knowledge," it occupies buildings at Sixteenth and M Streets, N.W., Washington 6, D.C., from which it publishes the illustrated monthly *National Geographic Magazine*. It regularly issues maps prepared by its large cartographic division, school bulletins for classroom use, and news bulletins. It also publishes occasional books, and monographs on its scientific projects.

John Oliver La Gorce, president of the society and editor of its magazine, on Sept. 22, 1955, completed 50 years in the service of the society. Other officers are: Gilbert Grosvenor, chairman of the board; Melville Bell Grosvenor, vice president and associate editor; Thomas W. McKnew, vice president and secretary; Robert V. Fleming, treasurer. Lyman J. Briggs is chairman and Alexander Wetmore is vice chairman of the Research Committee.

Chief Justice of the United States Earl Warren and Benjamin M. McKelway, editor of the *Washington Star*, were elected to the 24-man Board of Trustees at its January 1955 meeting.

A notable 1955 addition to the memorabilia, paintings, and photographs of world geography in Explorers Hall at society headquarters is Adm. Robert E. Peary's 45-starred United States flag,

flown at the North Pole on April 6, 1909, and carried on Peary's extensive Arctic travels. Mrs. Marie Peary Stafford presented the emblem on behalf of the Peary family at ceremonies in Constitution Hall on May 6. She accepted for her mother a special gold medal of the society honoring Mrs. Peary for her important part in her husband's early explorations.

Two major publishing events marked the society's year. In October it issued the 432-page book, *Indians of the Americas*, with 400 illustrations, 262 in color. Matthew W. Stirling, Neil M. Judd, and Frank H. H. Roberts are among its contributing authorities. In August it began distribution of the *Sky Atlas* as noted below.

Research, 1955.—The year marked the successful conclusion of the National Geographic Society—Palomar Observatory Sky Survey, cosponsored with the California Institute of Technology since 1949. The result is a 1,758-plate "portrait of the universe" made with the unique Schmidt 48-inch phototelescope, probing space to the unprecedented depth of 600 million light years (3 sextillion 600 quintillion miles). The first section of the *Sky Atlas*, consisting of photographic prints from 200 plates, was distributed internationally to observatories and scientific institutions ordering it, and additional sections were to be delivered in following months.

A dark region the size of Texas on a large desert area of Mars was reported by E. C. Slipher in September after preliminary study of 20,000 new photographs of the planet, and attributed to lichenlike plant life. Dr. Slipher described it as the greatest change observed since Mars was first mapped 125 years ago. The photographs were taken at the Lamont-Hussey Observatory, Bloemfontein, Union of South Africa, by the National Geographic Society—Lowell Observatory Expedition in 1954. (See also ASTRONOMY.)

In their third year, the continuing National Geographic Society—*Calypso* Oceanographic Expeditions made extensive still and motion pictures in color underwater in the western Indian Ocean and Red Sea. Dr. Harold E. Edgerton, Massachusetts Institute of Technology, joined Capt. Jacques-Yves Cousteau in July on a project in Greek and Turkish waters, devoting his third summer to improvement of the group's undersea camera and lighting equipment. (See also OCEANOGRAPHY.)

Continuing earlier research on southern Mexico's pre-Aztec culture at La Venta, scientists directed 40 native workmen in uncovering carved stone monuments, mosaic courts, jade, and pottery representing three separate periods of construction. Leaders of the National Geographic-cosponsored expedition were anthropologists Philip Drucker, Smithsonian Institution, and Robert F. Heizer, University of California at Berkeley.

Off the Florida coast, the Marine Laboratory of the University of Miami continued its study of plankton and life stages of Atlantic pelagic fish to improve knowledge of the world's sea food supply. In northern New York, Dr. Carl W. Gartin continued his study of the patterns and recurrence of auroras and their possible bearing on wire and radio communications disturbances.

JOHN OLIVER LA GORCE,
President and Editor.

NATIONAL GUARD. The conversion in 1955 of the 48th Division from infantry to armor

changed the composition of the National Guard to 21 infantry divisions; 7 armored divisions, 9 regimental combat teams, 9 armored cavalry regiments, 123 antiaircraft artillery battalions, and 74 field artillery battalions. At the end of September, the total strength of the organization was 364,272 men, with a goal of 425,000 men by June 30, 1956. Although the effect of the Reserve Forces Act of 1955 on the National Guard was not clear by the end of 1955, it had produced in the October and November increments a total of 793 recruits under the six-month plan.

Training and Equipment.—A program established in June 1955, under which enlisted men of the National Guard can volunteer for eight weeks of basic training, provided for increments of 1,000 men per month. By September 30, some 2,675 men had taken advantage of the plan. Special officer candidate courses produced 138 graduates at the Infantry Center and 66 at the Artillery Center, and an eight-week course in atomic warfare was completed by 19 officers during the fiscal year 1955.

During 1955, 338,000 officers and men (94.5% of the National Guard) completed summer training; attendance at armory drills was 94% for officers and 88% for enlisted men.

Activities.—Operation Minuteman, a practice emergency alert, was conducted on April 20, 1955. Over 318,000 members of the Army and Air National Guard reported for duty within two hours after the alert was sounded.

Under the program for manning antiaircraft sites, begun in 1954, elements of 20 nondivisional battalions were on duty at 57 sites. These units were fully responsible for the operation of the batteries and had a nucleus of personnel on duty 24 hours a day. The rest of the 89 nondivisional antiaircraft battalions were being prepared for similar duty in an emergency.

The Air National Guard.—The Air National Guard had attained a total strength of 61,908 by the end of September. Twenty-seven Air National Guard wings operate from 153 facilities, including 85 flying fields, nine of which are permanent field training sites. According to the current program, there will be 7,900 officers (3,950 pilots) and 62,500 airmen in 716 units by June 30, 1956.

The program for 11 weeks of training was expanded so that 3,789 entered USAF basic military training courses during the fiscal year 1955. A pilot training program with an annual objective of 398 graduate pilots produced 369 in the fiscal year 1955. About 60,000 officers and men in 87 tactical and support units participated in summer field training.

By mid-1955, Air National Guard units had 90% of their material; 60% of the day fighter units and 90% of the night photograph and light bomber units were fully jet-equipped.

The runway alert program begun in 1954, involving 17 Air National Guard squadrons, was fully established and tested by numerous alerts in 1955. A surprise practice alert for the 73 fighter-interceptor squadrons, and a gunnery exercise and competition involving about 1,000 men and 150 planes from 33 states took place in the month of October.

HAROLD D. KEHM,
Colonel, USA; Formerly Assistant Commandant, The Strategic Intelligence School.

NATIONAL INCOME AND PRODUCT. See INCOME.

NATIONAL LABOR RELATIONS BOARD. During the eighth year of the administration of Title I of the Labor Management Relations Act, President Eisenhower appointed a new general counsel, Theophil C. Kammholz of Illinois, and two new members to the board, Boyd Leedom of South Dakota and Stephen S. Bean of Massachusetts. On Nov. 18, 1955, President Eisenhower designated Mr. Leedom as chairman of the board. At the close of 1955, the board was composed of: Boyd Leedom, chairman; Abe Murdock, Ivar H. Peterson, Philip Ray Rodgers, and Stephen S. Bean.

Among the board's major decisions in the fiscal year 1955 was the ruling that a stock purchase plan, involving employment relations and company contributions, is a subject on which an employer is required to bargain if requested to do so by a union representing the employees. Such plans come within the meaning of "wages" and "other conditions of employment" as used in the act.

The validity of "hot cargo" clauses in labor contracts also was before the board during the year. By these clauses, an employer agrees to permit employees to refuse to handle goods of other employers who have been designated by the union as "unfair." The board held that a "hot cargo" clause in the contracts of two truck drivers' unions did not permit the two unions to induce employees of three trucklines to refuse to handle freight of a nonunion trucking company after the union had designated the company as "unfair." The majority held that this activity violated the secondary boycott ban of the act, despite the "hot cargo" clauses. In another case, a board majority held that such a clause did not make it lawful for a union to appeal directly to employees to refuse to handle goods designated as unfair.

In the first case to come before the board in which a union was charged with committing unfair labor practices in dealing with its own employees, a majority dismissed the complaint, holding that unions come under the board rule against taking cases involving nonprofit organizations.

In another case, the board ruled that a company did not violate the act when it discharged 20 employees who went on strike in breach of a contract providing for "compulsory and exclusive grievance and arbitration machinery." In dismissing the complaint, the board noted particularly that there was no evidence of any union animosity or unfair labor practices on the part of the company.

The board, in another precedent-setting decision, unanimously ruled a national union to be out of compliance with the filing requirements of the act because the union failed to show that it had distributed its financial reports to its members as required by the law. As a consequence, the national union and its affiliated locals were disqualified from bringing cases before the board, participating in representation elections, and making valid union shop agreements.

During the fiscal year 1955, individual employees filed more charges of unfair labor practices against employers and unions than in any prior year in the 20-year history of the NLRB. A sharp upward trend started during the fiscal year 1954, when 2,147 individuals filed charges, as compared with 1,656 such charges in 1953. During the fiscal year 1955, individual employees filed charges of unfair practices in a total of 2,668 cases (1,576, or 59%, against employers;

1,092, or 41%, against unions), constituting 43% of the 6,163 charges of unfair labor practices of all types filed.

A total of 4,358 charges were filed against employers, or 71% of the total; and 1,805 charges were filed against unions, or 29% of the total.

The board closed a total of 13,679 cases of all types during the year, issuing formal decisions in 2,108 cases. Of these, 360 were in unfair labor practice cases and 1,748 were in representation cases.

The independent general counsel, who is the prosecuting officer of the agency, closed 5,320 unfair labor practice cases without the necessity of formal action; 614, or 12%, were adjusted by various types of settlements; 1,634, or 31%, were dismissed after investigation; and the remaining 57% were withdrawn. In many cases the withdrawals actually reflected settlements of the matter at issue. The general counsel also issued 373 formal complaints alleging violations of the act: 211 against employers, 112 against unions, and 50 against both employers and unions. (See also LABOR.)

LOUIS G. SILVERBERG,
Director of Information.

NATIONAL PARKS. The national parks of the United States are under the jurisdiction of the National Park Service, which was established as a bureau of the Department of the Interior by an act of Congress on Aug. 25, 1916.

Increased use of the national parks by the American people, the appropriation of funds by Congress for starting an urgently needed long-range road and trail construction program, and the installation of additional overnight accommodations were some of the noteworthy developments of the fiscal year ended June 30, 1955.

Nearly 48,000,000 persons visited the parks in the 1954 calendar year, an increase of some 1,600,000 over the previous year's total. In the first six months of 1955, travel was 3% ahead of that of the same months of 1954.

Special ceremonies marked completion of the multimillion dollar Jackson Lake Lodge development in Grand Teton National Park, Wyoming. This project, largest of its kind to be provided in a park area for many years, was built with funds provided by Jackson Hole Preserve, Inc., a non-profit distributing corporation established by John D. Rockefeller, Jr.

Another important development in the concessions field was the purchase by the Fred Harvey interests of visitor facilities on the south rim of the Grand Canyon in Grand Canyon National Park, Arizona, from the Santa Fe Railroad. The Harvey interests plan to spend \$1,000,000 on modernizing and expanding these facilities.

Some \$2,500,000 of federally appropriated funds were earmarked by the National Park Service for an initial large-scale development program in Everglades National Park, Florida, involving construction of roads, parking areas, a water system, a marina, and a boat canal. In addition, negotiations were carried on to interest private investment in dining and boating facilities in the park's Flamingo area.

Approval was given to the purchase of telephone facilities in Yosemite National Park, California, by the Pacific Telephone and Telegraph Company, and negotiations were started for the purchase by private concerns of similar facilities in several other park areas. At Grand Canyon National Park, the Arizona Public Service Com-

pany began supplying commercial power to park residents, for the first time in the area's history. Approval of these utility services is in line with the government's policy of getting out of operations which private enterprise can handle as well as or better than federal agencies.

Many important donations were made for park purposes during the year. Most significant was the \$500,000 provided by Jackson Hole Preserve, Inc., for land acquisition, on condition that an equal sum would be provided by Congress, which was done. An anonymous donation made possible a two-year study and appraisal of the varied interpretive facilities for visitors in park areas. This study is being made by Freeman Tilden, author of the book, *The National Parks: What They Mean To You and Me* (1951).

In June 1955, the handsome new Museum of North Carolina Minerals at Gillespie Gap, on the North Carolina portion of the Blue Ridge Parkway, was dedicated and opened to the public. Funds for this structure, as well as for the preparation of its exhibits, were provided by North Carolina.

A major subsequent development was the formal establishment on September 14 of the Cumberland Gap National Historical Park of some 20,100 acres in Kentucky, Tennessee, and Virginia. This is the largest of the seven national historical parks. Big Bend National Park, in Texas, was dedicated by Secretary of the Interior McKay on November 21.

NATIONAL PARK SYSTEM

(As of June 30, 1955)

Type of area	Number	Federal land (acres)
National parks.....	28	12,670,440.24
National historical parks.....	6 ¹	11,565.67
National monuments.....	84	8,975,656.60
National military parks.....	11	24,515.19
National memorial parks.....	1	68,509.91
National battlefield parks.....	3	5,498.12
National battlefield sites.....	6	188.63
National historic sites.....	10	1,314.52
National memorials.....	11	4,425.73
National cemeteries.....	10	215.10
National parkways.....	5	81,554.20
National capital parks ²	1	35,042.39
Total, National Park System.....	176	21,878,926.30
OTHER AREAS:		
National recreation areas.....	4	2,020,063.80
National historic sites ³	1	40.00
Total, other areas.....	5	2,020,103.80
Grand total.....	181	23,899,030.10

¹ Not including Cumberland Gap National Historical Park, established Sept. 14, 1955. ² Includes Catactin Mountain Park, administered by National Capital Parks. ³ Acreage approximate. Administered by agreement with Department of the Army, which has basic jurisdiction.

CONRAD L. WIRTH,
Director, National Park Service.

NATIONAL SCIENCE FOUNDATION. In 1955 the foundation established two special groups to study specific questions involving science and the federal government. One, the Special Commission on Rubber Research, was charged with developing recommendations concerning the long-range role of the federal government in research on synthetic rubber. The commission found that the national interest no longer required government support of research especially directed toward synthetic rubber, and recommended that government contracts supporting such research end in June 1956.

The other group was the Special Committee on Medical Research, set up by the foundation at the request of the secretary of health, education,

and welfare, to review and evaluate the medical research programs of that department. The committee submitted its findings to the National Science Board, which transmitted them to the secretary in December.

The foundation, in cooperation with the National Academy of Sciences-National Research Council, pressed forward with plans for United States participation in the International Geophysical Year, 1957-58. On July 29, 1955, the White House announced that these plans would include the launching of small unmanned earth-circling satellites that will be used for gathering basic scientific data outside the earth's atmosphere. (See SPACE FLIGHT.)

Conferences in support of science, sponsored by the National Science Foundation in cooperation with universities, scientific societies, and other organizations, included the International Arid Lands Symposium; Evaluation of Behavior; Theory of Numbers; Radiocarbon Dating; History, Philosophy and Sociology of Science; Molecular Quantum Mechanics; and Man's Role in Changing the Face of the Earth.

The education in the sciences program was expanded in 1955 to include nine summer institutes for teachers of mathematics and science. In the field of exchange of scientific information, the foundation is giving support to the American Institute of Physics for the translation and publication of an English edition of the Russian journal, *Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki*; to the American Mathematical Society for translation of selected Russian mathematical articles; and to Massachusetts Institute of Technology for fundamental research on language problems, with special reference to developing methods for mechanical translation.

Collection of data for the foundation's survey of scientific research and development in the United States was completed in several categories, and the publication of results is under way. Three reports were issued during the year: *Federal Funds for Science, IV; Preliminary Report of the Survey on Industrial Research and Development*; and *Scientific Research Expenditures by the Larger Private Foundations*. Other foundation publications for the year include *Scientific Personnel Resources—A Summary of Data on Supply, Utilization, and Training of Scientists and Engineers and Soviet Professional Manpower—Its Education, Training, and Supply* (with the National Academy of Sciences-National Research Council).

Continuing activities in support of basic research and education in the sciences included the award (for the fiscal year 1955) of 558 grants totaling \$7,857,395 in the biological, medical, mathematical, physical, and engineering sciences; and the award of 785 fellowships for the academic year 1955-56.

ALAN T. WATERMAN,
Director.

NATIONAL SECURITY—U.S. MILITARY POLICY.

Developments in national defense matters in 1955 were, in essence, an evolution of programs and policies established in previous years. The increase in influence of the National Security Council in defense matters, and the concentration of power in the hands of the secretary of defense and his civilian assistants continued, and military policies established in 1953 and clarified in 1954 were further defined in 1955.

Military Policy.—At the request of Secretary of Defense Charles E. Wilson, President Eisen-

hower, in January, reduced to writing and released the fundamental tenets of United States military policy. They were, in general, as follows:

(1) The security of the United States is bound up with that of the other nations of the free world.

(2) The United States will not commit aggression, but must be prepared to meet it whenever and wherever it may occur.

(3) A strong and expanding economy is essential for the defense of the United States.

(4) Maximum use must be made of science and technology to economize on manpower.

(5) Civil defense is an integral aspect of United States military policy.

(6) The military program of the United States must be one which will deter an aggressor or blunt any attack he may make; priority must be given to protecting the continent and insuring a capacity to retaliate.

(7) An effective Reserve program is essential and perhaps decisive for the success of military policy.

(8) While it is hoped that local forces can be developed to the point where they are able to meet the demands of localized wars, the United States must be prepared to provide forces when there is danger of the expansion of such a conflict.

These tenets, indicating no essential changes in military policy since 1954, formed the basis of President Eisenhower's pronouncements on national defense and proposals for defense legislation throughout the year.

The Partnership for Defense.—Mutual defense activities between the United States and the free nations of the world were characterized in 1955 by development of existing alliances rather than by expansion of memberships. United States support of the Baghdad Pact, incorporating Turkey, Iraq, Pakistan, Iran, and Great Britain in a mutual defense alliance sometimes referred to as the Middle East Treaty Organization, was an important exception to this generalization.

In 1955, the Soviet Union, considering the North Atlantic Treaty Organization (NATO) as the keystone of Western defense, gave high priority to efforts designed to reduce the organization's effectiveness. First, it tried to defeat or delay ratification of the Paris agreements, which, among other provisions, provided for the entry of West Germany into NATO. Second, it established, in Warsaw, Poland, on May 14, a military defense agency somewhat similar to NATO, incorporating the East European satellites and East Germany.

At the Geneva Conference (q.v.) of the heads of government, held in July, the Soviet Union manifested a spirit of conciliation which aroused hopes of relief from the dangers of war and the burden of rearmament to the peoples of Europe. These hopes were negated, however, when at the conference of foreign ministers, held at Geneva in October and November, it became apparent to the United States, France, and Great Britain that the dissolution of NATO was the principal goal of Soviet diplomacy. Despite growing suspicion of Soviet motives, widened by activities in other areas, particularly in the Middle East, the proposals made by the Soviet Union at Geneva had a significant propaganda effect. It became difficult for the governments of NATO nations to fulfill their defense commitments. In October, Gen. Alfred M. Gruenther, NATO commander, was forced to make a strong appeal for adherence to agreed military programs and for improvement in the quality and quantity of forces, particularly air forces, made available to the NATO command. (See also NORTH ATLANTIC TREATY ORGANIZATION.)

The Southeast Asia Treaty Organization (q.v.), established in 1954, made some progress in the coordination of military matters in 1955.

The continuing disturbances in Indochina provided both a spur and a threat to that agency.

Although the Formosan situation reached the critical stage on several occasions, and Korea had its tense moments, it was in the Middle East that Soviet moves appeared most menacing as the year drew to a close. Here the Soviet Union protested Iranian association (October 11) with the Baghdad Pact countries; but more significant was the furnishing (through Czechoslovakian sources) of arms and training cadres to Egypt (q.v.). Israel promptly asked for corresponding support from the West. A mounting scale of border incidents led the United States to make a strong plea that both sides accept a plan for settlement which the United Nations had proposed.

The United States has earmarked \$705 million in new funds and \$302 million carried over from the previous year for mutual defense (military aid) for the fiscal year 1956. In addition to providing funds, equipment, and troops, the United States took other steps in support of mutual security in 1955. A cabinet rank office for disarmament, with Harold Stassen (q.v.) in charge, was established on March 19. On April 13 the president approved an agreement for sharing some restricted atomic energy data with NATO nations; by October 6 the United Nations completed a draft charter for an agency designed to direct an Atoms for Peace program based on proposals made by President Eisenhower in December 1953.

Armed Forces Strength and Distribution.—Reduction in military manpower continued during 1955. There was some opposition to reduction in U.S. Army and Marine Corps strength, but administration policy prevailed. When Congress provided funds for a larger Marine Corps than the Department of Defense had requested, the secretary imposed restrictions on spending the increase. Strength of the armed forces was as follows:

	Actual Sept. 30, 1955	Planned for June 30, 1956
Army.....	1,109,543	1,027,000
Navy.....	660,390	664,000
Marines.....	201,683	205,000*
Air Force.....	957,620	975,000
Totals.....	2,929,236	2,871,000

* Tentative.

The proportion of forces abroad in September 1955 was about 55% of the army, 30% of the air force, and 67% of the navy, including those afloat and ashore. With the dispatch of 280-mm. cannon and Honest John free-flight rocket batteries to the Far East in 1955, the United States was in a position to employ land weapons capable of firing nuclear projectiles promptly in almost any likely theater of operations.

Defense Department Personnel.—Appointments to senior positions in the Department of Defense included Reuben B. Robertson, Jr., deputy secretary of defense, on July 12 (sworn in August 5); Gordon Gray, assistant secretary for international security affairs, on June 10 (took office on July 14); Robert T. Ross, assistant secretary for legislative and public affairs, on February 25 (confirmed March 14); and Admiral Arthur W. Radford, reappointed chairman of the Joint Chiefs of Staff on May 25 (effective August 15).

On August 17, a 6-point code of military conduct, including guidance for conduct in combat and in captivity, was promulgated by executive order. The code was drafted by the Advisory



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"Texas Tower," 100 miles off Cape Cod, is the first radar "island" to be constructed off the U.S. Atlantic coast as part of the American air defense network.

Committee on Prisoners of War appointed by Secretary Wilson.

Important moves to make the military career more attractive, begun in 1954, were continued in 1955. (See ARMY OF THE UNITED STATES.) These steps have been relatively effective, but the fact that the navy has had to resort to selective service indicates that the aim has not been fully achieved. Furthermore, there are important areas in which legislation requested by the administration has not yet been provided. They include improved medical care for dependents, fewer restrictions on post exchanges and commissaries, better survivor benefits, adjustment of rental allowances when only substandard quarters are available, an increase in the number of regular officers, and revision of the code of military justice.

The Defense Budget.—New obligational authority for the military functions of the Department of Defense are shown, in relation to previous years, in the table below.

	Fiscal 1954	Fiscal 1955	Fiscal 1956
(Billions of dollars)			
Army.....	12.9	7.6	7.3
Navy.....	9.4	9.8	9.1
Air force.....	11.4	11.6	14.7
Secretary of defense.....	.8	.6	.7
Total.....	34.5	29.6	31.9

Although it had \$35.75 billion available (new obligational authority plus amounts carried for-

Four top officials of the National Military Establishment are (l. to r.): Secretary of the Army Brucker; Secretary of the Navy Thomas; Secretary of Defense Wilson; and Secretary of the Air Force Quarles.

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ward), the department announced \$33 billion as its goal for actual expenditures for the year ending June 30, 1956. When it developed that this goal could not be achieved, Deputy Secretary Robertson estimated, on November 6, that spending would amount to approximately \$34.5 billion and that the same or a slightly larger sum would have to be expended in the year beginning July 1, 1956.

Air Defense.—Gen. Earle E. Partridge, USAF, became commander of the Continental Air Defense Command (CONAD) on May 31, when Gen. Benjamin W. Chidlaw retired.

Contributions of the armed forces and the National Guard to air defense are described under their respective titles elsewhere. Prominent accomplishments in this vital area of national defense in 1955 included the operational installation of electronic computers and the letting of the contract for construction of the distant early warning (DEW) line, authorized as a joint Canadian-United States effort in 1954.

Administration.—During the year the Department of Defense put into effect a number of recommendations made by the Hoover Commission (q.v.) designed to further efficiency and economy in the administration of the defense establishment. One of the recommendations made by the commission called for the establishment of a civilian-operated supply and administrative agency as a fourth component of the Department of Defense to provide services common to all the forces. In what might be viewed as an alternative to such a plan, the department, on November 7, directed that in the future the army handle all matters relating to the provision of food for all the armed forces.

To relieve the armed forces of production activities that it considered superfluous, the department directed the closing of 46 installations. Congress, however, reserved the right to review and veto such action. The department also directed that certain services, mostly related to buildings, be performed by the General Services Administration (q.v.).

Research and Development.—The chief functions of the Department of Defense in the matter of research are allocation of responsibility and funds among the services, and coordination with other governmental and private agencies. In accordance with the first function it designated the navy as executive agent for Project Vanguard, under which a space satellite is to be developed for launching in the International Geophysical Year, 1957-58 (see SPACE FLIGHT), in the same way that it previously charged the air force with development programs for intercontinental ballistic missiles (IBM). Coordination with civilian agencies was illustrated in the provision of Nike guided missiles to the National Advisory Committee for Aeronautics (NACA) for testing at Wallops Island beginning in September, and the testing of new shapes of planes and wings by the same agency. A new type of engine for helicopters, developed by the air force with army funds, and the navy's development of gear to make the air force's C-123 waterborne, are examples of results attained by interservice coordination.

Reserve Forces.—The major event concerning the Reserves in 1955 was the signature of the Reserve Forces Act of 1955 on August 9 by President Eisenhower, who nevertheless declared that the bill fell short of the necessary requirements. (See ARMY OF THE UNITED STATES; NATIONAL GUARD.) The provisions for voluntary enlistments, particularly that providing for 6 months

of active Reserve training, followed by 7½ years of Reserve training, for youths in the 17-18½-year age group as an alternative to being drafted, produced less than expected results for the Regular Army, Reserves, and National Guard alike. Proposals for important changes were in preparation as the year closed.

(For further references, see the Index entries, *Military and National Security*.)

HAROLD D. KEHM,
Colonel, USA; Formerly Assistant Commandant, The Strategic Intelligence School.

NATURAL GAS. See GAS.

NATURALIZATION. See IMMIGRATION, EMIGRATION, AND NATURALIZATION.

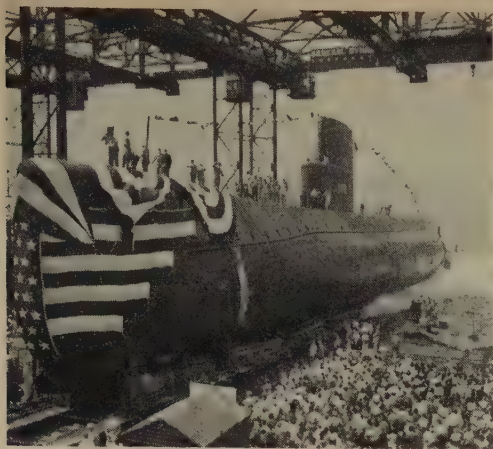
NAURU. This phosphate-bearing coral island (area, 8.22 square miles) lying south of the equator about 2,200 miles northeast of Sydney, New South Wales, has been since 1947 a trust territory of the United Nations, administered jointly by the United Kingdom, New Zealand, and Australian governments, the latter appointing the administrator. The population of 3,503 on June 30, 1955, comprised 1,762 Nauruans; 911 other Pacific islanders; 568 Chinese, recruited from Hong Kong; and 262 Europeans.

The administrator (Reginald Sylvester Leydin in 1955) is advised on native affairs by a local Government Council, which is collaborating in a study of the problem of resettlement of the population—an objective recommended after the visit to the island of a United Nations mission in 1953. Revenue totaled £A303,674 in 1954-55; expenditure, £A276,783 (the Australian pound equals U.S.\$2.24). Services provided by the administration for the Nauruan people include medical services, maternity and infant welfare, and education services up to fourth year secondary school standard. On June 30, 1955, there were 630 native and other pupils in primary and secondary schools; a modern secondary school to accommodate 200 pupils was completed in 1954. A new hospital, costing an estimated £A60,000 was under construction in 1955.

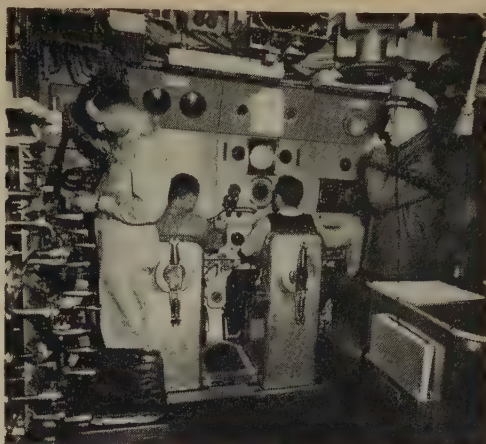
Seven eighths of the male inhabitants are employed by the British Phosphate Commission (owned jointly by the trusteeship powers), which also mines the deposits on Ocean Island, Gilbert and Ellice Colony (see WESTERN PACIFIC ISLANDS, BRITISH), and on Christmas Island (q.v.), a dependency of the colony of Singapore. Phosphate production, totaling 1,237,236 tons for the year ended June 30, 1955, was valued at £A2,165,163. Out of royalty payments on phosphate production, £A108,097 was reserved as of June 30, 1954, in a trust fund for expenditure on social welfare.

NAVAL AFFAIRS. From time immemorial, control of the seas has been exercised by naval ships employing bows and arrows, guns, torpedoes, airplanes, or whatever was the latest weapon. With the U.S. Navy's forward-looking research and development program, and with American industry's full and continued support, the United States is assured that the navy will have the current weapon for the current situation. Currently the United States is moving into complex weapons systems requiring modernizations of great magnitude and urgency.

The navies of the free world can prove to be a great deterrent to a future war. A full-scale war would probably begin with the strategic air forces of each side attempting to destroy each other and the bases from which they fly. The



(Left) U.S.S. *Seawolf*, second atomic-powered submarine, is launched at Groton, Conn., July 21, 1955. (Right) U.S. Navy crew mans diving stations of U.S.S. *Nautilus*, world's first atomic submarine, during test dive early in 1955.



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locations of these bases are probably known to potential enemies. But potential enemies do not know where aircraft carrier task forces might be located. These forces would be armed with long-range aircraft carrying atomic bombs, which would be protected by their own defensive screen above, upon, and beneath the seas. Though not invulnerable, they would be difficult to find, difficult to attack, and would possess great strategical striking power. Guided-missile ships might at some future time replace carriers, but the technique would remain the same. Naval air power, therefore, can readily join with land-based power in providing a great deterrent to war.

Minesweeping by Helicopter.—In March 1955 the U.S. Navy announced that recent tests in the Gulf of Mexico employed helicopters of the HRP-1 and the more powerful H-21 types. These helicopters were both equipped with mechanisms for picking up and towing standard minesweeping equipment. The tests showed that a helicopter tows the minesweeping equipment more rapidly than can the navy's fastest minesweepers. The helicopter is capable of sharper turns than a minesweeper, allowing better access to awkwardly placed areas. The helicopter can also tow its equipment through rough water and strong currents without difficulty. Its most important feature, however, is that it is not hazardously exposed to enemy mines.

Experiments encourage the belief that the helicopter, equipped with electronic devices capable of reaching a maximum useful depth of 100 fathoms, can also be used as a mine detector. Helicopters employed in the immediate future would be limited to clearing a channel through which standard surface minesweepers could safely pass to clear adjacent waters. New surface minesweepers have been designed, and new wooden-hulled ships, which have no magnetism to activate hostile magnetic mines, have been added to the fleet.

Biscay Exercise.—During the return of the British Home Fleet from the Mediterranean, a maritime exercise involving ships and aircraft of the fleet and shore-based aircraft of the Fleet Air Arm and the Royal Air Force was held on March 30-31 in the Bay of Biscay and the English Channel. With the Home Fleet were warships of the Royal Netherlands Navy and the U.S. Navy, and submarines of the Royal Navy.

United States Navy. Building Program.—On

July 13, 1955, Congress appropriated \$31,882,815,726 for the Department of Defense, of which \$9,118,079,556 was allotted to the U.S. Navy and Marine Corps. Of this total, \$1,387,634,000 was set aside for the construction of 34 new warships and the reconversion of 28 other vessels. One new carrier of the *Forrestal* class, to be named the *Congress*, is planned, and will be the fifth of this class to be built or to be under construction. Also included are 6 destroyer leaders, 7 destroyers, 4 atomic submarines (one for radar picket work), 3 conventional type submarines, one guided-missile submarine, 2 destroyer-escorts, 2 inshore minesweepers, 2 ammunition ships, one general stores issue ship, 5 patrol vessels, and a number of landing craft to total 14,000 tons. Conversions will include 6 attack aircraft carriers, one heavy cruiser, one guided-missile light cruiser, one guided-missile destroyer, 12 radar picket escort vessels, 2 cable-repairing and cable-laying ships, one seaplane tender, and 4 ocean radar station ships.

Twenty-six new vessels, including the carriers *Forrestal* (commissioned Oct. 2, 1955) and *Saratoga* (launched Oct. 8, 1955) from previous shipbuilding programs, will have been added to the fleet by June 30, 1956. The *Forrestal* class of carriers have canted decks, four high-speed elevators, and heavy arresting gear. They will carry the new A3D's, the navy's heaviest type of plane. The four atomic submarines contemplated in the 1955-56 construction program will be in addition to the *Nautilus*, in commission, and the *Seawolf*, launched July 21, 1955, at Groton, Conn. The navy's first midget submarine, the X-1, arrived at Groton on October 6. This five-man craft weighs only 25 tons and is only 50 feet long. She will be used to test hostile harbor defense installations.

Aircraft.—The president's budget for 1956 called for \$1,101,000,000 to be allotted for naval aircraft and related facilities, as compared with \$1,135,160,000 for 1955. This would provide for 1,600 new modern planes as replacements or new additions.

One of 1955's most important developments was the unveiling by the navy and the Glenn L. Martin Company of the world's first multijet attack seaplane—the XP6M-1 Martin Sea Master. It is a water-based aircraft designed primarily for minelaying and photoreconnaissance, but it can perform other combat tasks. This plane is seen as

indicative of an entirely new concept in naval warfare—creation of a seaplane striking force. It is powered by four Allison J-71 turbojet engines, cruises normally at 40,000 feet, and is capable of speeds of over 600 miles per hour.

In June 1955 the Bureau of Aeronautics revealed that a series of successful test flights had been made with the navy's newest carrier-based jet fighter, the XF8U-1. Its specifications call for a high rate of climb, exceptional combat ceiling, and penetration of the sound barrier in level flight. The new Cutlass F7U-3 all-purpose fighter plane has a top speed of more than 650 miles per hour and is equipped with folding wings and arresting gear for carrier use. The elongated "stinger" tail on the P2V5 Neptune plane is the latest development in antisubmarine warfare weapons. It can seek out enemy submarines hundreds of feet beneath the ocean's surface. Another plane in the 600-mile-per-hour class is the F3H-2N, with a powerful turbojet engine. This was delivered to the navy in June 1955.

Another new aviation development, a "drone" helicopter, has been flown by remote control under the navy's watchful eye for over a year. During recent Caribbean exercises the navy refueled a twin-engine P5M Martin Marlin patrol seaplane from the submarine-oiler, U.S.S. *Gauvina*. This submarine-seaplane refueling will aid in implementing the navy's new concept of mobile sea bases. (See also AERONAUTICS.)

Personnel and Fleet Strength.—On June 30, 1955, the U.S. Navy had about 74,000 officers and 608,000 enlisted men; by June 30, 1956, the navy expects to have 72,800 officers and 584,200 enlisted men, representing a total decrease of 25,000. Officers and men of the U.S. Marine Corps numbered 220,727 on Dec. 31, 1954, and 205,000 on June 30, 1955, a net loss of 15,727.

On June 30, 1955, the navy had 1,066 ships on active duty and 1,374 in reserve. By June 30, 1956, these figures will be changed to 1,001 ships on active duty and 1,464 in reserve. There were about 16,000 planes in the navy; 13,027 on active duty and 3,000 in "mothballs." There will be 10,061 navy and U.S. Marine Corps aircraft in operation in 1956, as opposed to 9,941 on June 30, 1955.

Administration.—Admiral Arthur W. Radford continued through 1955 as chairman of the Joint Chiefs of Staff, but Admiral Robert B. Carney was succeeded as chief of naval operations by Admiral Arleigh A. Burke. Admiral Jerauld Wright continued in command of NATO's Atlantic forces, and Admiral Felix B. Stump remained in command of the Pacific Fleet. Vice Admiral John H. Cassady continued in command of the U.S. Naval Forces, Eastern Atlantic and Mediterranean, and Admiral William M. Fechteler remained as commander, Allied Forces, Southern Europe. Charles S. Thomas continued to serve as secretary of the navy, and Lieut. Gen. Randolph Pate was appointed on Oct. 17, 1955, to succeed Gen. Lemuel C. Shepherd as commandant of the Marine Corps after the turn of the year.

Canadian Navy.—During 1954 the personnel of the Canadian Navy increased by 2,000 officers and men. By the end of 1955, it is hoped that it will reach 21,000. In 1955 there were 49 ships in commission, including an aircraft carrier, the *Magnificent*; 2 cruisers, the *Ontario* and the *Quebec*; 10 destroyer-escorts; one Arctic patrol vessel; 8 frigates; 5 coastal escorts; 8 coastal minesweepers; a repair ship; and 13 small craft. In addition there are 112 naval auxiliary vessels

manned by civilians. The *Magnificent*, on loan from the Royal Navy, will be replaced in 1956 by the *Bonaventure* (formerly the *Powerful*). Work on the *Powerful*, suspended in 1946 by her Belfast builders, was resumed in July 1952. As the *Bonaventure*, she is being redesigned for jet aircraft. Her flight deck will be strengthened, and heavy arresting gear and the new British steam catapult will be installed.

To provide submarines for antisubmarine training in the Canadian Navy, as arranged in 1954 by the Admiralty and the Canadian Naval Board, a new submarine squadron of the Royal Navy has been formed. Known as the 6th Submarine Squadron, it will be made up of three underseas craft, and will be based at Halifax. Canadian personnel, now being trained in Great Britain, eventually will make up 50% of the combined complement.

British Navy.—Since the end of World War II, Great Britain has been cautious about building new large ships because the major navies of the world may be on the eve of great changes. The development of atomic propulsion for ships, ship specialization, and guided missiles will have a profound effect on future naval strategy and tactics. British naval leaders are inclined to wonder whether big ships will have a place in a future navy. It is possible that fleets will consist of small ships, none larger than cruisers and light carriers. The British are disposed to follow a "wait and see" policy, but meanwhile are doing a great deal of small ship building and conversion to strengthen their antisubmarine, antiaircraft, minesweeping, and coastal forces.

Ships under construction in 1955 included 2 cruisers, one of which is being completed for Australia; three 9,950-ton Tiger class cruisers; 26 frigates; 2 experimental type submarines; 101 minesweepers, including 7 for the NATO countries; and 10 coastal craft. New vessels launched by March 31, 1955, included one submarine, the *Excalibur*, 9 frigates, 21 coastal minesweepers, 11 inshore minesweepers, 6 fast patrol boats, and 4 seaward defense boats. Ships accepted into service by the Royal Navy by March 31, 1955, included the 36,800-ton fleet carrier, *Ark Royal*, which was commissioned on February 22; two 20,000-ton light fleet carriers, the *Albion* and the *Bulwark*; 32 coastal minesweepers; 35 inshore minesweepers; 5 fast patrol boats; 12 seaward defense boats; and 3 small submarines.

Estimates (appropriations) of £391,550,000 (\$1,096,340,000) for the Royal Navy for 1955-56 were presented to Parliament on February 22. After allowing for aid from the Mutual Defense Assistance Program and other appropriations-in-aid, the net sum amounted to £340,500,000 (equal to \$963,400,000). This represents a reduction of £12,500,000 from the grant for 1954-55. These appropriations provide for a maximum strength of 133,000 officers and men in April 1956, a reduction of about 6,000 from the previous year.

The active fleet as of May 1955 consisted of one battleship, the *Vanguard*, which the Admiralty announced on Sept. 12, 1955, would go into the "ready" reserve in a few months, 8 carriers, 10 cruisers, one fast minelayer, 7 *Daring*-class 2,610-ton destroyers, 25 smaller destroyers, 52 frigates, 55 minesweepers, 30 coastal craft, 8 large landing vessels, and 7 surveying ships. The following ships were in reserve, undergoing refitting, modernization or conversion: 4 battleships, 7 carriers, 14 cruisers, one ship being converted into a guided-missile ship, 2 fast mine-

layers, one *Daring*-class destroyer, 57 smaller destroyers, 167 frigates, 220 minesweepers, 72 coastal craft, 66 large landing craft, and 8 surveying ships.

In improvements in deck-flying technique, with their angled decks, mirror landing devices, and the development of the steam catapult to full operational standards, the Royal Navy has made definite and lasting contributions to naval aviation, but in actual aircraft it has not kept pace with the U.S. Navy. A single-seat day fighter, the N113, has been ordered for the Fleet Air Arm. The de Havilland 110 has shown great promise as an aircraft and as a gun platform. An order for these planes has been placed for service with the Fleet Air Arm. The Westland Wyvern strike aircraft has proved successful in carrier operation. The Fairey Gannet antisubmarine aircraft is in service, and several squadrons of these planes have been formed. The Sea Venom all-weather fighter has also been brought to a high state of efficiency.

Australian Navy.—The budget for the year 1955-56 was submitted to the Australian Parliament in August 1955. Of a total defense allocation of £190,000,000, £48,834,000 was provided for the navy. The navy's personnel on July 1, 1955, comprised 1,315 officers and 11,899 enlisted men, a total expected to rise to 13,242 by June 30, 1956, including 310 in the women's reserve. There are 27 ships now in commission: 2 light fleet carriers, 2 *Battle*-class and 2 *Tribal*-class destroyers, 6 frigates, one training ship converted from a frigate, one sloop, 5 ocean minesweepers, 3 "T" class 1,090-ton submarines, on loan from the Royal Navy, 3 boom working vessels, one fleet tug, and one fleet tanker. Nine frigates and 22 ocean minesweepers are in reserve. Under a new building program, 8 new ships will be commissioned in 1961, and 5 others reconverted and refitted. The 8 new ships will include 3 *Daring*-class 2,610-ton destroyers, 4 antisubmarine frigates, and a boom defense ship. (These boom defense vessels of 770 tons displacement are designed to remove booms, wrecks, and other harbor and channel obstructions.)

French Navy.—On July 24, 1955, the French National Assembly voted 178.4 billion francs for the navy in 1956. This represents a reduction from a planned 30,000 tons to 21,000 tons in new construction. It was estimated that the French Navy should have 540,000 tons to meet its national and international obligations. With the reduced budget this goal cannot be attained before 1970. The 1956 budget does provide for about 70,000 officers and men and for the construction of one fast destroyer-escort of the Killer type, six 1,750-ton "avisos" (approximate counterparts of American or English frigates or corvettes), six 325-ton coastal escorts, three 750-ton submarines, one midget submarine, three motor patrol boats, and one LST (landing ship tank). The U.S. Senate has approved a measure under which the loan of the carrier *Bois Belleau* has been extended to June 1958.

Construction has commenced at Brest on the 22,000-ton carrier *Clemenceau*, authorized in the 1955 budget. The ship will be 824½ feet long with a designed speed of 32 knots. She will be able to carry 60 airplanes. Construction will be spread over four years at a cost of 22 billion francs. The *Narval*, first submarine built for the French Navy since World War II, was launched on Dec. 12, 1954. She is the 45th French warship to be launched since 1945.



U.S. NAVY

The aircraft carrier U.S.S. *Forrestal*, world's largest naval vessel, moves from her pier at Newport News, Va.

Soviet Navy.—The Soviet Navy has in service 3 old battleships, the *Novorossisk* (the ex-Italian *Giulio Cesare*), the *Oktjabrskaya Revoliutsia*, and the *Sevastopol*, all launched in 1911. Also in service are 6 modern *Kirov*-class heavy cruisers, one old heavy cruiser, 17 new 12,800-ton *Sverdlov*-class light cruisers, one old light cruiser, and 180 destroyers, of which 123 are of the seagoing type. The Soviet Navy has about 375 to 400 underwater craft, including 40 long-range submarines of new construction, most of them fitted with snorkel tubes; 83 long-range, fleet-type submarines, which are less modern but of fairly new construction; 73 medium-range underseas craft; and a large number of small coastal submarines of no great potential value.

At least three cruisers, each displacing about 15,000 tons, are under construction, and perhaps two more. Two large destroyer leaders and 12 smaller coastal-type destroyers are being built, and there are indications that vessels of still another class are being built. Some 25 submarines, and possibly others, may be under construction. It is reported from Sweden that the Soviet Union is building at Nikolaev on the Black Sea two aircraft carriers approaching in size the latest *Forrestal*-type carriers. They are said to displace 55,000 tons, to be 800-1,000 feet long, and to be powered with engines developing 150,000 horsepower, which will enable them to reach a speed of 35 knots.

Spanish Navy.—Despite the age and size of the Spanish Navy, which comprises about 65 combat craft of all categories and 39,000 officers and men, including marines, American naval planners apparently feel that it could be a valuable asset in the naval defenses of the Mediterranean. On May 3, 1955, the United States embassy in Madrid announced that Spain and the United States had signed an agreement on naval aid designed to give Spain a substantial modern naval fleet. The agreement provides for the mod-

ernization of Spanish ships with new armament, radar, fire-control apparatus, and modifications to provide greater comfort for the crews. Some of the equipment will be furnished by the United States and the remainder manufactured in Spain and in other European countries. On June 3, the third American warship (an antimagnetic minesweeper) to be transferred to Spain under the mutual defense agreement signed in 1953, was handed over to the Spanish ambassador at the Brooklyn Navy Yard. (See also the Index entry, *Naval Affairs*.)

LOUIS H. BOLANDER,
Librarian, United States Naval Academy.

NAVY, U.S. See **NAVAL AFFAIRS.**

NEBRASKA. Central state, United States; admitted to the Union, March 1, 1867. The "Cornhusker State" ranks 14th in area and 34th in population (1955) among the 48 states.

Area and Population.—Area: 77,227 square miles (land, 76,663; inland water, 564), divided into 93 counties. Population: (1950) 1,325,510; (est., July 1, 1955) 1,369,000. Urban places with 1950 populations above 10,000 are as follows:

Beatrice.....	11,813	Lincoln (capital)....	98,884
Fremont.....	14,762	Norfolk.....	11,335
Grand Island.....	22,682	North Platte.....	15,433
Hastings.....	20,211	Omaha.....	251,117
Kearney.....	12,115	Scottsbluff.....	12,858

Executive.—Chief state officers in 1955:

Governor: Victor E. Anderson (Republican)
Lieutenant Governor: Charles J. Warner
Secretary of State: Frank Marsh
Treasurer: Ralph Hill
Attorney General: Clarence S. Beck
Commissioner of Education: Fremont Decker

Constitution and Judiciary.—The present constitution went into effect in 1875. The Supreme Court comprises seven justices; chief justice in 1955 was Robert Simmons. On Feb. 11, 1955, the court ruled that the Nebraska "fair trade" act of 1937 was unconstitutional.

Legislature.—Nebraska is the only state having a unicameral legislature. This nonpartisan body of 43 members meets in odd-numbered years commencing the first Tuesday in January. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$123,911,105.03; expenditures, \$121,213,741.02; long-term indebtedness, \$35,640,904.51.

Taxation.—State tax revenue (1954-55 fiscal year): \$93,192,660.43, including \$27,996,664.21 from selective sales and gross receipts taxes, and \$19,096,989.36 from property taxes. The state has no general sales, individual income, corporate income, or poll tax.

Banking.—On June 30, 1955, the state's 123 national banks had \$1,106,575,000 in assets, \$896,402,000 in demand deposits, and \$117,153,000 in time deposits; the state's 292 other banks had \$451,091,638.26 in assets, \$360,027,640.80 in demand deposits, and \$48,964,033.98 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for public elementary and secondary schools in the 1953-54 school year were \$57,250,740.62 (\$254.54 per pupil); revenue receipts comprised \$55,849,213 from local school districts, \$3,126,391 from the state, and \$1,950,571 from the federal government. Teachers' salaries averaged \$2,829.28 (high school teachers, \$3,695.81; elementary school teachers, \$2,510.51).

In the 1953-54 school year there were an estimated 4,500 public elementary schools with 9,080 teachers and 189,022 pupils; 485 public secondary schools with 3,341 teachers and 60,898 pupils; 255 private and parochial elementary and secondary schools with 1,338 teachers and 35,584 pupils; and (1955-56) 4 state teachers colleges with 219 teachers and 2,886 students.

Social Welfare.—Public welfare expenditures from state and federal funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$15,576,566.40, including \$12,096,453.80 for old-

age assistance, \$2,913,623.73 for dependent children, and \$566,488.93 for the needy blind; a monthly average of 27,787 persons received public assistance. Expenditures for health and welfare institutions were \$8,617,269.55, excluding \$1,136,970.46 for construction and improvements; and for correctional and penal institutions totaled \$2,061,165.90, excluding \$473,337.74 for construction and improvements.

NEBRASKA WELFARE INSTITUTIONS

(As of July 1, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic...	1	2,008
Hospitals for the mentally ill.....	3	4,746
Sanatoriums for the tubercular.....	1	143
Schools for the blind.....	1	46
Schools for the deaf.....	1	167
Hospitals for crippled children.....	1	62
Homes for dependent children.....	1	95
Soldiers and sailors homes.....	1	193*
Training schools for delinquent boys.....	1	189
Training schools for delinquent girls.....	1	83
Reformatories for males.....	1	303
Reformatories for females.....	1	35
Prisons.....	1	692
Psychiatric institutes.....	1	35

* Includes veterans widows.

Labor Force.—The labor force in June 1955 numbered 615,200, including 172,300 agricultural workers. Nonagricultural employment was 360,600, and for the year ending August 1955 averaged 351,600. There were 1,660 registered unemployed workers in August 1955, and the state paid \$5,003,076 in unemployment compensation during 1954.

Manufacturing.—Establishments numbered 1,600 in 1955. There were 57,558 workers in 1953 who received \$210,973,000 in salaries and wages; value added by manufacture totaled \$401,398,000 and investment in new plant and equipment was \$36,031,000. Earnings of production workers in manufacturing averaged \$67.50 for an average work week of 41.7 hours in 1954, and \$71.46 for 42.9 hours in the first six months of 1955. The state's leading industry, food and kindred products, paid \$93,864,000 in wages to 25,892 employees in 1953, and added \$203,237,000 in value by manufacture.

Mining.—Nebraska ranked 37th among the states in 1953 in the value of its mineral output, which represented 0.23% of the United States total.

NEBRASKA MINERAL PRODUCTION, 1955¹

(In short tons except as noted)

Mineral	Quantity	Value
Clay.....	190,000	\$ 190,000
Natural gas (million cu. ft.).....	7,000	819,000
Petroleum (1,000 bbl.).....	9,158	25,184,500
Sand and gravel.....	9,000,000	7,200,000
Stone.....	1,950,000	2,830,000
Other minerals ²	...	10,708,500
Total.....	...	46,932,000

¹ Preliminary. ² Excluding uranium. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$469,765,000, and for the full year 1954 comprised \$723,222,000 from livestock and livestock products, \$336,028,000 from crops, and \$8,629,000 from government payments: Receipts from principal crops and livestock in 1954 included: cattle, \$413,940,000; hogs, \$179,325,000; wheat, \$144,460,000; corn, \$122,230,000; and dairy products, \$50,145,000.

The state's 100,846 farms (47,486,580 acres; harvested cropland, 18,870,341) averaged 470.9 acres and \$34,482 in value of land and buildings

per farm in 1954. There were 73,132 farms with telephones and 95,366 with electricity. Livestock on farms (Jan. 1, 1955) included 5,016,000 cattle, 778,000 sheep, 2,453,000 hogs, and 12,342,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 183,796 family and hired workers were engaged in farming.

NEBRASKA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Barley (1,000 bu.)	7,560	4,500	4,000
Beans, dry edible (1,000 bags)	967	1,226	1,247
Corn (1,000 bu.)	228,658	196,000	95,200
Hay (1,000 tons)	5,102	6,443	5,491
Oats (1,000 bu.)	57,982	68,266	54,470
Popcorn (1,000 lb.)	18,714	21,600	12,650
Potatoes (1,000 bu.)	8,969	4,620	4,600
Rye (1,000 bu.)	2,458	1,550	1,886
Sorghum grain (1,000 bu.)	2,346	13,416	7,843
Sugar beets (1,000 short tons)	699	786	666
Wheat (1,000 bu.)	77,578	61,623	78,255

(Source; U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$28,312,093, and newly completed construction and reconstruction aggregated 516 miles.

Highways and roads on Dec. 31, 1954, totaled 104,257 miles (44,324 surfaced). Registered *motor vehicles* numbered 705,575 in 1954, including 483,839 passenger cars. There were 6 *railroads* (1954) operating 6,290.12 line miles and, 1955, 3 regularly scheduled *airlines* and 248 *airports and airfields* (86 commercial and municipal, 2 military, 20 private, 134 personal use and 6 state).

Communications media (1955) included 28 *AM radio stations* and 5 *VHF operating television outlets*; 20 daily *newspapers* (circulation, 488,434) and 300 other newspapers (circulation, 454,529); and (Jan. 1, 1955) 111,450 business and 342,759 residential *telephones*.

Principal Events, 1955.—Rainfall during the 1955 growing season was only about 70% of normal, except in the western section, where it was slightly above normal. July and August, critical months for corn, the state's principal crop, were particularly hot and dry. As a result, corn production was less than half of the average for the preceding 10 years. Wheat, the second crop, was not so seriously affected, and output was slightly above the 10-year average. The drought emphasized the importance of irrigation: irrigated corn, growing on 11% of the state's corn acreage, accounted for 43% of the total crop. Irrigation, particularly from wells, continued to increase.

By December 10, 11-month figures indicated that Omaha had supplanted Chicago as the nation's chief livestock center. Some 6,099,642 cattle and calves, hogs, and sheep had been received in the Nebraska city, as compared with 5,710,616 in Chicago.

The legislature, holding the longest session in the state's history, adopted a record budget for state government of \$223,664,676. Among the 354 laws passed—second only to the 369 adopted in 1953—were measures creating a retirement system for district and Supreme Court judges; providing for forming or enlarging junior college districts; providing for the establishment of a historical museum and state park at Fort Robinson, a military post in northwestern Nebraska used since World War II primarily as a beef cattle research station; furnishing funds for the construction of a new governor's mansion;

and prohibiting the depositing of refuse along the state's highways. A controversial proposal for a ton-mile tax on trucks was defeated, and the Nebraska Turnpike Authority, created in 1953, was abolished.

A series of riots in August by convicts at the state penitentiary in Lincoln resulted in the destruction by fire of five buildings, with damage estimated in excess of \$100,000. These disorders, combined with disturbances at the state reformatory for men on August 22 and September 9, and previous troubles at the penitentiary on March 27-30, brought extensive discussion of the administration of the state's penal institutions.

At the beginning of 1955, Omaha dedicated a new civic auditorium. During the summer, construction began on a similar building in Lincoln.

Principal Events by: JAMES C. OLSON,
Director, Nebraska State Historical Society;
Author, "History of Nebraska" (1955).

NECROLOGY, 1955. Following is a selected list of prominent persons who died in 1955. Biographical articles on those whose names are marked with an asterisk (*) may be found under their own headings in this volume.

- Abend, Hallett (66), former Far East correspondent of *New York Times* and author of books on Far East: d. Sonoma, Calif., Nov. 27
- Abt, Isaac A. (87), pioneer in pediatrics; author of works on pediatrics and editor (for nearly 40 years) of *Yearbook of Pediatrics*: d. Chicago, Nov. 22
- *Adler, Maj. Gen. Julius Ochs (62), first vice president and general manager of *New York Times*: d. New York City, Oct. 3
- Agee, James (45), poet, motion picture critic, author of film scenarios and other writings: d. New York City, May 16
- Agganis, Harry (25), first-baseman of Boston Red Sox and former football star of Boston University: d. Cambridge, Mass., June 27
- Aiton, Arthur S. (61), professor of Hispanic-American history, University of Michigan, after 1929; author of historical works: d. Battle Creek, Mich., Dec. 29
- Allee, Warder C. (69), head of department of biology, University of Florida, after 1950; authority on animal sociology: d. Gainesville, Fla., Mar. 18
- Allen, William R. (70), professor of zoology, University of Kentucky, after 1930; author of works on zoology: d. Lexington, Ky., Apr. 7
- *Allward, Walter S. (78), Canadian sculptor; designed Canada's World War I memorial on Vimy Ridge, France: d. Toronto, Apr. 24
- Altrincham, Lord (Edward Grigg) (76), British politician and administrator; head of British home defense system, 1940-42: d. Badminton, Eng., Dec. 1
- Amery, Leopold S. (81), British Conservative member of Parliament for 34 years; secretary of state for India and Burma, 1940-45: d. London, Sept. 16
- Archibald, Raymond C. (79), professor of mathematics, Brown University, 1923-43; authority on history of mathematics: d. Sackville, New Brunswick, July 26
- Arciszewski, Tomasz (78), premier of Polish Government-in-Exile, 1944-45: d. London, Nov. 20
- Arnheim, Gus (57), band leader and songwriter; wrote *I Surrender Dear* and other hits: d. Los Angeles, Jan. 19
- Arnold, Seth (70), veteran stage and screen actor: d. New York City, Jan. 3
- Arze, José A. (51), Bolivian professor of law and sociology; a founder of Party of the Revolutionary Left and twice a presidential candidate: d. Cochabamba, Bolivia, Aug. 23
- Ascarei, Alberto (86), Italian auto racing champion; winner of world championships in 1952 and 1953: d. Monza, Italy, May 26
- *Avila Camacho, Manuel (58), president of Mexico, 1940-46: d. near Mexico City, Oct. 13
- Ayers, Lemuel (40), scenic designer for *Oklahoma!* and many other Broadway hit shows and plays: d. New York City, Aug. 14
- Ayers, Roy E. (72), Democratic governor of Montana, 1936-41: d. Lewistown, Mont., May 23
- Baird, David, Jr. (74), Republican senator from New Jersey, 1929-30; lumber and insurance executive: d. Camden, N.J., Feb. 28
- Baker, Leonard T. (87), former dean and president of University of South Carolina: d. Columbia, S.C., Jan. 5
- Ball, George A. (92), glass-jar industrialist, railroad financier, and philanthropist: d. Muncie, Ind., Oct. 22

- Ball, Suzan (22), motion picture and TV actress: d. Hollywood, Calif., Aug. 5
- Ballou, Richard B. (44), chairman of department of social bases of education, Rutgers University, after 1954: d. Highland Park, N.J., Apr. 18
- *Bara, Theda (Theda Bara Brabin) (65), star of silent motion pictures: d. Los Angeles, Apr. 7
- Barclay, Edwin James (73), president of Liberia, 1930-44: d. Liberia, Nov. 6
- Barou, Noah (65), Russian-born British leader of world Jewry; chairman of European Executive of World Jewish Congress after 1948: d. London, Sept. 5
- Battle, William J. (84), classical scholar and acting president of University of Texas, 1914-16: d. Rocky Mount, N.C., Oct. 9
- Bauer, Marion E. (67), composer, music teacher, and author of books on music: d. South Hadley, Mass., Aug. 9
- Baumeister, Willi (66), German abstractionist painter: d. Stuttgart, Germany, Sept. 1
- Baumgartner, Stanwood F. (60), former major league baseball pitcher and sports writer for Philadelphia *Inquirer*: d. Philadelphia, Oct. 4
- Bay, Charles U. (67), ambassador to Norway, 1946-53: d. New York City, Dec. 31
- Beecher, Janet (70), veteran actress of Broadway stage and screen: d. Washington, Conn., Aug. 6
- Bentley, Madison (84), chairman of department of psychology, Cornell University, 1928-38; author and editor: d. Palo Alto, Calif., May 29
- Benziger, August (88), Swiss-born portrait painter; subjects included presidents, popes, and other prominent personages: d. New York City, Apr. 13
- Berge, Wendell (52), head of Anti-trust Division, Department of Justice, 1943-47; author of books on monopoly and competition: d. Washington, D.C., Sept. 24
- Bergstrom, George E. (79), architect; president of American Institute of Architects, 1939-40: d. Orange, Calif., June 17
- Berkey, Charles P. (88), geologist and water supply expert; head of geology department, Columbia University, 1914-39: d. Palisade, N.J., Aug. 22
- *Bernardes, Artur da Silva (79), president of Brazil, 1922-26: d. Rio de Janeiro, Mar. 23
- *Bethune, Mary McLeod (79), Negro educator and public official: d. Daytona Beach, Fla., May 18
- Bhatnagar, Sir Shanti Swarup (59), Indian scientist; professor of chemistry and director of chemical laboratories, University of the Punjab, 1924-40: d. (reported) New Delhi, Jan. 1
- Bigelow, Maurice A. (82), professor of biology, Columbia University, 1907-39; author of books on hygiene and sex education: d. Peekskill, N.Y., Jan. 6
- Birchall, Frederick T. (84), journalist; acting managing editor of the *New York Times*, 1926-1931: d. near Bridgewater, Nova Scotia, Mar. 7
- Bishop, William W. (93), librarian for University of Michigan, 1915-41; president of International Library Federation, 1932-35: d. Ann Arbor, Mich., Feb. 19
- Black, William H. (87), justice of New York State Supreme Court, 1922-39; author of books on travel and legal subjects: d. Atlanta, Ga., Aug. 23
- Blackwell, Carlyle (71), star of silent films; appeared in some 300 movies: d. Miami, Fla., June 17
- Blake, Edwin M. (87), mathematician and scientist; professor of mathematics and mechanics, University of Arizona, 1904-10: d. Chappaqua, N.Y., Dec. 20
- Bliss, Henry E. (85), librarian and author; developed system of bibliographic classification: d. Plainfield, N.J., Aug. 9
- Boas, Ernst P. (64), authority on heart and chronic diseases; teacher and author of books on medical problems: d. New York City, Mar. 9
- Boucher, Chauncey S. (69), educator and historian; chancellor of University of Nebraska, 1938-48: d. Petoskey, Mich., Aug. 13
- Boyce, Sir Leslie (59), lord mayor of London, 1951-52; Conservative member of Parliament, 1929-45: d. Gloucester, Eng., May 30
- Brace, Donald C. (73), publisher; cofounder and former president of Harcourt, Brace & Co.: d. New York City, Sept. 20
- Braun, Otto (83), German Social Democratic leader; premier of Prussia during Weimar Republic: d. Locarno, Switzerland, Dec. 15
- Breguet, Louis (75), French pioneer in aircraft development; leading airplane manufacturer: d. Paris, May 4
- Brett, Agnes B. (79), numismatist; author of books on ancient Greek and Roman coins: d. Marblehead, Mass., Dec. 26
- Bridoux, Gen. Eugène (67), secretary of state for war, in Vichy government of France during World War II: d. Madrid, Spain, June 6
- Brown, Benjamin W. (57), director of dramatic productions, Brown University, after 1939; author of books and articles on theater: d. Providence, R.I., Jan. 7
- Brown, Fred H. (75), Democratic governor of New Hampshire, 1923-24, and U.S. senator, 1933-39: d. Somersworth, N.H., Feb. 3
- Brown, Louis F. (77), professor of history, Vassar College, 1934-44; author of several historical works: d. Norfolk, Va., May 1
- Brown, William R. (80), forestry management expert and conservationist; former director of American Forestry Association: d. Dublin, N.H., Aug. 4
- Brues, Charles T. (76), professor of entomology, Harvard University, 1935-46; author of works on insects: d. Crescent City, Fla., July 22
- Bruno, Frank J. (81), head of sociology department and professor of applied sociology, Washington University (St. Louis), 1926-52: d. Lebanon, Ind., Aug. 7
- Bryan, Charles F. (43), American composer and authority on folk music: d. Pinson, Ala., July 7
- Bryan, William L. (95), president of Indiana University, 1902-37: d. Bloomington, Ind., Nov. 21
- Bryant, Vice Adm. Eliot H. (59), submarine commander in Pacific during World War II: d. Annapolis, Md., Oct. 16
- Buchanan, Vera D. (53), Democratic representative from Pennsylvania after 1951: d. McKeesport, Pa., Nov. 26
- Buck, Carl D. (88), professor of comparative philology, University of Chicago, 1900-33; author of *A Dictionary of Selected Synonyms* (1949) and other works: d. Chicago, Feb. 8
- Bukofzer, Manfred (45), German-born musicologist and authority on medieval music; professor of music, University of California, after 1947: d. Oakland, Calif., Dec. 7
- Burkhard, Willy (55), Swiss composer of choral music and other works: d. Zurich, Switzerland, June 18
- Burns, Robert E. (63), author of *I Was a Fugitive from a Georgia Chain Gang*: d. East Orange, N.J., June 5
- Burns, Tommy (Noah Brusso) (73), world's heavyweight boxing champion, 1906-1908: d. Vancouver, B.C., May 10
- Busse, Henry (61), German-born orchestra leader and trumpet player; leader in "sweet" jazz: d. Memphis, Tenn., Apr. 23
- Butler, Robert (58), first U.S. ambassador to Australia, 1946-48: d. New York City, Sept. 15
- Byrd, Sam (47), actor, producer, and novelist; played in original Broadway production of *Tobacco Road*: d. Durham, N.C., Nov. 14
- Cahill, Lily (69), actress of Broadway and London stage: d. San Antonio, Texas, July 20
- Calder, Curtis E. (64), utilities executive; director general of War Production Board during World War II: d. New York City, Apr. 2
- Cameron, Donald (66), Canadian-born actor of stage and screen: d. West Cornwall, Conn., July 11
- Cameron, George T. (82), editor and publisher of *San Francisco Chronicle*: d. San Francisco, Oct. 3
- Carlyle, William L. (84), Canadian animal husbandry specialist and educator: d. Calgary, Alberta, Aug. 5
- *Carnegie, Dale (66), author of *How to Win Friends and Influence People* (1936): d. New York City, Nov. 1
- Carter, Amos G. (75), publisher of *Fort Worth Star-Telegram*: d. Fort Worth, Texas, June 23
- Casati, Alessandro (74), Italian minister of war in 1944 and 1945: d. Milan, June 4
- Cash, William W. (75), bishop of Worcester, Eng., after 1941; general secretary of Church Missionary Society, 1926-41: d. Worcester, Eng., July 18
- Chace, Malcolm G. (80), financier; leader in Northeast textile and electric power industries: d. Hyannis, Mass., July 16
- *Chase, Harry W. (72), university administrator; chancellor of New York University (1933-51): d. Sarasota, Fla., Apr. 20
- Chaumeix, André (80), French journalist; member of French Academy after 1930: d. Paris, Feb. 23
- Chekhov, Michael (64), Russian-born stage and film actor and director: d. Hollywood, Calif., Sept. 30
- Clarendon, Earl of (George H. H. Villiers) (78), lord chamberlain to King George VI; governor general of South Africa, 1930-37: d. London, Dec. 13
- Clark, Alva B. (65), research engineer in telephone industry; vice president of Bell Telephone Laboratories, 1944-55: d. New York City, Nov. 14
- Clark, D. Worth (53), Democratic senator from Idaho, 1939-44: d. Los Angeles, June 19
- Clark, Edgar M. (85), former vice president and director of Standard Oil Company of New Jersey, and co-inventor of cracking process: d. Phoenix, Ariz., July 31
- Clarke, William H. (52), Canadian publisher; president of Clarke, Irwin & Co.: d. Toronto, July 31
- *Claudel, Paul (86), French poet, playwright, and diplomat: d. Paris, Feb. 23
- Coe, William R. (85), insurance executive, philanthropist, and sportsman; operated large racing stable: d. Palm Beach, Fla., Mar. 14
- *Coffin, Robert P. Tristan (62), American poet and educator: d. Portland, Me., Jan. 20
- Colby, Charles W. (88), Canadian historian and business-

- man; author of works on Canadian history: d. Montreal, Dec. 10
- Coleman, Sydney H. (69), executive vice president of ASPCA, 1930-51; president of American Humane Association, 1927-46: d. Hollywood, Fla., Mar. 22
- *Collier, Constance (Laura Constance Hardie) (75), English-born stage and screen actress: d. New York City, Apr. 25
- Colvin, Mamie W. (72), president of Woman's Christian Temperance Union, 1944-53: d. Clearwater, Fla., Oct. 30
- Comfort, William W. (81), president of Haverford College, 1917-40: d. Haverford, Pa., Dec. 23
- Concheso, Aurelio F. (56), Cuban educator and diplomat; ambassador to U.S., 1941-44: d. Mexico, Nov. 11
- Corbett, Col. James E. (Jim) (80), British big-game hunter; author of *Man-Eaters of Kumaon* (1946) and other books: d. Nyeri, Kenya, Apr. 19
- *Côté, Alcide (52), postmaster general of Canada after 1952: d. Ottawa, Aug. 7
- Coudert, Frederic R. (84), international lawyer; president of American Society of International Law, 1942-46: d. New York City, Apr. 1
- Crane, Arthur G. (77), Republican acting governor of Wyoming, 1949-51; president of University of Wyoming, 1922-41: d. Cheyenne, Wyo., Aug. 11
- Crouch, Paul (52), former Communist who later served as informer in trials of Communists: d. San Francisco, Nov. 18
- Crowther, Frank (85), Republican congressman from New York, 1918-42: d. Pueblo, Colo., July 20
- Crozier, William J. (63), authority on vision; professor of general physiology, Harvard University, after 1927: d. Cambridge, Mass., Nov. 2
- *Culbertson, Ely (64), Russian-born contract bridge expert; author of books on peace: d. Brattleboro, Vt., Dec. 27
- Curley, William A. (81), editor of *New York Journal-American*; assistant editor in chief of Hearst Consolidated Publications, after 1942: d. New York City, Oct. 23
- Curtis, Lionel G. (83), British author of works on international politics; adviser on Commonwealth problems: d. near Oxford, Eng., Nov. 24
- Cushing, Harry A. (84), lawyer and historian; former acting dean and professor of criminal law at Columbia University Law School: d. Winsted, Conn., Sept. 6
- *Dávila, Carlos (68), Chilean diplomat; secretary general of Organization of American States: d. Washington, D.C., Oct. 19
- Davis, Edward K. (75), American aluminum industrialist; president of Aluminium Limited, of Montreal, 1928-47: d. Marston Mills, Mass., Mar. 9
- Davis, George H. (79), grain executive; president of U.S. Chamber of Commerce, 1937-38: d. Kansas City, Mo., May 5
- Davis, Jesse B. (84), dean of School of Education, Boston University, 1935-42: d. Newton, Mass., Nov. 2
- *Davis, John W. (81), constitutional lawyer; Democratic candidate for president in 1924: d. Charleston, S.C., Mar. 24
- Deakin, Arthur (64), British labor leader; general secretary of Transport and General Workers Union after 1945: d. Leicester, Eng., May 1
- *Dean, James (24), American actor: d. (automobile crash) near Paso Robles, Calif., Sept. 30
- Dearborn, Walter F. (76), pioneer in educational psychology; professor of education, Harvard University, 1917-47: d. St. Petersburg, Fla., June 21
- Deat, Marcel (60), pro-Nazi French minister in Vichy government in World War II; condemned to death *in absentia*: d. Turin, Italy, Jan. 5
- Deimel, Richard F. (74), professor of mechanical engineering, Stevens Institute of Technology, 1934-52; expert on gyroscope: d. North Adams, Mass., Sept. 28
- *de Jong, Johannes Cardinal (69), archbishop of Utrecht: d. Amersfoort, Netherlands, Sept. 8
- de la Huerta, Adolfo (72), provisional president of Mexico in 1920: d. Mexico City, July 9
- de Matos, Gen. José Mendes Ribeiro Norton (88), Portuguese military and political leader; ambassador to Britain, 1923-26: d. Ponte do Lima, Portugal, Jan. 2
- de Mille, William C. (76), playwright and film director and producer; author of *The Warrens of Virginia*: d. Los Angeles, Mar. 5
- Denny, George H. (84), educator; president of Washington and Lee University, 1901-11, and University of Alabama, 1912-37: d. Lexington, Va., Apr. 2
- Dession, George H. (49), professor of law, Yale University, after 1938: d. Boulder, Colo., June 20
- Deutsch, Monroe E. (76), educator and author; vice president of University of California, after 1930: d. San Francisco, Oct. 21
- Deviny, John J. (72), public printer of U.S., in charge of Government Printing Office, 1948-53: d. Washington, D.C., Feb. 10
- Devoe, Alan (45), naturalist and author of books and articles on animals: d. New York City, Aug. 17
- *De Voto, Bernard (58), literary critic and historian: d. New York City, Nov. 13
- d'Humy, Fernand E. (82), communications engineer, inventor, and executive; author of religious books: d. Chappaqua, N.Y., Dec. 22
- Dingell, John D. (61), Democratic congressman from Michigan after 1933; led fight for national health insurance plan: d. Washington, D.C., Sept. 19
- Donaldson, Arthur (86), Swedish-born actor, singer, and producer; credited with producing first talking picture: d. Long Island, N.Y., Sept. 28
- *Downes, Olin (69), music critic, author, and lecturer: d. New York City, Aug. 22
- Drexel, Mary Katherine (96), founder of Sisters of the Blessed Sacrament for Indians and Colored People: d. Philadelphia, Mar. 3
- *Duff, Sir Lyman P. (90), chief justice of Supreme Court of Canada, 1933-44: d. Ottawa, Apr. 26
- Duffy, Frank (94), secretary general of United Brotherhood of Carpenters and Joiners, 1902-50; vice president of AFL, 1918-50: d. Indianapolis, Ind., July 11
- Dunn, Robert (78), explorer, author, and newspaper correspondent: d. Katonah, N.Y., Dec. 24
- Durkin, Martin P. (61), union leader and secretary of labor (1953): d. Washington, D.C., Nov. 13
- Duval, Gen. Raymond-Francis (63), commander in chief of French forces in Morocco after 1950: d. (air crash) near Kasba Tadla, French Morocco, Aug. 22
- Egas Moniz, Antonio Caetano de Abreu Freire (81), Portuguese surgeon; winner of Nobel Prize in medicine, 1949: d. Lisbon, Dec. 13
- Egloff, Gustav (69), petroleum scientist; held some 300 patents and wrote several works on petroleum processing: d. Chicago, Apr. 29
- *Einstein, Albert (76), world-known physicist, mathematician, and author of relativity theory: d. Princeton, N.J., Apr. 18
- Elliott, Madge (59), London-born stage and TV actress and dancer: d. New York City, Aug. 8
- *Enesco, Georges (73), Rumanian-born composer, violinist, and conductor: d. Paris, May 4
- Engstrand, Stuart (51), author of *The Sling and the Arrow* (1947) and other novels: d. (suicide) Los Angeles, Sept. 8
- Espiña de Serna, Concha (76), Spanish author of over 30 novels and other works: d. Madrid, May 19
- Evans, Silliman (61), president and publisher of *Nashville Tennessean*: d. Fort Worth, Texas, June 25
- Fabre, Emile (86), French playwright; administrator of Comédie Française, 1915-36: d. Paris, Sept. 25
- Farnsworth, Maj. Gen. Charles S. (93), chief of U.S. Army infantry forces, 1920-25: d. Los Angeles, Dec. 19
- Fisher, Hammond E. (Ham) (54), cartoonist; creator of comic strip *Joe Palooka*: d. (suicide) New York City, Dec. 27
- *Fite, Warner (88), professor of philosophy, Princeton University, 1915-35: d. Philadelphia, June 23
- Flack, Joseph (60), ambassador to Poland after 1950: d. aboard liner *United States*, enroute to New York, May 8
- Flannagan, John W. (70), Democratic congressman from Virginia, 1931-49; specialist in farm legislation: d. Bristol, Va., Apr. 27
- *Fleming, Sir Alexander (73), Scottish bacteriologist; discoverer of penicillin: d. London, Mar. 11
- Fleming, Dewey L. (56), chief of Washington bureau of Baltimore Sunpapers; winner of Pulitzer Prize for reporting (1943): d. Baltimore, Md., May 18
- *Fleming, Maj. Gen. Philip B. (67), administrator of Federal Works Agency, 1941-49: d. Washington, D.C., Oct. 6
- Frankl, Oscar B. (74), Moravian-born educator, author, and authority on radio broadcasting; associated with Office of Research, Columbia University, after 1942: d. New York City, Dec. 17
- French, Herbert J. (62), metallurgist; vice president of International Nickel Co., and author of books on metallurgy: d. Rochester, Minn., Aug. 17
- Friganza, Trixie (Delia O'Callaghan) (84), musical comedy star of vaudeville stage and early films: d. Pasadena, Calif., Feb. 27
- Fry, Clements C. (63), psychiatrist; head of department of university health, Yale University, after 1937: d. Wallingford, Conn., Nov. 24
- Gaither, Frances (66), author of *Double Muscadine* (1949) and other novels: d. Rockledge, Fla., Oct. 28
- Gallagher, Richard S. (Skeets) (64), stage and screen comedian: d. Santa Monica, Calif., May 22
- Gallico, Paolo (87), Italian-born pianist and composer: d. New York City, July 6
- Garbett, Cyril F. (80), archbishop of York after 1942: d. York, Eng., Dec. 31

- Garcia, Miguel Angel (92), Salvadorean historian and writer: d. San Salvador, July 11
- Garland, Robert (60), drama critic for *New York Journal-American*, 1943-51; author of plays and short stories: d. New York City, Dec. 27
- Gasser, Maj. Gen. Lorenzo D. (79), deputy chief of staff, 1939-40; president of War Department's Manpower Board, 1943: d. Washington, D.C., Oct. 29
- Gearhart, Bertrand W. (65), Republican congressman from California, 1935-49: d. San Francisco, Oct. 11
- Ghavam, Ahmad (73), six-times premier of Iran: d. Teheran, Iran, July 23
- Glasgow, Maj. Gen. Sir William (79), Australian army officer and high commissioner to Canada, 1940-45: d. Brisbane, Australia, July 4
- Goddard, Col. Calvin H. (63), criminologist, military historian, and ballistics expert: d. Washington, D.C., Feb. 22
- *Golden, John (80), producer of Broadway plays: d. New York City, June 17
- Goldstein, Sidney E. (76), rabbi emeritus of Stephen Wise Free Synagogue; welfare leader, marriage counselor, and author: d. New York City, Mar. 19
- Goodrich, Ernest P. (71), civil engineer; designed harbors and zoning plans of cities throughout the world: d. New York City, Oct. 7
- Govorov, Marshal Leonid A. (58), Russian military leader; commanded forces which broke German ring around Leningrad in 1944: d. USSR, Mar. 19
- Grace, John (48), Canadian professor of modern languages at Cambridge University, England; director of education for Canadian Army in World War II: d. White Rock, B.C., Mar. 7
- Graftstrom, Sven (50), Swedish diplomat and U.N. delegate; chairman, Korean Armistice Commission, 1953-54: d. Dijon, France, Jan. 3
- Graham, William C. (67), Canadian religious educator; principal of United College, Winnipeg, 1938-55: d. Newmarket, Ont., July 31
- *Gray, Carl R., Jr. (66), director of Veterans Administration, 1948-53: d. St. Paul, Minn., Dec. 2
- Gray, Louis H. (80), philologist and orientalist; professor of comparative linguistics, Columbia University, 1935-44: d. New York City, Aug. 18
- *Graziani, Marshal Rodolfo (72), commander of Italian forces in North Africa in World War II: d. Rome, Jan. 11
- *Griffith, Clark C. (85), owner of Washington Senators baseball club: d. Washington, D.C., Oct. 27
- Grossley, Richard S. (69), Negro education leader; president of Delaware State College, 1923-43: d. New York City, Nov. 17
- Gulbenkian, Calouste S. (86), international oil financier, multimillionaire, and art collector: d. Lisbon, Portugal, July 20
- Gumpert, Martin (57), German-born gerontologist; author of medical studies and other works dealing with problems of old age: d. New York City, Apr. 18
- Hale, William J. (79), organic chemist known as "father of chemistry"; research consultant with Dow Chemical Co.: d. Midland, Mich., Aug. 8
- Halford, Maj. Frank B. (61), British designer of airplane engines; chairman and technical director of de Havilland Engine Co. after 1944: d. near London, Apr. 17
- Halsey, Robert H. (82), professor of medicine, College of Physicians and Surgeons, Columbia University, 1917-39; a founder of American Heart Association: d. Stanstead, Quebec, Sept. 15
- *Hampden, Walter (75), veteran stage and screen actor: d. Los Angeles, June 11
- Harrison, Earl G. (55), dean of University of Pennsylvania Law School, 1945-48; U.S. commissioner of immigration and naturalization, 1942-44: d. near Sabael, N.Y., July 28
- Hartmann, George W. (51), head of psychology department, Teachers College, Columbia University, 1936-44: d. Flossmoor, Ill., June 11
- Hartman, Grace (Grace Barrett Hartman Abbott) (48), member of dancing team which specialized in comic and satirical dancing: d. Van Nuys, Calif., Aug. 8
- Hartman, Lewis O. (79), Methodist bishop for New England, 1944-48: d. Newton, Mass., June 30
- Hathway, Marion (60), professor of social economy, Bryn Mawr College, after 1951; writer on social work: d. Bryn Mawr, Pa., Nov. 18
- Hayden, J. Willard (81), philanthropist; president of Charles Hayden Foundation: d. Arlington, Mass., June 15
- *Hedtoft, Hans (51), Danish Socialist leader and premier: d. Stockholm, Sweden, Jan. 29
- Heller, Helen West (83), modernist painter and woodcut engraver: d. New York City, Nov. 19
- *Hempel, Frieda (70), German-born coloratura soprano; star of Metropolitan Opera Company, 1912-19: d. Berlin, Germany, Oct. 7
- Henderson, Daniel MacI. (75), author of biographies, historical novels, and other writings: d. Flemington, N.J., Nov. 12
- Henson, Matthew A. (88), only American to accompany Adm. Robert E. Peary in dash to North Pole in 1909: d. New York City, Mar. 9
- Hess, Julius H. (79), head of department of pediatrics, University of Chicago, 1914-44: d. Los Angeles, Nov. 2
- Higgins, John P. (62), chief justice of Massachusetts Superior Court, after 1937; Democratic congressman, 1935-37: d. Boston, Aug. 2
- Hill, Brig. Gen. Walter N. (73), Marine Corps officer who won Medal of Honor in Mexican border campaign, 1914: d. New York City, June 29
- *Hirshberg, Herbert S. (76), dean of School of Library Science, Western Reserve University, 1929-43; advisory editor for *THE ENCYCLOPEDIA AMERICANA*: d. Winter Park, Fla., Sept. 15
- *Hodiak, John (41), actor on Broadway stage, films, and TV: d. Los Angeles, Oct. 19
- Hofer, Karl (76), German painter and exponent of modern art; director of High School for Fine Arts, Berlin, after 1945: d. West Berlin, Apr. 3
- Holt, Rush D. (49), Democratic senator from West Virginia, 1935-40: d. Bethesda, Md., Feb. 8
- *Honegger, Arthur (63), Franco-Swiss composer: d. Paris, Nov. 27
- Hooper, Rear Adm. Stanford C. (70), pioneer in naval radio; director, Radio Liaison Division of U.S. Navy, 1940-43: d. Miami Beach, Fla., Apr. 6
- Hoover, Theodore J. (84), dean of Stanford University School of Engineering, 1928-36: d. near Santa Cruz, Calif., Feb. 4
- Hore-Ruthven, Sir Alexander Gore Arkwright, 1st Earl of Gowrie (82), British military leader; governor general of Australia, 1936-44: d. Shipton Moyne, Eng., May 3
- Houston, Herbert S. (88), editor, publisher, and publicist; worked for international goodwill and cooperation: d. New York City, May 15
- Howard, Tom (69), veteran comedian of stage, films, radio, and TV: d. Long Branch, N.J., Feb. 27
- Howe, George (68), architect who designed noted structures in Philadelphia and elsewhere; chairman of department of architecture, Yale University, after 1950: d. Philadelphia, Apr. 16
- Hughes, Helen S. (72), dean of graduate studies, Wellesley College, 1931-46; professor emeritus of English literature: d. Boston, May 7
- Hulett, George A. (87), experimental chemist; professor of physical chemistry, Princeton University, 1909-35: d. Princeton, N.J., Sept. 6
- *Hull, Cordell (83), U.S. secretary of state, 1933-44: d. Bethesda, Md., July 23
- Hungerford, Samuel J. (83), Canadian rail leader; president of Canadian National Railways, 1934-41: d. Farnham, Quebec, Oct. 7
- Huntington, Archer M. (86), philanthropist and scholar; donated millions of dollars to museums: d. Bethel, Conn., Dec. 11
- Husbands, Sam H. (64), banker and former federal aide; president of Transamerica Corp., 1949-53; d. San Mateo, Calif., Nov. 1
- *Innitzer, Theodor Cardinal (79), head of Roman Catholic Church in Austria: d. Vienna, Oct. 9
- Inverforth, Lord (Andrew K. Weir) (90), British shipping, oil, and communications industrialist; minister of munitions, 1919-21: d. London, Sept. 17
- *Isham, Col. Ralph (64), collector of rare manuscripts; discovered Boswell papers: d. New York City, June 13
- Jackson, Col. H. Nelson (82), pioneer autoist, banker, and a founder of the American Legion; completed first transcontinental automobile tour (1903): d. Burlington, Vt., Jan. 14
- Jackson, Joseph H. (60), book critic and author of novels and other works; book editor of *San Francisco Chronicle*: d. San Francisco, July 15
- Jacobsen, William S. (68), Democratic congressman from Iowa, 1937-43: d. Dubuque, Iowa, Apr. 10
- *James, Marquis (64), author of biographies and other works: d. Rye, N.Y., Nov. 19
- Jansen, Harry A. (Dante, the Magician) (71), veteran magician of circuses, stage, screen, and TV: d. Los Angeles, June 16
- *Jardine, William M. (76), U.S. secretary of agriculture (1925-29): d. San Antonio, Texas, Jan. 17
- Jarman, Peter (62), Democratic congressman from Alabama, 1937-49; ambassador to Australia, 1949-53: d. Washington, D.C., Feb. 17
- Jensen, Elmer C. (85), architect; designed many Chicago skyscrapers and bank buildings: d. South Haven, Mich., Apr. 24
- Johnson, Allan C. (73), authority on ancient Greece and Rome; professor of classics, Princeton University, 1924-49: d. Princeton, N.J., Mar. 2
- Johnson, Fred W. (74), head of General Land Office, 1933-46, and director of Bureau of Land Management, 1946-48: d. Washington, D.C., July 31
- Johnson, James P. (61), jazz pianist and composer: d. New York City, Nov. 17
- Johnson, Skuli (66), Canadian classics scholar; head of

- classics department, University of Manitoba: d. Winnipeg, Manitoba, June 1
- Jones, Margo (42), producer of Broadway plays; managing director of Theater '55: d. Dallas, Texas, July 24
- Joyce, Alice (65), star of silent screen: d. Hollywood, Calif., Oct. 9
- Kao Kang (50?), former Chinese Communist Party leader and regional chief of Manchuria, purged for alleged conspiracy: d. (suicide) China, reported Apr. 4
- *Károlyi, Count Mihály (80), premier and later president of Hungary, 1918-19: d. Vence, France, Mar. 18
- Kasner, Edward (76), professor of mathematics, Columbia University, after 1910; author of numerous works on mathematics: d. New York City, Jan. 7
- Kaufmann, Edgar J. (69), Pittsburgh merchant, philanthropist, and civic leader: d. Palm Springs, Calif., Apr. 15
- Kaufmann, Henry (94), merchant and philanthropist; a founder of Kaufmann's Department Stores (Pittsburgh): d. New York City, Mar. 13
- Keeling, Sir Hugh T. (89), British civil engineer; chief engineer in construction of Indian capital of New Delhi: d. London, Feb. 3
- *Keith, Sir Arthur (88), Scottish anthropologist: d. Downe, Kent, Eng., Jan. 7
- Kelly, William J. (56), Chicago industrialist and civic leader; president of Machinery and Allied Products Institute: d. Chicago, May 30
- Kemper, Collin (87), producer of many Broadway shows and plays in first quarter of century: d. White Plains, N.Y., Nov. 27
- Kennedy, Martin J. (63), Democratic congressman from New York City, 1931-45: d. New York City, Oct. 27
- Kim Sung Soo (64), Korean journalist and educator; vice president of South Korea, 1950-51: d. Seoul, Feb. 18
- Kimball, Fiske (66), director of Philadelphia Museum of Art, 1925-55; author of books on architecture: d. Munich, Germany, Aug. 14
- King, James H. (82), Canadian senator after 1930; speaker of Senate, 1945-49: d. Ottawa, July 14
- Kittell, Clyde S. (54), radio and TV news announcer for National Broadcasting Company: d. Norton, N.J., Mar. 23
- Kleberg, Richard M., Sr. (67), Democratic congressman from Texas, 1931-45; chairman of board of King Ranch Corp.: d. Hot Springs, Ark., May 8
- Kreger, Maj. Gen. Edward A. (86), judge advocate general of U.S. Army, 1928-31: d. San Antonio, Texas, May 24
- *Kress, Samuel H. (92), founder of S. H. Kress & Co.: d. New York City, Sept. 22
- Larned, John I. B. (72), suffragan bishop of Protestant Episcopal Diocese of Long Island, 1929-45: d. Boston, Dec. 3
- La Rue, Carl D. (67), professor of botany, University of Michigan, after 1944; developed method of breeding rubber trees: d. Ann Arbor, Mich., Aug. 19
- Latimer, Wendell M. (62), research chemist on atomic bomb; dean of college of chemistry, University of California, 1941-50: d. Oakland, Calif., July 6
- Legal, Ernst (74), German actor, playwright, theatrical manager, and director: d. Berlin, June 29
- *Léger, Fernand (74), French abstract painter: d. Paris, Aug. 17
- Leigh, William R. (88), American artist noted for paintings of West; painted African scenes in American Museum of Natural History, New York: d. New York City, Mar. 11
- Lenhart, Carl H. (74), former director of surgery, University Hospitals (Cleveland) and head of department of surgery, Western Reserve University Medical School: d. Cleveland, Apr. 8
- Lewisohn, Ludwig (72), author of novels, biographies, and other works: d. Miami Beach, Fla., Dec. 31
- Loeb, Howard A. (82), banker and federal official; chairman of board of directors of Tradesmen's Bank and Trust Co., after 1928: d. Elkins Park, Pa., Nov. 3
- Loewy, Paul (67), Austrian-born neurologist and psychiatrist: d. New York City, Dec. 9
- London, Charmian K. (84), widow of Jack London; poet, short story writer, and biographer of Jack London: d. Glen Ellen, Calif., Jan. 13
- Lord, Daniel A. (66), Roman Catholic priest, editor, author of religious books and songs, and youth leader: d. St. Louis, Mo., Jan. 15
- Lorenz, Karl (67), German-born orchestra conductor; founder of Chamber Music Guild of New York: d. Great Neck, N.Y., June 7
- Loveman, Amy (74), editor associated with *Saturday Review* and Book-of-the-Month Club: d. New York City, Dec. 11
- Lowry, Vice Adm. Frank J. (69), commander of cruiser in World War II battles in Pacific and leader of naval task forces in invasions of Italy and southern France: d. Vallejo, Calif., Mar. 26
- Lowsley, Oswald S. (70), urological surgeon and author of medical studies: d. Stamford, Conn., June 4
- McCarter, Thomas N., Sr. (88), utilities executive; president of Public Service Corporation (New Jersey) for 36 years: d. Rumson, N.J., Oct. 23
- McCarthy, Joseph E. (78), bishop of Roman Catholic diocese of Portland, Me.: d. Portland, Me., Sept. 8
- McClelland, George W. (75), president of University of Pennsylvania, 1944-48: d. Little Deer Isle, Me., Aug. 20
- McClure, Charles F. W. (90), professor of zoology, Princeton University, 1905-35; founder of Museum of Comparative Anatomy: d. Princeton, N.J., July 23
- McCormick, Charles R. (84), industrialist who founded lumber and steamship companies on Pacific coast: d. Portland, Oreg., Feb. 24
- *McCormick, Col. Robert R. (74), editor and publisher of the *Chicago Tribune*: d. Wheaton, Ill., Apr. 1
- McDermott, Michael J. (61), former State Department press officer; ambassador to El Salvador, 1953-55: d. Washington, D.C., Aug. 5
- McDonald, Earl (55), composer and manager of Philadelphia Orchestra Association: d. Princeton, N.J., Mar. 30
- *Macfadden, Bernarr (Bernard A. MacFadden) (87), publisher and health crusader: d. Jersey City, N.J., Oct. 12
- Machlet, Adolph W. (90), industrialist and inventor of metallurgical processes: d. Elizabeth, N.J., Sept. 27
- MacKee, George M. (77), dermatologist; pioneer in use of X-ray and radium for skin diseases and cancer: d. Stamford, Conn., May 8
- Mackie, Thomas T. (60), authority on tropical diseases; president and executive director of American Foundation for Tropical Medicine: d. Westport, Conn., Oct. 5
- MacMillan, A. Stirling (83), premier of Nova Scotia during World War II: d. Halifax, Nova Scotia, Aug. 7
- McNally, Paul A. (64), vice president of Georgetown University after 1942 and former director of astronomical observatory: d. Washington, D.C., Mar. 4
- *McNeil, Hector (48), British minister of state, 1946-50 and representative to U.N., 1946-49: d. New York City, Oct. 11
- *McNutt, Paul V. (63), governor of Indiana, 1933-37; first U.S. ambassador to Philippines, 1946-47: d. New York City, Mar. 24
- MacOdrum, Maxwell (54), Canadian educator; president of Carleton College, Ottawa: d. Prince Edward Island, Aug. 1
- Maginnis, Charles D. (88), architect noted for designs of ecclesiastical buildings; president of American Institute of Architects, 1937-38: d. Boston, Feb. 15
- Magnus-Levy, Adolph (90), German-born medical scientist; introduced widely used method of determining basal metabolism: d. New York City, Feb. 6
- *Mann, Thomas (80), German author; winner of Nobel Prize in literature (1929): d. Zurich, Switzerland, Aug. 12
- *March, Gen. Peyton C. (90), U.S. Army chief of staff, 1918-21: d. Washington, D.C., Apr. 13
- Marks, Lionel S. (83), pioneer in development of internal combustion engine; professor of mechanical engineering, Harvard University, 1909-40: d. Providence, R.I., Jan. 6
- Martin, Clarence E. (75), Democratic leader in West Virginia; president of American Bar Association, 1932-33: d. Martinsburg, W. Va., Apr. 24
- *Martin, Glenn L. (69), aviation pioneer: d. Baltimore, Md., Dec. 4
- Martin, William McChesney, Sr. (80), chairman of board of Federal Reserve Bank of St. Louis, 1914-41: d. St. Louis, Mo., Feb. 28
- Martinez Mera, Juan de Dios (80), president of Ecuador, 1932-33: d. Guayaquil, Ecuador, Oct. 27
- Mary Joseph, Mother (Mary Rogers) (72), founder of Maryknoll Sisters, Roman Catholic missionary order: d. New York City, Oct. 10
- Maximos, Demetrios (82), premier of Greece in 1947: d. Athens, Oct. 15
- May, Samuel C. (67), founder and director of Bureau of Public Administration, University of California, 1930-55: d. New York City, Sept. 30
- *Mellanby, Sir Edward (70), English nutritionist, discovered cause of rickets: d. London, Jan. 30
- Merriam, Frank F. (89), Republican governor of California, 1934-38: d. Long Beach, Calif., Apr. 25
- Merrill, Maj. Gen. Frank D. (52), leader of "Merrill's Marauders," World War II jungle fighters: d. Fernandina Beach, Fla., Dec. 11
- Meyer, Arthur S. (75), labor mediator; chairman, New York State Board of Mediation, 1941-50: d. Scarsdale, N.Y., Aug. 6
- Miller, Edgar G., Jr. (62), biochemist; dean of Graduate Faculties, Columbia University, after 1953: d. New York City, June 28

- Milles, Carl (80), Swedish-born American sculptor and art collector; d. Lidingö, Sweden, Sept. 19
- Millsbaugh, Arthur C. (72), economist, author, and former State Department aide; financial adviser to Iran; d. Kalamazoo, Mich., Sept. 24
- Milton, George F. (60), newspaper editor and author of several works on American history; d. Washington, D.C., Nov. 12
- Minami, Jiro (81), Japanese military and political leader; convicted as war criminal; d. near Tokyo, Dec. 6
- Miner, Roy W. (80), curator of marine life, American Museum of Natural History, 1922-43; d. New London, Conn., Dec. 13
- Minevitch, Borrah (52), harmonica virtuoso and entertainer; d. Paris, June 26
- Minger, Rudolf (73), president of Switzerland, 1935; d. Schuepfen, Switzerland, Aug. 23
- Miranda, Carmen (Maria de Carmo da Cunha) (41), Portuguese-born dancer and comedienne; d. Los Angeles, Aug. 5
- Mirkine-Guetzevitch, Boris (63), Russian-born French jurist and political scientist; dean, law and political science faculty, Ecole Libre des Hautes Etudes de New York, after 1941; d. Paris, Apr. 1
- Mitchell, Charles E. (78), investment banker; chairman of National City Bank, 1929-33; d. New York City, Dec. 14
- Mitchell, Harry B. (88), chairman of U.S. Civil Service Commission, 1949-51; d. Great Falls, Mont., Sept. 30
- *Mitchell, William D. (80), attorney general of U.S., 1929-33; d. Syosset, N.Y., Aug. 24
- Moore, Carl R. (62), professor of zoology, University of Chicago, after 1928; authority on biology of sex; d. Chicago, Oct. 16
- Moore, Ernest C. (83), professor of philosophy and education, U.C.L.A., 1936-41; author of studies on education; d. Los Angeles, Jan. 23
- Moore, Frank G. (90), professor and professor emeritus of Latin, Columbia University, 1910-42; authority on Livy and Tacitus; d. Cleveland, Nov. 18
- Morey, Charles R. (77), art historian; chairman of department of art and archaeology, Princeton University, 1925-45; d. Princeton, N.J., Aug. 28
- Morgan, Brig. Gen. John H. (79), British legal authority; adviser to American War Crimes Commission at Nürnberg, 1947-49; d. Wootton Bassett, Eng., Apr. 8
- Morris, John (92), philologist; professor of Germanic languages, University of Georgia, 1913-45; author of works on English and German; d. Washington, D.C., Sept. 4
- Morrison, Stanley (63), professor of law, Stanford University, after 1929; d. near San Francisco, July 24
- Morrow, Elizabeth Reeve Cutter (81), educator, welfare worker, and author of children's books and poems; d. Englewood, N.J., Jan. 23
- *Mott, John R. (89), leader in international humanitarian movements; co-winner of Nobel Prize for peace, 1946; d. Orlando, Fla., Jan. 31
- Mudd, Harvey S. (66), mining engineer and Los Angeles civic leader; founder of Southern California Symphony Association (1934); d. Los Angeles, Apr. 12
- Murray, J. Lovell (79), Canadian Protestant missionary educator; director of Canadian School of Missions, 1921-47; d. Toronto, Apr. 30
- Murray-Jacoby, Herman (63), U.S. ambassador to Ethiopia, 1930; banker and economic consultant; d. West Palm Beach, Fla., Jan. 26
- Myers, Henry A. (49), professor of English, Cornell University, after 1947; authority on drama and American studies; d. Ithaca, N.Y., May 2
- Neal, Josephine B. (74), authority on poliomyelitis, meningitis, and encephalitis; clinical professor of neurology, College of Physicians and Surgeons, Columbia University, 1929-41; d. New York City, Mar. 19
- Nevils, W. Coleman (77), Roman Catholic educator and author; president of Georgetown University, 1928-35; d. New York City, Oct. 12
- Nichol, Frederick W. (63), business official and government adviser; former vice president and general manager of International Business Machines Corp., 1935-49; d. New York City, Oct. 27
- Noble, Adm. Sir Percy (75), British sea officer; commander in chief, Western Approaches, 1941-42; d. London, July 25
- Nordfeldt, Bror J. O. (77), Swedish-born American artist noted for marine scenes, landscapes, and still-life works; d. Henderson, Texas, Apr. 21
- O'Brien, Robert L. (90), chairman of U.S. Tariff Commission, 1931-37; editor of Boston *Herald*, 1910-28; d. Washington, D.C., Nov. 23
- Ochs, Col. Milton R. (91), newspaper publisher; vice president of Chattanooga Times Printing Co., after 1922; d. Chattanooga, Tenn., Apr. 30
- Oehmichen, Etienne (72), French naturalist and helicopter pioneer; d. Paris, July 10
- *Ortega y Gasset, José (72), Spanish philosopher and author; d. Madrid, Oct. 18
- Paget, Richard (86), British scientist; studies aided development of hearing aids and antisubmarine devices; d. London, Oct. 23
- Palmer, Brig. Gen. John McA. (85), military planner and historian; served in office of chief of staff in World War II; d. Washington, D.C., Oct. 26
- Palmer, Rear Adm. Leigh C. (82), U.S. naval officer; credited with bottling up Spanish Fleet in Havana Harbor during Spanish-American War; d. Laguna Beach, Calif., Feb. 26
- Pannill, Charles J. (75), pioneer in radio communications; president of Radio Corporation of America Institutes, Inc., 1932-47; d. New York City, Feb. 7
- *Papagos, Marshal Alexander (71), Greek military leader and premier; d. Athens, Oct. 4
- Parker, George H. (90), professor of zoology, Harvard University, 1906-33; author of works on animal nervous systems and sense organs; d. Cambridge, Mass., Mar. 26
- Pease, Edward (97), British socialist; a founder of the Fabian Society; d. Limsfield, Eng., Jan. 5
- Pechstein, Max (73), German expressionist painter; d. Berlin, June 29
- Perrine, Van D. (87), American impressionist painter and children's art educator; d. Stamford, Conn., Dec. 10
- Perry, Rear Adm. John R. (56), organizer of Seabees in World War II; chief, Bureau of Yards and Docks, after 1953; d. Washington, D.C., Sept. 25
- Person, Harlow S. (80), educator and economics consultant; dean of Amos Tuck School of Finance, Dartmouth College, 1903-17; d. Dobbs Ferry, N.Y., Nov. 7
- *Peters, John P. (68), professor of medicine, Yale University School of Medicine; d. New Haven, Conn., Dec. 29
- *Peurifoy, John E. (48), U.S. ambassador to Thailand; d. (auto crash) near Hua Hin, Thailand, Aug. 12
- Phillips, Henry D. (73), bishop of Protestant Episcopal diocese of southwestern Virginia, 1938-54; d. Boone, N.C., June 29
- Phillipson, Maj. Gen. Irving J. (73), U.S. Army officer; executive director, Army Emergency Relief, 1942-44; d. Barcelona, Spain, Apr. 4
- Pickel, Margaret B. (57), dean of university women, Columbia University; author of books on education and English literature; d. Tucson, Ariz., Jan. 7
- Planiol, André P. E. (61), French-born aeronautical engineer; d. New York City, June 30
- Plievier, Theodor (63), German author of *Stalingrad* and other novels; d. Avegno, Switzerland, Mar. 12
- Pocaterra, José Rafael (64), Venezuelan ambassador to Britain in World War II, to USSR (1945-48), and to U.S. (1949-50); d. Montreal, Quebec, Apr. 18
- Pogany, Willy (72), Hungarian-born artist, designer, and author; d. New York City, July 30
- Polgar, Alfred (81), Austrian-born German-language essayist, dramatist, and literary critic; d. Zurich, Switzerland, Apr. 24
- Poole, Sidman P. (62), professor of geography, University of Virginia, after 1939; chief of War Department's topographic bureau, 1940-46; d. Charlottesville, Va., Oct. 28
- Powell, Thomas R. (75), professor of law, Harvard University, 1925-50; helped mediate railroad strike of 1941; d. Boston, Aug. 16
- Prokopovich, Sergei N. (84), Russian-born economist; author of works on Soviet economy; d. Geneva, Switzerland, (reported) Apr. 5
- *Pulitzer, Joseph (70), editor and publisher of *St. Louis Post-Dispatch*; d. St. Louis, Mo., Mar. 30
- Purnell, Rear Adm. William R. (68), naval representative on top-level committee on atomic policy in World War II; d. Palo Alto, Calif., Mar. 5
- *Putnam, Herbert (93), librarian of Congress, 1899-1939; d. Woods Hole, Mass., Aug. 14
- Raemisch, Waldemar (67), German-born sculptor; head of sculpture department, Rhode Island School of Design, after 1939; d. Rome, Italy, Apr. 14
- Ray, E. Lansing (71), editor and publisher of *St. Louis Globe-Democrat*; d. Rye Beach, N.H., Aug. 30
- Raycroft, Joseph E. (87), first chairman of department of physical education and athletics, Princeton University, 1911-36; d. Trenton, N.J., Sept. 30
- Reavis, William C. (73), professor of education, University of Chicago, 1929-47; author of many studies on education; d. Chicago, June 1
- Redmond, Daniel G. (59), editor and publisher of *Current History* magazine; d. Philadelphia, Feb. 21
- Reed, Guilford B. (67), Canadian medical scientist; professor of bacteriology, Queen's University, 1919-54; d. Montreal, Feb. 21
- Reid, Albert T. (83), muralist, cartoonist, and illustrator; national vice president, American Artists Professional League, after 1928; d. New York City, Nov. 26
- Renner, George T. (55), professor of geography, Teach-

- ers College, Columbia University, after 1939; author and editor: d. Leonia, N.J., Oct. 14
- Reynolds, Richard S. (73), financier and industrialist; chairman of board, Reynolds Metal Company: d. Richmond, Va., July 29
- Rice, Richard A. (77), professor of English, Smith College, 1916-46; expert on Byron: d. Northampton, Mass., Aug. 6
- Riezler, Kurt (73), German-born philosopher and scholar; professor of philosophy, New School for Social Research, 1939-52: d. Munich, Germany, Sept. 7
- Riskin, Robert (58), screen writer; winner of "Oscar" for *It Happened One Night* (1934): d. San Fernando, Calif., Sept. 20
- Rist, Charles (81), French economist and financial adviser; founder of Institute of Scientific Economics and Social Research: d. Paris, Jan. 11
- Robbins, Reginald C. (85), author of poetical and philosophical works; founder of Robbins Library of Philosophy and Psychology, Harvard University: d. Santa Barbara, Calif., Nov. 19
- *Roberts, Owen J. (80), justice of U.S. Supreme Court, 1930-45: d. Chester Springs, Pa., May 17
- Roberts, William A. (57), industrialist; president of Allis-Chalmers Manufacturing Co., after 1951: d. Milwaukee, Wisc., Apr. 12
- Robertson, Robert S. (84), Canadian jurist; chief justice of Ontario, 1938-52: d. Toronto, May 28
- Robins, Edward H. (74), veteran actor of Broadway stage: d. Paramus, N.J., July 27
- Rochas, Marcel (53), French perfume manufacturer and former dress designer: d. Paris, Mar. 14
- Roechling, Hermann (82), former head of Roechling Steel Works in Saar: d. Mannheim, Germany, Aug. 24
- Rosenfarb, Joseph (51), labor arbitrator and author of books on law, labor relations, economics, and military strategy: d. New York City, Sept. 9
- Rosenthal, Nathan (65), pioneer in hematology; authority on leukemia and other diseases of blood: d. New York City, June 29
- Ross, Anthony (46), actor on Broadway stage; featured in *Bus Stop* and other plays: d. New York City, Oct. 25
- Rothschild, Baron Louis de (72), member of famous banking family and former head of Vienna bank; ransomed from Nazis for \$21 million in 1939: d. Jamaica, B.W.I., Jan. 15
- Rubinstein, Serge (46), Russian-born financier and convicted draft-dodger: d. (murdered) New York City, Jan. 27
- Rudd, Thomas B. (56), president of Hamilton College, 1947-49; president and treasurer of Munson-Williams-Proctor Arts Institute (Utica, N.Y.), after 1935: d. Clinton, N.Y., Apr. 11
- Rupprecht, Crown Prince (86), descendant of British royal house of Stuart, and pretender to throne of Bavaria: d. near Starnberg, Germany, Aug. 2
- Sack, Alexander N. (64), Russian-born professor of law, New York University, 1933-44, and author of numerous legal studies: d. New York City, May 30
- Sakall, S. Z. (62), Hungarian-born character actor of films: d. Hollywood, Calif., Feb. 12
- Salter, Robert M. (63), chief of soils research, Department of Agriculture, after 1953: d. Washington, D.C., Sept. 13
- Sauer, William E. (80), medical educator; professor of otolaryngology, St. Louis University School of Medicine, 1922-45: d. St. Louis, Mo., Sept. 3
- Schachner, Nathan (60), historian, lawyer, and author of biographies, novels, and other works: d. New York City, Oct. 2
- Schenck, Eunice M. (70), professor emeritus of French, Bryn Mawr College, and dean of graduate school, 1929-42: d. Port Jefferson, N.Y., May 6
- Schieffelin, William J. (89), wholesale drug industrialist; crusader for Negro education and other humanitarian causes: d. New York City, Apr. 29
- Schlichter, Rudolf (65), German surrealist painter; founder of Dadaism in Germany: d. Munich, May 4
- Schneider, Hannes (64), Austrian-born ski instructor; developed Arlberg technique: d. North Conway, N.H., Apr. 26
- Schulman, Samuel (91), leader of Reform Judaism; former rabbi of Temple Emanu-El (New York City): d. New York City, Nov. 2
- Schuyler, Montgomery (78), banker and state department aide; envoy extraordinary and minister plenipotentiary to El Salvador, 1921-25: d. Middletown, N.Y., Nov. 1
- Schwartz, Harry H. (86), Democratic senator from Wyoming, 1937-42: d. Casper, Wyo., Apr. 24
- *Scott, Walter D. (86), president of Northwestern University, 1920-39: d. Evanston, Ill., Sept. 23
- Seiberling, Frank A. (95), pioneer rubber industrialist; founder of Goodyear Tire and Rubber Co. (1898): d. Akron, Ohio, Aug. 11
- Seidlin, Samuel M. (59), endocrinologist; among first to use radioisotopes in treatment of thyroid diseases: d. New York City, Jan. 2
- Seillière, Baron Ernest (89), French philosopher, historian, and biographer; member of French Academy: d. Paris, Mar. 15
- Sherman, Henry C. (79), emeritus professor of chemistry, Columbia University; head of Bureau of Human Nutrition, U.S. Department of Agriculture, in World War II: d. Rensselaer, N.Y., Oct. 7
- Sherrill, James W. (64), authority on metabolic diseases; devised standard treatment for diabetes: d. La Jolla, Calif., Jan. 4
- Sherwin, Belle (87), suffragette; president of National League of Women Voters, 1924-34: d. Cleveland, July 9
- *Sherwood, Robert E. (59), playwright and author: d. New York City, Nov. 14
- Sherwood, Margaret P. (90), professor of English literature, Wellesley College, 1912-30; author of novels and other works: d. Wellesley, Mass., Sept. 24
- *Shulman, Harry (51), educator, legal scholar, and labor arbitrator: d. Hamden, Conn., Mar. 20
- Simmons, George F. (60), president of Montana State University, 1936-41: d. Glen Ellyn, Ill., July 19
- Simon, Viscountess (Kathleen Harvey Simon) (83), British welfare worker and foe of slavery; author of *Slavery* (1929): d. London, Mar. 27
- Simpson, Alfred D. (64), professor of education, Harvard University, after 1941; author of studies on education: d. Cambridge, Mass., Aug. 24
- Singer, Edgar A., Jr. (81), philosopher, educator, and author of works on philosophy and psychology; professor of philosophy, University of Pennsylvania, 1909-1944: d. Philadelphia, Apr. 3
- Slaton, John M. (88), governor of Georgia, 1913-15: d. Atlanta, Ga., Jan. 11
- Sloan, George A. (61), industrialist and music patron: d. New York City, May 20
- Smathers, William H. (64), Democratic senator from New Jersey, 1937-43: d. Asheville, N.C., Sept. 24
- Smith, Bruce (63), criminologist; director of Institute of Public Relations after 1954 and author of books on police methods: d. Southampton, N.Y., Sept. 18
- Snider, Joseph L. (60), professor of business economics, Harvard University Business School, after 1925; author of economic studies: d. Lincoln, Mass., Mar. 4
- *Somervell, Gen. Brehon B. (62), commander of U.S. Army Service Forces in World War II: d. Ocala, Fla., Feb. 13
- Soucek, Rear Adm. Apollo (58), chief of U.S. Navy Bureau of Aeronautics, 1953-55; set records in altitude flights: d. Washington, D.C., July 22
- Spaulding, Huntley N. (86), leather industrialist; governor of New Hampshire, 1927-28: d. Rochester, N.H., Nov. 14
- Speers, Robert I. (72), Canadian racing leader and breeder of thoroughbreds: d. Winnipeg, Manitoba, July 19
- Sprague, Vice Adm. Clifton A. F. (58), commander of group of U.S. aircraft carriers, destroyers, and destroyer escorts in Battle of Leyte Gulf, 1944: d. San Diego, Calif., Apr. 11
- Steenstrup, Christian (81), Danish-born inventor; developed refrigeration unit: d. Schenectady, N.Y., Nov. 28
- Steiner, Herman (50), U.S. chess champion, 1948-51; chess editor of *Los Angeles Times*: d. Los Angeles, Nov. 25
- Stephens, Harold M. (69), chief justice of U.S. Court of Appeals for District of Columbia, after 1948: d. Washington, D.C., May 28
- Sterling, Andrew B. (80), composer of *Wait Till the Sun Shines, Nellie* and other hit songs: d. Stamford, Conn., Aug. 11
- *Stevens, Wallace (75), poet; winner of Pulitzer Prize for poetry, 1955: d. Hartford, Conn., Aug. 2
- Stokes, Frank W. (96), American artist noted for paintings of Arctic and Antarctic scenes as member of polar expeditions: d. New York City, Feb. 12
- Stone, Herbert L. (84), editor of *Yachting*, 1908-52; author of numerous books on yachting and related subjects: d. New York City, Sept. 27
- Storrs, Sir Ronald (73), English author, archaeologist, and governor of Cyprus (1926-31): d. London, Nov. 1
- *Stryker, Lloyd P. (70), criminal lawyer who defended Alger Hiss and other famous defendants: d. New York City, June 21
- Subasic, Ivan (63), premier of Yugoslav government in exile in World War II; foreign minister of Yugoslavia, 1945: d. Zagreb, Yugoslavia, Mar. 23
- *Summerall, Gen. Charles P. (88), chief of staff of U.S. Army, 1926-30: d. Washington, D.C., May 14
- Sumner, James B. (67), professor of biochemistry, Cornell University, 1929-55; co-winner of Nobel Prize in chemistry (1946): d. Buffalo, N.Y., Aug. 12
- Sutherland, Edward A. (90), educator; founder of Madison College: d. Nashville, Tenn., June 20
- Suydam, Henry (64), chief of news division, State Department, after 1953: d. Washington, D.C., Dec. 11

- Tanguy, Yves (55), French-born surrealist painter: d. Waterbury, Conn., Jan. 15
- Tarlé, Eugene (81), Russian historian; authority on Napoleonic wars: d. USSR, Jan. 6
- Taylor, Joseph R. (97), professor emeritus of Greek, Boston University, after 1938; author and translator: d. West Newton, Mass., Aug. 13
- Taylor, William O. (84), editor and publisher of *Boston Globe* after 1921: d. Marion, Mass., July 15
- Teilhard de Chardin, Rev. Pierre (73), French-born paleoanthropologist; codiscoverer of Peking Man: d. New York City, Apr. 10
- Templeton, Charles A. (84), Republican governor of Connecticut, 1923-25: d. Waterbury, Conn., Aug. 15
- Thackrey, Vice Adm. Lyman A. (57), senior U.S. naval planner in Normandy landing operation in World War II: d. San Diego, Calif., Apr. 14
- Thimmes, James G. (60), international vice president of United Steel Workers of America, CIO: d. Los Angeles, Jan. 16
- Thorpe, Merle (75), journalist and business analyst; editor of *Nation's Business*, 1916-44: d. Washington, D.C., Oct. 31
- Thurston, Harry (Marcus Cowan) (81), American actor and writer: d. Red Bank, N.J., Sept. 2
- Thurstone, Louis L. (68), professor of psychology, University of Chicago, 1924-52; developed aptitude tests: d. Chapel Hill, N.C., Sept. 29
- Tobey, Frank T. (64), mayor of Memphis, Tenn., after 1953; fought Dixon-Yates contract: d. Memphis, Sept. 11
- *Tobin, Daniel J. (80), president of Teamsters Union, AFL, 1907-52: d. Indianapolis, Ind., Nov. 14
- Toohy, John J. (81), Catholic educator and philosopher; professor emeritus of philosophy, Georgetown University: d. Washington, D.C., Apr. 14
- *Towers, Adm. John H. (70), pioneer in naval aviation; commander in chief of Pacific Fleet and Pacific Ocean Areas, 1945-47: d. New York City, Apr. 30
- Tracy, Daniel W. (68), assistant secretary of labor, 1940-46; vice president of AFL after 1947: d. Washington, D.C., Mar. 22
- *Tribhuvana Bir Bikram (48), king of Nepal (acceded to the throne in 1911): d. Zurich, Switzerland, Mar. 13
- Troncoso de la Concha, Manuel de Jesús (77), president of Dominican Republic, 1940-42: d. Ciudad Trujillo, May 30
- Troyanovsky, Alexander A. (73), Soviet ambassador to U.S., 1934-39: d. USSR, June 23
- Turquetil, Arsene (79), French-born Canadian bishop of Hudson Bay and the Arctic; noted for missionary work among Eskimos: d. Washington, D.C., June 14
- *Utrillo, Maurice (71), French painter noted for scenes of Paris and suburbs: d. Dax, France, Nov. 5
- Vail, Richard B. (59), Republican congressman from Illinois, 1947-48 and 1951-52: d. Chicago, July 29
- Van Ingen, Bernard J. (65), financier who specialized in financing roads, power projects, utilities, and other public enterprises: d. New York City, July 31
- Van Ingen, William Brantley (96), American artist; painted murals for Congressional Library, Washington, and other famous public buildings: d. Utica, N.Y., Feb. 5
- Vollmer, August (79), criminologist; pioneer in modern police science: d. (suicide) Berkeley, Calif., Nov. 4
- von Dirksen, Herbert (73), German diplomat; ambassador to Japan, USSR, and Great Britain before World War II: d. Munich, Dec. 19
- von Prittwitz und Gaffron, Friedrich W. (71), German ambassador to U.S., 1928-33: d. Munich, Sept. 1
- Vonnoh, Bessie P. (Bessie Potter Vonnoh Keyes) (82), American sculptor whose works are represented in several major museums: d. New York City, Mar. 8
- Vukovich, William (Bill) (36), auto-racing driver; winner of Indianapolis Speedway races in 1953 and 1954: d. (in race crash) Indianapolis, Ind., May 30
- Wade, Herbert T. (82), editor of *New International Encyclopedia*: d. New Canaan, Conn., Mar. 18
- *Wagner, John (Honus) (81), baseball star of early 1900's: d. Carnegie, Pa., Dec. 6
- Walker, Rollin H. (90), professor of English Bible, Ohio Wesleyan University, 1900-36; author of religious books: d. Delaware, Ohio, Aug. 4
- *Wallace, Robert C. (73), Canadian educator; advisory editor for Canada for *THE ENCYCLOPEDIA AMERICANA*: d. Kingston, Ont., Jan. 29
- Walrath, Russell J. (73), cartographer for New York *Times*: d. New Brunswick, N.J., June 7
- Wambaugh, Sarah (73), authority on plebiscites; adviser to League of Nations and United Nations: d. Cambridge, Mass., Nov. 12
- Ward, Arch (58), sports editor of Chicago *Tribune*; originator of all-star baseball games; author of sports books: d. Chicago, July 8
- Warner, Langdon (73), curator of Oriental art, Fogg Museum, Harvard University, 1925-50: d. Cambridge, Mass., June 9
- Wertenbaker, Charles C. (54), American journalist and author; wrote *The Death of Kings* (1954) and other novels: d. Ciboure, France, Jan. 8
- West, Charles F. (60), Democratic congressman from Ohio, 1931-35; undersecretary of interior, 1935-38: d. Bradenton, Fla., Dec. 27
- Weyl, Hermann (70), German-born mathematician and philosopher: d. Zurich, Switzerland, Dec. 8
- White, Paul W. (53), radio newsman; founder of Columbia Broadcasting System's news bureau (1933): d. San Diego, Calif., July 9
- *White, Sir Thomas (88), Canadian banker; finance minister of Canada, 1911-19: d. Toronto, Feb. 11
- *White, Walter F. (61), executive secretary of National Association for the Advancement of Colored People (NAACP), after 1931: d. New York City, March 21
- Wildman, Clyde E. (66), Bible scholar; president of DePauw University, 1936-51: d. Carlisle, Pa., Nov. 1
- Willard, Gerald W. (54), physicist on staff of Bell Laboratories; specialist in piezo-electric crystals and superionics: d. Fanwood, N.J., Nov. 18
- Williams, Horatio B. (78), professor of physiology, Columbia University, 1922-42: d. New York City, Nov. 1
- Wischnitzer, Mark (73), Russian-born professor of Jewish history, Yeshiva University, after 1948; contributor to *THE ENCYCLOPEDIA AMERICANA*: d. Tel Aviv, Israel, Oct. 16
- Wolgast, Adolph (Ad) (67), world's lightweight boxing champion, 1910-12: d. Camarillo, Calif., Apr. 14
- Wolgast, Midget (Joseph R. Loscalzo) (45), flyweight boxing champion, 1930-35: d. Philadelphia, Oct. 19
- *Wood, Robert W. (87), physicist and authority on spectrum research: d. Amityville, N.Y., Aug. 11
- Woodward, William, Jr. (35), financier and sportsman, owner of racehorse Nashua: d. (accidental shooting) Oyster Bay, N.Y., Oct. 30
- Wormser, I. Maurice (68), authority on corporation law; professor of law, Fordham University, after 1913: d. New York City, Oct. 22
- Wyer, James I. (86), director of New York State Library, 1908-38; president of American Library Association, 1909-11: d. Salt Lake City, Utah, Nov. 1
- Yaskin, Joseph C. (64), neurologist; head of neurology department, Graduate School of Medicine, University of Pennsylvania: d. Philadelphia, Aug. 10
- Ylla (Camilla Koffler) (44), photographer who specialized in animal photography: d. (auto accident) Bharatpur, India, Mar. 30
- *Young, Cy (Denton True Young) (88), baseball pitcher, 1890-1911; member of baseball's Hall of Fame: d. Newcomerstown, Ohio, Nov. 4
- Young-Hunter, John (81), Scottish-born portrait painter known also for studies of American Indian life: d. Taos, N. Mex., Aug. 9
- Zimmerman, Rufus E. (68), former head of research policy committee of United States Steel Corp.: d. Summit, N.J., June 21

NEGROES, American. Racial affairs in the United States during 1955 centered around one principal issue—desegregation. The frequent use of this word itself connoted a growing realism in discussion of racial relationships. There was less reference to abolition of racial discrimination as a soon-to-be-won objective. There was even less expectancy that total integration of nonwhites into all phases of American living would be achieved within the life-span of any living American. Liberal public sentiment seemed willing to settle for the present on abolition of formal and legalized segregationist practices as a long step toward later removal of less obvious forms of racial discrimination.

Thus the May 31 decision of the U.S. Supreme Court, directing the states to end racial segregation in the public schools within a "reasonable time," provided a focus for public attention relating to the whole racial question. Public reaction to the court's decision was mixed. In some quarters, principally Negro, there was keen disappointment that the Supreme Court had not issued a "here-and-now" ultimatum. In other quarters, there was relief that the court had been "reasonable" in allowing time for adjustment. In still other opinion areas it was bitterly charged that the court was "invading states' rights" by seeking to dictate "social equality," with the school room as an implementing device.

On one hand, Georgia, South Carolina, Alabama, Mississippi, and Louisiana studied the question of the constitutionality of abolishing the public school systems as a last resort against integration, and turning them over to state-subsidized private direction. There was also an increase in the numbers and activities of organized prosegregationist groups in both Southern and border states.*

On the other hand, the Southern Education Reporting Service released figures showing that by September 1955, 134,000 Negro students were attending classes with whites for the first time. Moreover, in 1955 Oklahoma opened all of its 18 state colleges to qualified students regardless of race. On June 21, the El Paso (Texas) Board of Education voted to abolish segregation in its public schools, and full-scale integration was scheduled for the beginning of the fall term. El Paso thus became the first city in Texas—and perhaps in the deep South—to comply fully with the court decree.

The new ferment in race relations spread over into church groups. The Episcopal Seminary of the University of the South at Sewanee, Tenn., admitted Negro students for the first time. The General Convention of the Protestant Episcopal Church, scheduled to meet at Houston, Texas, in 1955, shifted the convention to Honolulu, when it was made clear that Houston could not or would not provide equal accommodations to all delegates regardless of race. In a number of Southern cities, Catholic diocesan leaders ordered parochial schools and Catholic religious services open to all of the church's faithful, without distinction as to race. When white parishioners of a Louisiana rural Catholic parish to which a Negro priest had been assigned barred him from holding mass, his superior, Archbishop Joseph F. Rummel of New Orleans, suspended services in that church until the worshipers should rid themselves of "un-Christian practice."

In other major matters affecting Negroes, the U.S. Interstate Commerce Commission on November 25 ordered the elimination of racial segregation on all trains and buses involved in interstate travel, and made the decree applicable also to waiting rooms in bus and railway stations. The U.S. Supreme Court, on Nov. 7, 1955, outlawed racial segregation in public playgrounds, parks, and golf courses.

A New York Times correspondent, surveying racial developments in 13 Western states, reported on May 28 that this area had moved far during 1955 toward equal protection of civil rights for all their residents. For example, Arizona passed a fair employment practice law covering public works employment, and Washington and Colorado strengthened existing fair employment practice laws. New Mexico and Montana passed legislation guaranteeing equal accommodation in places of public convenience, and California outlawed racial discrimination in the issuance of automobile insurance.

In Washington, D.C., the Fair Employment Board of the Civil Service Commission was abol-

* The Southern Education Reporting Service listed 15 active prosegregationist organizations, the largest of which were so-called secret citizens councils. These councils originated in Mississippi and claimed more than 60,000 members, but were also active in Alabama, Louisiana, and South Carolina. Other such groups included Georgia's State Rights Council, the Organization of Patriots of North Carolina, and Virginia's Defenders of State Sovereignty and Individual Liberties. White America, Inc., sprang up in Arkansas; the National Citizens Protective Association branched out from St. Louis into the South; and the Federation for a Constitutional Government was active in Tennessee.

ished, and a new board, with greater power and with direct responsibility to the president, was assigned the job of eliminating racial discrimination in federal employment.

The early fall of 1955 witnessed the kidnapping and murder in Mississippi (q.v.) of 14-year-old Emmett Till, a Negro from Chicago who was visiting relatives in Tallahatchie County. Although the kidnapers were plainly identified and evidence of their guilt as murderers seemed clearly proved, an all-white jury at the Sumner court house required only an hour and a half to acquit the accused. Mass meetings of protest, attended by half a million persons, were held throughout the United States. (See also CIVIL LIBERTIES; EDUCATION; LAW; and the Index entry, *Negroes*.)

LESTER B. GRANGER,
Executive Director, National Urban League.

NEHRU, Jawaharlal, prime minister of India: b. Allahabad, United Provinces, India, Nov. 14, 1889. A determined advocate of peaceful co-existence, he sought in 1955 to impress the nations of both East and West, particularly the United States, with India's desire to remain neutral in the cold war.

Educated in England at Harrow, Cambridge University, and the Inner Temple, Nehru returned to India in 1912 to become a leader in the movement for independence. In 1946 he was named head of the Executive Council and minister of external affairs in the interim Indian government. With the establishment of the dominions of Pakistan and India on Aug. 15, 1947, he became prime minister of India, a post he retained, with the post of ministry of external affairs, after India was proclaimed a republic in 1950.

During the Formosa crisis early in 1955, Nehru maintained that the offshore islands and Formosa were legal possessions of Communist China and protested what he called the "mad-house" diplomacy of the West. He nevertheless declared on several occasions that India was prepared to play the role of mediator in the area.

Desiring to foster unity and neutrality among the Asian and African nations at the Asian-African Conference (q.v.) held on April 18-24, Nehru successfully opposed the inclusion of the Formosa question in its formal agenda. His principle of neutrality was rebuffed, however, when a number of Western-oriented countries made a strong stand against Communist colonialism. In defense of his neutralism, Nehru declared to the conference that adherence to either bloc in the cold war was tantamount to relinquishing the national identity these nations had gained.

In June, Nehru embarked on a 37-day state tour that took him to Egypt, Czechoslovakia, the Soviet Union, Poland, Austria, Yugoslavia, Italy, and Great Britain. In Moscow, where he was enthusiastically received, he issued a joint statement with Premier Nikolai A. Bulganin (June 22) which called for wider application of the principles of peaceful coexistence and world recognition of Communist China's rights in regard to Formosa and to a seat in the United Nations. In Great Britain (July 8-10) his suggestion that the Formosa issue and other Asian problems be discussed at the forthcoming Geneva Conference (q.v.) of the heads of government was unfavorably received by British leaders.

On November 20, during the goodwill visit to India of Premier Bulganin and Nikita S. Khrushchev, Nehru reaffirmed his concept of

neutrality, declaring that peace and security could not be attained "by military pacts and alliances and by piling up armaments." To reassure the West that anti-Western remarks made in India by the Soviet leaders were not necessarily his own sentiments, he made it clear that India was not and had no intention of becoming a member of any military alliance. On December 13, along with the issuance of a joint statement reiterating the propositions of the Moscow statement, he announced the conclusion of a trade agreement between India and the Soviet Union. (See also INDIA.)

NEPAL. Bordered by Tibet on the north and India on the south, this independent Himalayan kingdom (area, 56,000 square miles) contains Mount Everest (29,000 feet), the world's highest mountain, and other famous peaks. The first interim census, completed in April 1955, showed a population of 8,431,537. Katmandu (est. pop., 300,000) is the capital; other principal centers are Patan (104,928) and Bhatgaon (93,176).

Government and Political Events.—King Tribhuvana (q.v.), whose reign began Dec. 11, 1911, died at Zurich, Switzerland, on March 13, 1955. His eldest son, Crown Prince Mahendra Bir Bikram Shah, who in the king's absence had headed the Council of Regency and who on March 2, 1955, had assumed responsibility for the government "for the time being," was enthroned as king of Nepal on March 14. Negotiations between King Mahendra and principal political parties on the formation of a new government continued for several months, but without result. On June 10, 1955, the king dissolved the nominated 99-member Advisory Council (boycotted by the Nepali Congress as unrepresentative and prorogued in February 1955) and announced that general elections would be held in October 1957.

John Sherman Cooper, United States ambassador to India, was accredited also to Nepal in June 1955. Negotiations begun at Katmandu in July 1955 were followed by the signing on August 1 of an agreement establishing diplomatic relations between Nepal and Communist China, which was to be represented by its ambassador to India, Gen. Yuan Chung-hsien. On December 14, Nepal was elected to membership in the United Nations.

Permission has been granted to teams representing Argentina, Japan, Switzerland, the United Kingdom, and New Zealand, planning to climb Mount Everest and other peaks in 1956.

Finances and Foreign Aid.—It was proposed that the budget deficit recorded in 1955 be met by a progressive income tax imposing a 25% maximum on annual incomes exceeding Rs.50,000, and a 5% tax on income from industrial undertakings.

Foreign trade of Nepal is chiefly with India, using in different areas the Nepali rupee and the Indian rupee (160 Nepali rupees = 100 Indian rupees). In order to promote importation of food grains, sugar, and other essentials, and at the same time to support the Nepali rupee, the Ministry of Finance announced in April 1955 that the Nepal Bank would provide Indian currency, at a fixed exchange rate, to finance importations of essential commodities.

By January 1955 the Indian government had furnished Nepal the rupee equivalent of \$13,910,000, including long-term loans and an outright grant of \$4 million under the Colombo Plan, toward development plans, including agricultural projects and construction of the Katmandu-Raxaul road (Nepal's first motor highway, linking the capital with Indian territory). In addition India gave 10,000 tons of rice, together with financial aid, to relieve acute food shortages which developed in Nepal in April 1955.

Education.—Educational facilities include Sanskrit, English middle and high schools, and primary and basic schools. In June 1955 the United States contributed \$220,000 of Point Four Program funds and the Nepalese

government, \$147,000, for the opening of 1,050 primary schools and the establishment of a training institute for teachers.

Economy.—Nepal's resources include valuable forest reserves. Principal articles of export are jute, timber, oil seeds, hides and skins, cattle, and medicinal herbs. There are 30 route miles of narrow-gauge railways. Air services are maintained between Katmandu and New Delhi.

NERVOUS SYSTEM. The renewal of brain research during the last score of years was gathering acceleration in 1955, and could be regarded as perhaps the most interesting phase of medicobiological investigation.

Severed nerve fibers of the brain and spinal cord never recover, although they do in nerves. The difference has been sought in the barrier imposed by the regrowing glia cells. Attempts to inhibit their growth, notably by Pyramen, a bacterial extract, have given conflicting results in different hands, but it now seems unlikely that any anatomical reconstitution can be expected in the central nervous system.

It is instructive to classify current anatomicophysiological studies of neural pathways as of specific or topic systems and generalized or activating systems. On the side of specific systems, each investigation accentuates the localizing aspect of organization of pathways and centers. Thus individual auditory nerve or tract fibers are found to transmit all pitches up to a certain frequency, varying with the fiber selected. Those of highest pitch are lowest in the cochlear spiral, and vice versa. Localized groups or cells in the olfactory bulb respond to certain classes of odors and not to others. For the most part, electronic analysis has confirmed the obvious function of anatomical pathways long known, but is also demonstrating the conditions of their functioning.

Anatomy was not prepared, however, for the demonstration, in the last few years, of an ascending unspecific activator system as shown by physiologic analysis. Efforts are being made to determine the structures contributing to its upper reaches. In this way the previously neglected thalamic nuclei and cerebral structures not forming a link in the specific systems are being scrutinized, with the result that interesting leads in other directions have come to notice. The intralaminar and reticular thalamic nuclei and the central nucleus of Luys are currently regarded as forming a part of this system.

Combined with this, in its leavening effect on research, is an attempt to find a plausible function for the rhinencephalon, the assemblage of interconnected paths which received its original impetus from the sense of smell, but whose development seems to have transcended the requirements of that function. One theory is that the rhinencephalon and limbic lobe of the cerebral cortex are involved in the elaboration of the emotions. Disturbed affective reactions characterize neurotic and psychotic disorders, so researchers are seeking here for a key to this problem. Thus, the septal region shows spikes in the electroencephalography (EEG) of schizophrenics, while stimulation of the septal region produces an arousal reaction. Stimulation of the activator system does not, however, improve performance of animals being subjected to training. "Thalamotomy" is said to give improvement in states of schizophrenia.

A third stimulus to localizing research is supplied by the bizarre observations after extirpation or stimulation in the temporal lobe. Extirpations of the hippocampal region result in an inability to integrate and benefit from recent experience, without affecting old memories. Perturbations in

emotional and sexual behavior continue to point to the amygdaloid region as a source, and attention is now being paid to the many subdivisions of the amygdala, formerly held to be of only remote academic interest. The amygdala is singularly devoid of obvious connections, however, and the involvement of adjacent cortical areas has never been ruled out.

In the clinical sphere, progress in the diagnosis and treatment of epilepsy continues, especially in the psychomotor type, and aided by electroencephalography. For major seizures the new drug, Mysoline, gives promise. Mesartoin may be injurious when long continued. In Parkinsonism, Artane and Pagitane are, perhaps, the most useful drugs to control the tremor.

Cervical sympathetic blocking has been reported effective in Ménière's disease, cerebral edema, and delirium tremens. General sympathetic blocking has been employed in eczema and Pick's disease.

In the field of psychosurgery, a detailed French report attempts to distinguish between the effects of the various frontal resections. Orbital resections diminish psychotic manifestations, while operations on the frontal convexity do not, although both reduce neuroticism and introversion. Anterior cingulectomy reduces irritability and violence in extroverts. There is a swing toward lateral cordotomy for relief of intractable pain, and away from lobotomy. (See also PSYCHIATRY.)

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NETHERLANDS, The, or HOLLAND. A country of northwestern Europe, bounded by Germany, Belgium, and the North Sea. Area (excluding inland water) 12,505 square miles; pop. (est. July 1, 1955), 10,747,697. About a fourth of the area lies below sea level and is protected by some 1,500 miles of dikes. Chief cities and populations (January 1955): Amsterdam, the constitutional capital, 863,802; Rotterdam, 712,513; The Hague, seat of government, 596,675; Utrecht, 243,884; and Haarlem, 166,154.

Vital Statistics.—The crude birth rate in 1954 was 21.6; the crude death rate, 7.5; and the infant mortality rate, 21.1. Life expectancy in the period 1950–52 averaged 70.6 years for men and 72.9 for women (highest in the world for both sexes). Emigrants numbered 61,411 in 1954; immigrants, 42,425.

Government.—The Netherlands is a constitutional monarchy. Queen Juliana of Orange and Nassau (b. 1909) succeeded to the throne in 1948. The Netherlands States-General is bicameral. The First Chamber, or upper house, has restricted powers; its 50 members are elected by the provincial councils for a six-year term. The Second Chamber, or lower house, has 100 members elected every four years by proportional representation. The franchise is held by subjects over 23 years of age. Principal parties are the Labor Party, which won 30 seats in the 1952 elections to the lower house, and the Catholic People's Party, which also obtained 30 seats. Dr. Willem Drees of the Labor Party headed a coalition cabinet installed on Sept. 2, 1952.

A new Statute of the Realm came into effect on Dec. 29, 1954, whereby the Netherlands, Surinam, and the Netherlands Antilles are constituted a single realm under the House of Orange. The three states have autonomy in domestic affairs, with defense and foreign relations the concern of the realm as a whole. Defense and foreign policy come under a Council of the Realm consisting of ministers appointed by the Netherlands crown and ministers plenipotentiary appointed by the two former colonies.

Education.—Illiteracy is virtually nonexistent in the Netherlands. In 1953–54 there were 9,089 elementary schools (1,580,273 pupils); 989 secondary schools (237,617); and 10 institutions on the university level (27,987). There are also many infant, technical, agricultural, housewifery, and commercial schools.

Religion.—Freedom of worship exists for all faiths. Religious affiliation in 1947 was: Netherlands Hervormde

Church, 2,988,839; other Protestant groups, 1,103,372; Roman Catholics, 3,703,526; Jews, 14,369; other creeds, 174,057; and nondenominational, 1,641,296.

Finance.—The revised estimate of the 1955 budget placed total expenditure at 7,744 million guilders (the guilder equals U.S.\$0.263), and revenue at 6,631 million, for a deficit of 1,113 million (as compared with a deficit of 610 million in the original estimate). Defense expenditure amounted to 1,356 million guilders.

Production.—The Netherlands postwar industrial advance reached new peaks in 1954. National income totaled a record 21,060 million guilders, about 9% over that of 1953. Real national income per capita rose about 5% in 1954. Industry, which employed 42% of the total working population of 4,091,000, contributed 44% of the national income (30% in 1938). The index of industrial production (1948 = 100) rose from 144 in 1953 to 158 in 1954. Output of pig-iron and ferroalloys (610,500 metric tons), crude steel (927,600 metric tons), and electricity (10,584 million kw.-hr.) set new records. Coal production (12,071,000 metric tons) was slightly below that of 1953, but output of crude petroleum (938,000 metric tons) was 14% above the 1953 level. The important textile industry recorded new highs in output of cotton yarn (68,640 metric tons), wool yarn (27,600), and rayon and acetate filament yarn (29,520). A record 68,487 dwellings were completed in 1954, making a total of 379,058 constructed since liberation. The Netherlands shipbuilding industry was the third greatest in the world in 1954. Other important Dutch industries are foodstuffs, electrical equipment, nonferrous metals, rubber goods, chemicals, leather goods, polished diamonds, pottery, and paper.

NETHERLANDS POSTWAR RECOVERY AND EXPANSION

	1938	1946	1950	1954
National income ¹ (in '000,000 guilders).....	4,904	9,326	15,624	21,060
Real national income per capita (1925–34 = 100).....	98	85	107	122
Industrial production (1938 = 100).....	100	74	139	177
Gross agricultural production (1949/50–1952/53 = 100).....	90.5 ²	62.1 ³	93.8 ⁴	112.0 ⁵
Foreign trade (quantity index, 1948 = 100):				
Imports.....	118	59	147	196
Exports.....	156	32	204	344

¹ At factor cost. ² 1938/39. ³ 1946/47. ⁴ 1949/50.
⁵ 1953/54.

Agricultural and fishing industries employed 13% of the working population in 1954 (19% in 1938) and contributed 12% of national income. Postwar rationalization and mechanization have resulted in greater output, despite the decline in workers employed. Chief crops and 1954 yields were (in thousands of bushels): wheat, 14,590; rye, 20,290; barley, 9,540; oats, 32,150; and flaxseed, 902. Potatoes (2,762,153 metric tons in 1953) and sugar beets (2,970,779) are also important. Production of milk in the crop year ended June 30, 1955, was 4,904,400 metric tons (supplied to factories); butter, 77,600; cheese, 153,100; and condensed milk, 241,400. Fish landings in 1953 totaled 343,300 metric tons.

Foreign Trade.—Imports in 1954 totaled 10,853 million guilders; exports, 9,164 million. Chief exports are dairy products, metals and their manufactures, textiles and clothing, machinery and apparatus, and chemicals; chief imports: textile fibers and manufactures, machinery and vehicles, coal, petroleum and its products, grains, and iron and steel and their manufactures. West

Germany, taking 15.9% of Dutch exports in 1954, was the Netherlands' leading customer, followed by Belgium-Luxembourg, Great Britain, and the United States. Belgium-Luxembourg supplied 17% of Dutch exports, followed by West Germany (16.7%), the United States, and Great Britain.

Transportation and Communications.—Railway lines in operation at the end of 1954 totaled 1,980 miles, of which 42% was electrified. The road network in 1954 included 8,567 miles of classified and about an equal length of unclassified roads. The Dutch merchant marine aggregated 3,375,610 gross registered tons at the beginning of 1955. K.L.M., the Dutch national airline, carried 14% more passengers and 20% more freight in 1954 than in 1953. Passenger cars numbered 258,800 in July 1955; licensed radio receivers (1953), 2,333,000; telephones (1955), 1,021,202; television licenses (April 1954), 9,000. Daily newspapers in 1952 numbered 108, with a circulation of 2,581,000.

Principal Events, 1955.—The Netherlands government in 1955 continued its support of organizations for international cooperation and liberalization of trade. On March 30, the lower house, by a vote of 71-6, approved the 1954 Paris agreements on the rearmament of Germany and the establishment of the revised Western European Union. The Senate completed parliamentary ratification on April 28 by a vote of 32-2. Addressing a Dutch student assembly at Leyden on June 18, Queen Juliana urged that the West devote itself to ending hunger and poverty in the world by providing economic aid through the United Nations and other multilateral agencies. On October 18, Queen Juliana and Prince Bernhard arrived at Willemstad, Curaçao, in the first royal tour of the newly autonomous territories of the Netherlands Antilles and Surinam. Problems outstanding between the Netherlands and Indonesia were dealt with at a ministerial conference between the two nations which began at The Hague on December 11.

Queen Juliana and Prince Bernhard visit Willemstad, Curaçao, during Netherlands Antilles tour in October 1955.



WIDE WORLD

In the domestic sphere, a major issue of the year concerned tax reductions and a rent rise. On May 17 the lower house, 50-48, rejected the government's proposed 10% rent increase for about a third of the country's dwellings. The defeat of the measure caused Premier Willem Drees to submit his resignation. After two weeks of deliberations among the government parties, it was decided on June 2 that the Drees cabinet would remain in office. The government then submitted a revised bill providing for a 5% rent rise (plus other benefits to the landlords), a 6% reduction in wage and income taxes, and abolition of turnover taxes on textiles and sugar. This measure was enacted by the lower chamber on July 8.

The Roman Catholic bishops' warning to Dutch Catholics in 1954 to shun the Labor Party and other socialistic organizations evoked further opposition by labor leaders in 1955. On February 22, at the Labor Party's fifth congress at Leyden, J. M. Willems, chairman of the Catholic Working Group within the Labor Party, rejected the bishops' admonition, declaring that "the place of the Catholic working group is and remains within the party of labor."

In a memorandum presented to the States-General on July 20, it was revealed that a foundation known as the Netherlands Reactor Center would assume responsibility for the peaceful development of atomic energy under government supervision. The foundation would also be in charge of the development of a new type of reactor designed by Netherlands scientists.

The Dutch economy in 1955 was at the crest of a boom. Industrial output in the first eight months of the year averaged 5% over the record 1954 level, foreign trade set new records, and unemployment was minimal. Nevertheless, there was some uneasiness, as rising costs accompanied capacity output levels. Exports, while high, were being outpaced by rising imports, and Finance Minister Johan van de Kieft warned in October against exchange difficulties, particularly in the dollar balance.

NETHERLANDS ANTILLES (formerly NETHERLANDS WEST INDIES). An autonomous unit of the Kingdom of the Netherlands comprising two groups of islands in the Caribbean Sea. Area, 366 square miles; pop. (Dec. 31, 1953), 180,776, chiefly Negroes and persons of mixed descent. Willemstad (44,062) on Curaçao is the capital. Dutch is the official language, although a lingua franca called Papiamentu is popularly used.

The three larger islands—Curaçao (173 sq. mi.; pop., 114,683), Aruba (69 sq. mi.; pop., 57,303), and Bonaire (95 sq. mi.; pop., 5,386)—lie off the coast of Venezuela. The three smaller islands—St. Martin (of which the northern part is French), St. Eustatius, and Saba—are east of Puerto Rico.

Government.—Under the Statute of the Realm, promulgated on Dec. 29, 1954, the Netherlands Antilles has internal autonomy. Defense and foreign affairs are decided by a Council of the Realm (at The Hague), to which the Netherlands Antilles appoints a minister plenipotentiary. A Dutch governor represents the Netherlands sovereign in the Antilles. A 6-member executive council appointed for 4 years is responsible to the Staten, whose 22 members are popularly elected for a 4-year term. The 1954 budget of the central government placed revenue at 32,821,061 Netherlands Antilles guilders and expenditure at 32,713,797.

Education and Religion.—In 1954 there were 129 schools with 38,378 pupils. Higher education is offered by the Peter Stuyvesant College at Willemstad and by 2 Roman Catholic schools. The population is predominantly Roman Catholic.

Economy.—Of chief importance are the huge petroleum refineries (two on Aruba, one on

Curaçao) which refine crude oil imported from Venezuela. Exports of petroleum products totaled 41,458,666 metric tons in 1953. Phosphate is mined on Curaçao. Crops include aloes, sorghums, beans, corn, and tropical fruits, but the islands depend on imports for most foodstuffs. Imports in 1954 totaled 1,544 million Netherlands Antilles guilders; exports (predominantly petroleum products), 1,455 million. Trade is mainly with the Netherlands, the United States, and the United Kingdom.

Transportation and Communications.—Surfaced highways totaled 459 miles in 1953. Hato Air Field on Curaçao is an important air depot. Motor vehicles on Curaçao and Aruba numbered 13,767 in 1953; telephones, 7,215 (1955). Steps were being taken in 1955 to create Willemstad a free port.

Principal Events, 1955.—Queen Juliana and Prince Bernhard of the Netherlands arrived at Willemstad on Oct. 18, 1955, on a 10-day royal tour of the Netherlands Antilles. The visit—the first by a Dutch sovereign to the territory—stressed the theme of the former colony's newly won autonomy.

NETHERLANDS EAST INDIES. See INDONESIA.
NETHERLANDS GUIANA. See SURINAM.

NETHERLANDS NEW GUINEA (WEST IRIAN). The western half of the island of New Guinea in the southwestern Pacific, including the Schouten Island, Japen, Noemfoor, Salawati, Frederik Hendrik Island, and other adjacent islands. Area, 159,375 square miles; pop. (est. 1954), 700,000, including 14,235 Europeans (mainly Dutch), and 16,115 nonindigenous Asians (chiefly Indonesians and Chinese). The natives are Papuan, Negrito, and Melanesian tribesmen. Hollandia (11,322) is the capital.

The territory is ruled by a Dutch governor aided by a council of the heads of the administrative services. The population of the area brought under administration is about 400,000. The 1954 budget provided for expenditures of 106,530,600 guilders, of which 57,599,100 was contributed by the Netherlands and the remainder derived locally. In 1954 there were 521 village schools (23,918 pupils), 15 continuation schools (1,792), 10 general primary schools (2,009), and 11 European primary schools (1,230). There are also schools for technical and specialized instruction. Christians number about 200,000; Moslems, about 16,000.

The natives subsist chiefly on coconuts, yams, taro, bananas, sago, and other food plants. There is some livestock raising and fishing. Oil deposits at Sorong, exploited by the Netherlands New Guinea Petroleum Company, yielded 554,265 metric tons of crude petroleum in 1954, roughly double the 1953 output. Exports totaled 31,415,400 guilders in 1954 (provisional); imports, 74,216,600. Chief exports were petroleum (500,471 metric tons valued at 26,443,800 guilders), copra, crocodile skins, and copal. The territory is served by 2 international airlines.

Sovereignty over Netherlands New Guinea (termed West Irian by the Indonesians) has been in dispute between the Netherlands and Indonesia since 1949, when Indonesia obtained independence. Following several alleged Indonesian infiltration raids on coastal areas in the territory, it was announced at The Hague on Jan. 26, 1955, that Dutch reinforcements had been sent by air to Netherlands New Guinea.

NETHERLANDS WEST INDIES. See NETHERLANDS ANTILLES.

NEUROLOGY. See NERVOUS SYSTEM.

NEVADA. Western state, United States, admitted to the Union, Oct. 31, 1864. The "Silver

State" ranks 6th in area and last in population (1955) among the 48 states.

Area and Population.—Area: 110,540 square miles (land, 109,789; inland water, 751), divided into 17 counties. Population: (1950) 160,083; (est., July 1, 1955) 216,000. Populations (1950) unless otherwise specified) of the state capital and of urban places with more than 5,000 inhabitants are: Carson City, the capital, 3,082; Elko, 3,393; Las Vegas (special census, April 1, 1955), 44,795; Reno, 32,497; and Sparks, 8,203.

Executive.—Chief state officers in 1955:

Governor: Charles H. Russell (Republican)

Lieutenant Governor: Rex Bell

Secretary of State: John Koontz

Treasurer: Dan W. Franks

Attorney General: Harvey Dickerson

Supt. of Public Instruction: Glenn A. Duncan

Constitution and Judiciary.—The present constitution went into effect in 1864. The Supreme Court comprises three justices; chief justice in 1955 was Charles M. Merrill.

Legislature.—The Legislature (Senate, 17 members; Assembly, 47) meets in odd-numbered years commencing the third Monday in January.

Major tax enactments of the 1955 session of the legislature included establishment of a 2% sales tax; a half cent increase in gasoline and diesel fuel taxes; increased taxes on the gross intake of gambling casinos; a mandatory 70-cent school tax on all property in each county; and an increase in fees for car registration and for motor carriers. Other laws initiated a state and federally financed program of aid to dependent children; approved the Uniform Reciprocal Enforcement of Support Act; stiffened narcotics laws; outlawed the sale of lurid comics; enacted an 87%-cent minimum hourly wage law for female employees over 18; restricted the sale of firearms to anyone under 18; took initial action on an amendment to provide annual legislative sessions; and made extensive revision of laws pertaining to school organization and administration. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1953–54 fiscal year), \$33,055,090.28; expenditures, \$33,492,134.06; treasury balance, \$10,935,273.90; long-term indebtedness, \$1,530,000.

Taxation.—State tax receipts (1954–55 fiscal year): \$18,282,468.99, including \$7,439,515.78 from selective sales and gross receipts taxes; \$7,718,790.07 from licensing; and \$3,124,163.14 from property taxes. The state has no individual or corporate income taxes but does have a poll tax of \$3 per male.

Banking.—As of June 30, 1955, the state's 5 national banks had \$232,250,000 in assets, \$142,361,000 in demand deposits, and \$73,426,000 in time deposits; the state's 3 other banks had \$72,295,175.75 in assets, \$36,725,813.70 in demand deposits, and \$17,705,989.13 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 18, inclusive. Operating expenditures of \$9,664,312 (\$271.16 per pupil) for public elementary and secondary schools in the 1953–54 fiscal year comprised \$4,851,485 from local school districts, \$4,001,025 from the state, and \$811,802 from the federal government. Expenditures for construction and improvements totaled \$5,449,806. Teachers' salaries averaged \$4,067 (elementary school teachers, \$3,966; high school teachers, \$4,253).

In the 1953–54 school year there were 194 public elementary schools with 1,311 teachers and 33,982 pupils; 36 public secondary schools with 433 teachers and 9,176 pupils; and 12 private and parochial elementary and high schools with 64 teachers and 1,907 pupils.

Social Welfare.—Public welfare expenditures of state and federal funds (excluding institutional costs) for the 1954–55 fiscal year totaled \$989,806.12, including \$892,121.14 for old-age as-

NEVADA WELFARE INSTITUTIONS

(As of July 1, 1955)

Type of institution	No.	Pop.
Hospitals for the mentally ill.....	1	439
Homes for dependent children.....	1	73
Training schools for delinquent boys.....	1	6
Training schools for delinquent girls.....	1	38
Prisons.....	1	331
Prison farms.....	1	17

sistance and \$97,684.98 for dependent children; a monthly average of 2,748 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$660,801.24; for correctional and penal institutions, \$427,614.85.

Labor Force.—The estimated labor force in March 1955, according to Nevada Employment Security Department figures, was 96,300, including 6,900 agricultural workers. "Covered" employment for the same date was 61,600, and for the 12 months ending March 1954 totaled 52,300. Total estimated unemployment in March 1955 was 5,200. The state paid \$3,444,748 in unemployment compensation during 1954.

Manufacturing.—Establishments numbering 190 in 1954 employed 4,564 workers who received \$20,681,342 in salaries and wages. Value added by manufacture was an estimated \$36,700,000. In 1953, \$4,794,000 was invested in new plant and equipment. Earnings of production workers in manufacturing in 1954 averaged \$86.43 for an average work week of 40.2 hours, and in the first six months of 1955 averaged \$86.69 for 38.7 hours.

Principal manufactures in 1954 were: iron, steel, and allied products (1,019 employees; \$5,502,783 in salaries and wages); chemicals and allied products (758; \$3,281,262); printing and publishing (698; \$2,427,092); lumber and timber products (543; \$2,336,077); food and kindred products (524; \$2,241,582); stone, clay, and glass products (417; \$1,576,786); and non-electrical machinery (287; \$1,037,874).

Mining.—Nevada ranked first among the states in 1953 in output of tungsten concentrates, second in magnesite, manganese, mercury, perlite, and diatomite, and third in barite and antimony. The state ranked 28th in the value of its 1953 mineral output, with 0.51% of the United States total. There were 7,404 persons employed in the state's mineral industries on March 15, 1955, including 799 in the processing of chemicals and 1,140 in the processing of minerals in manufacturing.

NEVADA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Barite.....	99,525	\$ 614,686
Copper.....	61,850 ¹	35,501,900
Gold (ounces).....	101,799	3,562,965
Gypsum.....	701,584	1,975,053
Iron ore (long tons).....	444,081	2,647,859
Lead.....	4,371	1,145,202
Mercury (76-pound flasks).....	3,254	628,120
Sand and gravel.....	2,266,064	2,088,948
Silver (ounces).....	697,086	630,888
Stone ²	1,035,568	1,399,529
Tungsten concentrate (60% WO ₃).....	3,683 ³	13,824,238
Zinc.....	5,812	1,336,760
Other minerals.....		8,166,819
Total.....		\$73,522,977

¹ Production in 1954: 71,630 tons (\$42,548,220). ² Excluding that used in making lime. ³ Production in 1954: 5,080 tons (\$20,357,000). (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$16,599,000, and for the full year 1954 comprised \$33,948,000 from livestock and livestock products, \$5,646,000 from crops, and \$373,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$22,648,000; sheep, \$3,675,000; dairy products, \$3,440,000; and hay, \$3,144,000. The state's 2,857 farms (8,230,240 acres; harvested cropland, 359,859) had an average of 2,880.7 acres and \$59,774 in value of land and buildings per farm in 1954. There were 1,772

farms with telephones and 2,319 with electricity. Livestock on farms (Jan. 1, 1955) included 625,000 cattle and 454,000 sheep. During the week of Sept. 26–Oct. 2, 1954, 7,086 family and hired workers were engaged in farming.

NEVADA CROP STATISTICS

Crop (And unit of production)	Average 1944–53	1954	Est. 1955
Barley (1,000 bu.).....	741	660	560
Hay (1,000 tons).....	616	490	468
Oats (1,000 bu.).....	341	287	246
Potatoes (1,000 bu.).....	488	510	629
Wheat (1,000 bu.).....	503	327	224

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State funds disbursed for roads and highways in 1954 totaled \$12,624,000.

Highways and roads on Oct. 20, 1954, totaled 27,000 miles (3,915 surfaced). Registered *motor vehicles* numbered 115,940, on the same date, including 82,479 passenger cars. There were 6 *railroads* (1955) which, in 1954, operated 1,586.55 line miles, and (1955) there were 4 regularly scheduled *airlines* and (1954) 79 *airports and airfields* (26 commercial and municipal and 53 limited-use fields).

Communications media (1955) included 10 AM and 2 FM *radio stations* and 2 operating *television outlets*; 8 daily newspapers (circulation, 69,602) and 22 other *newspapers*; and (Jan. 1, 1955) 28,667 business and 39,779 residential *telephones*.

Principal Events, 1955.—Southern Nevada's proving ground for atomic and hydrogen bomb tests at Yucca Flat, near Las Vegas, saw a new series of atomic explosions during 1955 (see ATOMIC ENERGY). Reno's Stead Air Force Base survival school was nationally spotlighted in the press in September for its alleged "torture chamber" and "brainwashing" training techniques.

The University of Nevada was being investigated in 1955 by the American Association of University Professors and also by an outside group set up by the state legislature. These actions were an outgrowth in part of the ouster of Biology Department chairman Frank Richardson in 1953 by President Minard Stout and the Board of Regents, and Richardson's reinstatement in 1954 by order of the Nevada Supreme Court.

In the meantime the university was continuing to expand by establishing a new Nevada Southern branch at Las Vegas, by sponsoring college-level work in Libya, and by creating new colleges on the Reno campus, especially in agriculture, with a \$3 million grant from the Max Fleischmann estate.

Although Las Vegas gambling resorts experienced a slump in 1955, six new plush casino-hotels were scheduled to open. The first interracial gaming resort and hotel was closed, after five months, owing to creditor claims. Former boxing heavyweight champion Joe Louis was a sponsor. Entertainers at top rates at other hotels included Marlene Dietrich, Eartha Kitt, Frank Sinatra, Noel Coward, and Patrice Munsel.

Nevada's 1955 legislature (see above, *Legislature*) voted a 2% sales and use tax, the state's first such levy. It was imposed primarily to meet costs of fulfilling recommendations from the Peabody Institute, after a survey, as to the needs of state schools. Later in the year, petitions were filed which resulted in a popular referendum vote scheduled for November 1956 on repeal of the tax. In other actions the legislature raised gambling taxes, with the new sliding scale tax of from 3% to 5½% on gross receipts expected to double the annual \$2 million revenue from the old 2% gambling tax. With a new three-man Gambling Control Board established, the state

Tax Commission was given tighter controls over gambling licenses.

Principal Events by:

AUSTIN E. HUTCHESON,

Professor of History, University of Nevada.

NEW BRUNSWICK. This Maritime province of Canada has an area of 27,985 square miles, of which 512 square miles are water. Its population (1955 est.) was 535,000. The cities are Fredericton, the capital, 16,018; St. John, 50,779; Moncton, 27,334; Edmundston, 10,753; and Lancaster (St. John West), 10,901.

Government.—New Brunswick is represented in the Canadian Parliament by 10 senators and 10 members of the House of Commons. In the province, the crown is represented by a lieutenant governor (Hon. D. Laurence MacLaren, since Nov. 1, 1954), appointed by the federal government, usually upon a recommendation from the province. The premier presides over a Legislative Assembly of 52 members, elected for terms of five years. In 1953, Hon. Hugh John Flemming, premier and minister of public works, headed a Progressive Conservative regime of 36 members. The Liberal opposition held the remaining 16 seats.

Finances.—For the fiscal year ending March 31, 1955, revenues amounted to \$53,387,000; expenditures, \$53,311,000; and surplus, \$75,773.

Education.—Primary and secondary education are nonsectarian and free, and attendance is compulsory for all children, aged 7 to 16, inclusive. Enrollment at the conclusion of the June 1955 term was 120,643. The province has 8 institutions granting degrees: the provincially controlled University of New Brunswick, Fredericton; Mount Allison University, Sackville; St. Joseph's University, Memramcook; St. Thomas College, Chatham; Sacred Heart College, Bathurst; St. Louis University, Edmundston; and College de L'Assomption, and College Notre Dame, at Moncton. Total reported enrollment for college institutions in 1955 was 2,607.

Fisheries.—New Brunswick's fisheries comprise a \$20 million to \$22 million-a-year industry and employ over 12,000 persons in the province. More kinds of fish are taken in commercial quantities than in any other Canadian province, chief varieties being flounder, pollack, herring, sardines, cod, salmon, smelt, alewives, lobsters, oysters, and clams. New Brunswick has long been known as the center of the Canadian sardine industry; it has the largest sardine cannery in the Commonwealth, and it is the largest exporter of live lobsters.

Agriculture.—Gross farm income from agriculture in 1954 amounted to \$64,721,000. Potato acreage in 1955 was 47,000, yielding 13,630,000 bushels. Wheat acreage was 2,200, yielding 42,000 bushels; oats, 137,000 acres, yielding 4,110,000 bushels; barley, 6,700 acres, yielding 134,000 bushels; mixed grain, 7,400 acres, yielding 200,000 bushels; buckwheat, 7,200 acres, yielding 180,000 bushels; hay, 458,000 acres, producing 916,000 tons; field roots, 3,000 acres, yielding 38,000 tons. Grain production in 1955 showed a good average crop, but yield was somewhat below the 1954 crop. The 1955 hay, potato, and apple crops showed good yield. Livestock, poultry, apples, and small fruits are also important agricultural products.

Electric Power.—The government, through the New Brunswick Electric Power Commission, is increasing available power for a greater utilization of natural resources. Under way in 1955 was a new project at Beechwood, 15 miles south of Perth and Andover. The design under study in 1953 suggested a maximum of 135,000 hp. from three units of 48,000 hp. each. The newly opened hydroelectric plant at Tobique Narrows has added 27,000 hp. to the system. Estimated annual output from Tobique is 80,000,000 kw.-hr. The overall power plan for the province aims at a combination of hydro- and steam-generated current. At the Grand Lake Steam Electric plant,

fired by coal from the Minto-Chipman field, the last of three recent extensions embraces a 200-pounds-per-hour steam plant and a 25,000 hp. steam turbine.

Minerals.—The value of New Brunswick mineral production exceeded \$12,600,000 in 1954. Coal, the chief item, totaled 784,385 tons, compared with 722,463 in 1953. Coal production for 1954 was valued at \$6,230,000. In both 1954 and 1955 there was intensive activity in mining exploration throughout the province. It was initiated by the announcement in January 1953 of the finding of an exceptionally large base metal ore body near Bathurst in the northeastern part of the province. There have also been discoveries of radioactive minerals near Harvey and in Restigouche County, nickel deposits at St. Stephen, manganese near Woodstock, titanium in the northern section, tungsten in York, and other base metals near Bathurst and in the central section. Ore is now being shipped from the Bathurst area.

Forest Industries.—The seven pulp and paper mills in New Brunswick used 1,050,000 cords of pulpwood in 1954. Total value of products of the forest industries in 1954 is estimated as follows: products of pulp and paper mills, \$102,000,000; products of sawmills, \$29 million; pulpwood and pit props, \$12 million; and firewood, \$8 million.

Transportation.—The province is served by sections of the Canadian National Railways; and the Canadian Pacific, which crosses the southwestern part of the province, has its Atlantic terminal in St. John. Airports are located at Moncton, Chatham, Fredericton, and St. John, with Trans-Canada Air Lines linking with all Canadian and United States airways. New Brunswick's highway system comprises 13,121 miles, with 1,487 main trunks, 1,014 secondaries, and 10,620 branches.

Principal Events, 1955.—Important events of the year 1955 included intensive development of the province's new base metal finds; start of the great Beechwood hydroelectric power project; further expansion and building of a major military training area between Welsford and Oromocto; an increased paving and road-building program; and more intensive effort in the development of the tourist industry.

R. A. TWEEDIE,

Director, New Brunswick Travel Bureau.

NEW CALEDONIA. A French territory in the eastern South Pacific. Area (with dependencies), 9,401 square miles; pop. (est. 1953), 62,315, including 34,143 native Melanesians, 20,415 Europeans (mostly French), and 7,757 workers from Viet-Nam and Java. Nouméa (pop. 1946, 10,466) is the capital. The dependencies include the Loyalty Islands, Wallis and Futuna Islands, Isle of Pines, and the smaller Huon Islands, Chesterfield Islands, Walpole Island, and Belep Islands. The governor, who is also the French high commissioner in the Pacific, is aided by a privy council and an elected General Council of 25 members. The budget for 1954 totaled 595 million francs CFP (the franc CFP equals 5.50 metropolitan francs). In 1954 there were 201 primary schools (12,163 pupils); 4 secondary schools (591); and 7 technical schools.

Mining and metallurgy are of chief economic importance. Output of nickel ore in 1954 was 520,000 metric tons; chromite, 83,900; and manganese ore, 5,600 (1953). Other products are coffee, copra, cotton, manioc, tobacco, and bananas. Industries include metallurgical plants,

coffee and cotton mills, and meat-preserving factories. In 1955 the General Council approved a plan for the construction of a \$29 million hydroelectric plant to lessen the cost of nickel production. Exports (mainly ores and metals) totaled 1,576 million francs CFP in 1954; imports, 1,435 million. Roads totaled 1,658 miles in 1953; motor vehicles numbered 4,255 (1955); telephones, 1,989 (1955). Nouméa is serviced by international steamship lines and airlines. The territory's first domestic airline was formed in 1955.

NEW GUINEA. This second largest island in the world, lying north of Australia in the western Pacific, has an area of 342,912 square miles and a population exceeding 2,500,000; it comprises Netherlands New Guinea (q.v.), and two Australian-administered areas: the Territory of Papua, and North Eastern New Guinea, the latter being part of the United Nations trust territory of New Guinea (see PAPUA AND NEW GUINEA, TERRITORY OF).

NEW HAMPSHIRE. New England state, United States; one of the original 13 states. The "Granite State" ranks 43d in area and 44th in population (1955) among the 48 states.

Area and Population.—Area: 9,304 square miles (land, 9,017; inland water, 287) divided into 10 counties. Population: (1950) 533,242; (est., July 1, 1955) 553,000. Urban places with 1950 populations above 10,000 are as follows:

Berlin.....	16,615	Laconia.....	14,745
Claremont.....	12,811	Manchester.....	82,732
Concord (capital).....	27,988	Nashua.....	34,669
Dover.....	15,874	Portsmouth.....	18,830
Keene.....	15,638	Rochester.....	13,776

Executive.—Chief state officers in 1955:

Governor: Lane Dwinell (Republican)

Secretary of State: Enoch D. Fuller

Treasurer: Alfred S. Cloues

Attorney General: Louis C. Wyman

Commissioner of Education: Austin J. McCaffrey

Constitution and Judiciary.—The present constitution went into effect in 1784. The Supreme Court comprises five justices; chief justice in 1955, Frank R. Kenison.

Legislature.—The General Court (Senate, 24 members; House of Representatives, 400) meets in odd-numbered years commencing the first Wednesday in January.

In a 93-day legislative session (January 5-August 5) encompassing the greatest volume of legislative business in the state's history, the General Court appropriated almost \$100 million for the 1955-57 biennium, including \$40 million for highway construction and \$1.5 million for capital improvements in institutions. Tax measures increased from 5% to 6% the state's share of parimutuel horse racing, and effected minor rises in business fees. The state's program of equalized aid to education was increased to \$2.4 million, and state aid for school construction was authorized. Funds were provided for a 1956 constitutional convention; bonuses were voted for Korean War veterans; political campaign spending was restricted; the state retirement system was integrated with social security; an Industrial Development Authority was established, with a \$1 million bond issue for its activities; the legal minimum wage was increased to 75 cents an hour; maximum benefits were increased under unemployment and workmen's compensation; and various measures were passed concerning agriculture, highway safety, abandoned ice-boxes, and refusal to yield a party telephone line in cases of emergency. Other enactments approved recodification of state laws; coordinated developments in atomic energy as they may affect business and industry; liberalized veterans tax exemptions; authorized advisory regional planning commissions; directed a study of the redistricting of senatorial districts; and ratified interstate compacts on juveniles and higher education.

Finances.—State treasury receipts (1954-55 fiscal year), \$70,117,746.31; expenditures, \$79,854,035.49; treasury balance, \$8,454,824.64; long-term indebtedness, \$37,715,000; temporary notes outstanding (June 30, 1955), \$3,500,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$27,554,000, including \$14,642,000 from selective sales and gross receipts taxes; \$7,289,000 from licensing; \$1,426,000 from individual income taxes; and \$1,712,000 from property taxes. The state has no general sales

or corporate income taxes but does have a poll tax of \$5 per person.

Banking.—As of June 30, 1955, the state's 51 national banks had \$244,445,000 in assets, \$170,546,000 in demand deposits, and \$46,336,000 in time deposits; the state's 58 other banks had \$547,155,781.82 in assets, \$20,119,799.98 in demand deposits, and \$456,171,089.68 in time deposits.

Education.—In municipalities which have a high school, school attendance is compulsory for all between the ages of 6 and 16, inclusive; in those with no high school, attendance is compulsory for all between the ages of 6 and 14, inclusive. Estimated expenditures for public elementary and secondary education in the 1954-55 school year were \$20,901,000 (\$253 per pupil) and estimated income comprised \$19,998,000 from local school districts, \$949,000 from the state, and \$713,000 from the federal government. Expenditures for construction and improvements were an estimated \$2,990,000, and teachers' salaries averaged approximately \$3,360 (elementary school teachers, \$3,175; high-school teachers, \$3,650).

Estimated pupil enrollment in the 1954-55 school year totaled 83,733, including 59,290 elementary school pupils and 24,443 secondary school pupils (including grades 7 and 8 of junior high schools).

Social Welfare.—Public welfare expenditures (exclusive of institutional costs) from state and federal funds in the 1954-55 fiscal year totaled \$7,546,582.21, including \$4,771,267.96 for old-age assistance, \$1,505,060.57 for dependent children, and \$223,759.02 for the needy blind; a monthly average of 10,735 persons received public assistance. Operating expenditures for health and welfare institutions in the 1953-54 fiscal year totaled \$4,745,402; for correctional and penal institutions, \$686,756.

NEW HAMPSHIRE WELFARE INSTITUTIONS

(As of Sept. 1, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic....	1	695
Hospitals for the mentally ill.....	1	2,711
Sanatoriums for the tubercular.....	2	86
Soldiers and sailors homes.....	1	32
Training schools for delinquent boys and girls....	1	130
Prisons.....	1	182

Labor Force.—The labor force in March 1955 totaled 218,250, including 13,700 agricultural workers. Nonagricultural workers numbered 173,793, and for the full year 1954 averaged 174,690. In March 1955 there were 10,550 unemployed workers, and the state paid \$8,626,352 in unemployment compensation during 1954.

Manufacturing.—In 1953, 88,771 workers received \$272,833,000 in salaries and wages. Value added by manufacture was \$427,126,000, and investment in new plant and equipment was \$14,581,000. Earnings of production workers in manufacturing averaged \$57.46 for an average

MAJOR NEW HAMPSHIRE MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ²
Textile mill products.....	17,879	\$55,327	\$84,536
Leather and leather products....	21,670	60,056	84,283
Paper and allied products.....	6,546	26,185	48,897
Printing and publishing.....	2,833 ^a	9,166 ^a	10,960 ^a
Food and kindred products....	1,895 ^a	5,885 ^a	9,106 ^a

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. ^a 1952 figures. (Source: Annual Survey of Manufactures, 1953.)

work week of 39.9 hours in 1954, and \$60.42 for 41.1 hours in the first six months of 1955.

Mining.—Although New Hampshire ranked 46th among the states in value of mineral output in 1953, it stood second in the production of sheet mica, third in sharpening (abrasive) stones, and fourth in feldspar.

NEW HAMPSHIRE MINERAL PRODUCTION, 1953
(In short tons, except as noted)

Mineral	Quantity	Value
Feldspar.....	28,961	\$ 286,069
Mica, sheet.....	90,716	382,680
Sand and gravel.....	2,249,001	506,156
Stone.....	76,701	538,897
Other minerals.....	...	90,993
Total.....	...	\$1,804,795

(Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$31,299,000, and for the full year 1954 comprised \$55,795,000 from livestock and livestock products, \$11,029,000 from crops, and \$250,000 from government payments. Receipts from principal crops and livestock in 1954 included: eggs, \$19,804,000; dairy products, \$19,457,000; broilers, \$6,078,000; chickens, \$5,446,000; greenhouse and nursery products, \$2,290,000; and apples, \$2,045,000.

The state's 10,411 farms (1,457,293 acres; harvested cropland, 246,583) had an average of 140 acres and \$11,650 in value of land and buildings per farm in 1954. There were 8,207 farms with telephones and 10,131 with electricity. Livestock on farms (Jan. 1, 1955) included 118,000 cattle and 2,995,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 17,768 family and hired workers engaged in farming.

NEW HAMPSHIRE CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	883	800	1,460
Corn (1,000 bu.).....	567	645	658
Hay (1,000 tons).....	404	383	402
Maple sirup (1,000 gals.).....	52	68	57
Maple sugar (1,000 lb.).....	15	6	3
Oats (1,000 bu.).....	211	120	70
Potatoes (1,000 bu.).....	1,137	988	954

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$24,798,291, and newly completed construction and reconstruction aggregated 65 miles.

Highways and roads on Jan. 1, 1955, totaled 13,675 miles (6,671 surfaced). Registered *motor vehicles* (April 1-Sept. 1, 1955) numbered 219,976, including 161,123 passenger cars. There were (1954) 7 *railroads* operating 877.33 line miles and (1955) 2 regularly scheduled *airlines* and 27 *airports and airfields* (17 commercial and municipal, 2 military, and 5 private, and 3 seaplane bases).

Communications media (1955) included 12 AM and 4 FM *radio stations* and 1 operating *television outlet*; 9 daily *newspapers* (circulation, 98,374) and 42 other newspapers; and (Jan. 1, 1955) 43,349 business and 123,531 residential *telephones*.

Principal Events, 1955.—Politically, 1955 was an off-year in New Hampshire. Only at the local level were elections held. At the town meetings in March the state's 223 towns chose their officers, and in November eight of the state's 12 cities elected their councils and, in most cases, a mayor. Inasmuch as most of the contests were nonpartisan and were decided on local issues, no significant trend toward either political party was discernible. The nearly successful attempt in the



PHOTO BY SWENSON, COURTESY CONCORD (N.H.) MONITOR

President Eisenhower (left), with N.H. senators Cotton and Bridges, Governor Dwinell, and Press Secretary Hagerly, shown on June 24, 1955, at the Old Man of the Mountains sesquicentennial celebration, Franconia Notch, N.H.

legislature to legalize a state lobby aroused the most interest, politically, in 1955. (See also above, *Legislature*.)

Late in June, President Dwight D. Eisenhower made a three-day tour of the state. On June 23 he spoke briefly to 15,000 people from the steps of the State House in Concord and to 3,500 others at a barbecue outing at Belknap State Park in Gilford. On June 24 he and his party drove to Lincoln, home of former Gov. Sherman Adams, presidential chief of staff, and then to Franconia Notch, where he spoke to a crowd of 2,500 gathered to commemorate the white man's discovery of the Old Man of the Mountains 150 years earlier. The next day the president visited Lancaster and Berlin. At the farm of Secretary of Commerce Sinclair Weeks, in Lancaster, he signed the ratification document of the Austrian State Treaty.

On August 20 the Frederick E. Everett Turnpike was opened from Manchester to the Massachusetts border, a distance of 21.6 miles, and construction continued on the Spaulding Turnpike from Portsmouth to Rochester and on the jet-bomber base at Newington.

New Hampshire was spared the torrential rains which flooded much of southern New England in August and October. Except for a few local forest fires and flash floods, the state passed through the year without a major disaster.

Principal Events by: ROBERT B. DISHMAN,
Associate Professor of Government, University of New Hampshire.

NEW HEBRIDES. See WESTERN PACIFIC ISLANDS, BRITISH.

NEW JERSEY. Middle Atlantic state, United States; one of the original 13 states. The "Garden State" ranks 45th in area and 8th in population (1955) among the 48 states.

Area and Population.—Area: 7,836 square miles (land, 7,522; inland water, 314), divided into 21 counties. Population: (1950) 4,835,329; (est., July 1, 1955) 5,370,000. Incorporated places with 1950 populations above 15,000 are as follows:

Asbury Park.....	17,094	Millville.....	16,041
Atlantic City.....	61,657	Montclair.....	43,927
Bayonne.....	77,203	Morristown.....	17,124
Belleville.....	32,019	New Brunswick.....	38,811
Bergenfield.....	17,647	Newark.....	438,776
Bloomfield.....	49,307	North Arlington.....	15,970
Bridgeport.....	18,378	Nutley.....	26,992
Camden.....	124,555	Orange.....	38,037
Cliffside Park.....	17,116	Passaic.....	57,702
Clifton.....	64,511	Paterson.....	139,336
Collingswood.....	15,800	Perth Amboy.....	41,330
East Orange.....	79,340	Phillipsburg.....	18,919
East Paterson.....	15,386	Plainfield.....	42,366
Elizabeth.....	112,817	Rahway.....	21,290
Englewood.....	23,145	Ridgewood.....	17,481
Fair Lawn.....	23,885	Roselle.....	17,681
Garfield.....	27,550	Rutherford.....	17,411
Hackensack.....	29,219	South Orange.....	15,230
Hoboken.....	50,676	Summit.....	17,929
Irvington.....	59,201	Trenton (capital).....	128,009
Jersey City.....	299,017	Union City.....	55,537
Kearny.....	39,952	Vineland*.....	
Linden.....	30,644	West New York.....	37,683
Lodi.....	15,392	West Orange.....	28,605
Long Branch.....	23,090	Westfield.....	21,243

* Created a city in 1952 by the merger of Vineland borough (1950 pop., 8,155) and Landis Township (21,418).

Executive.—Chief state officers in 1955:

Governor: Robert B. Meyner (Democrat)
Secretary of State: Edward J. Patten
Treasurer: Archibald S. Alexander (resigned Dec. 5, 1955)

Attorney General: Grover C. Richman, Jr.
Commissioner of Education: Frederick M. Raubinger

Constitution and Judiciary.—The present constitution went into effect in 1948. The Supreme Court comprises seven justices; chief justice in 1955 was Arthur T. Vanderbilt.

Legislature.—The Legislature (Senate, 21 members; General Assembly, 60) meets annually commencing the second Tuesday in January.

In a series of legislative meetings extending throughout the year, the legislature approved appropriations of \$284,396,748 for the 1955-56 fiscal year, including \$5.6 million for flood relief, \$1.5 million for a program for mentally retarded children at the Bordentown Manual Training School, and an increase of \$5 million in the highway construction appropriation. Truck overloading minimum fines were reduced from \$200 to \$50; more effective enforcement of motor vehicle safety laws was insured; and motor vehicle registration and licensing laws were revised, including the introduction of a new mail order system for auto licensing and registration. Maximum unemployment and temporary disability benefits were increased from \$30 to \$35 (effective after October 1) for persons who had earned \$55.01 or more weekly, and a commission was established to study child labor laws. The teachers' pension system was integrated with social security, and new rules were effected for the organizing and financing of school districts. The Turnpike Authority was authorized to build an east-west superhighway from Somerville to South Amboy, and air pollution and metropolitan rapid transit studies were authorized. (See also below, *Principal Events*, 1955.)

Finances.—State treasury receipts (1954-55 fiscal year), \$500,341,096.91; expenditures, \$506,701,627.21; treasury balance, \$42,530,857.48; long-term indebtedness, \$115,106,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$238,081,000, including \$136,257,000 from selective sales and gross receipts taxes; \$86,160,000 from licensing; and \$12,795,000 from death and gift taxes. The state has no general sales, individual or corporate income, or poll taxes.

Banking.—As of June 30, 1955, the state's 194 national banks had \$3,291,971,000 in assets, \$1,788,730,000 in demand deposits, and \$1,249,586,000 in time deposits; the state's 134 other banks had \$3,845,446,000 in assets, \$1,502,177,000 in demand deposits, and \$2,016,071,000 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$228,836,781.01 (\$306.85 per pupil) for public elementary and secondary education in the 1953-54 school year comprised \$200,574,513.82 (87.6%) from local school districts, \$27,000,123.60 (11.8%) from the state, and \$1,262,143.59 (0.6%) from the federal government. Expenditures for construction and improvements totaled \$53,993,176.77.

Teachers' salaries averaged \$4,655 in the 1955-56 school year.

The state paid \$14,047,705.25 in the 1953-54 school year for the operation of institutions of higher learning and \$3,362,991.02 for construction and major improvements.

NEW JERSEY SCHOOL STATISTICS, 1955

Type of School	No.	Teachers	Students
Public elementary (k-8).....	23,836 ¹		654,973 ¹
Public senior high (9-12).....	10,502 ¹		180,436 ¹
Private trade and public vocational schools.....	74	757	21,781
Junior colleges.....	9	164 ²	2,515 ²
State teachers colleges.....	6	422 ²	7,458 ²
Colleges and universities.....	22	3,187 ²	39,892 ²
Other higher institutions.....	26	184 ²	2,035 ²

¹ Sept. 30, 1955. ² March 1, 1955; enrollment comprises both part- and full-time students.

Social Welfare.—Public welfare appropriations from federal and state funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$12,826,211, including \$5,400,000 for old-age assistance, \$4,189,543 for dependent children, and \$536,668 for the needy blind; a monthly average of 67,659 persons received public assistance. Appropriations for health and welfare institutions totaled \$29,471,440; for correctional and penal institutions, \$7,121,059.

NEW JERSEY WELFARE INSTITUTIONS

(As of Sept. 15, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic...	4	5,141
Hospitals for the mentally ill*	5	15,670
Sanatoriums for the tubercular.....	1	237
Diagnostic centers.....	1	95
Schools for the deaf (Nov. 16, 1954).....	1	336
Treatment centers for neurotic children.....	1	63
Soldiers and sailors homes.....	2	224
Training schools for delinquent boys.....	2	518
Training schools for delinquent girls.....	1	210
Reformatories for males.....	2	1,167
Reformatories for females.....	1	386
Prisons.....	1	1,060
Prison farms.....	2	1,339

* Including a neuropsychiatric institute.

Manufacturing.—During 1953, a total of 853,101 workers in manufacturing establishments received \$3,583,419,000 in salaries and wages; value added by manufacture was \$6,451,055,000; and investment in new plant and equipment totaled \$332,939,000. Earnings of production workers in manufacturing averaged \$74.43 for an average work week of 39.8 hours in 1954, and \$78.60 for 40.6 hours in the first six months of 1955.

MAJOR NEW JERSEY MANUFACTURES, 1953

Product or industry	No. of employ-ees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ²
Chemicals and allied products.....	81,213	\$392,779	\$1,130,249
Electrical machinery.....	116,280	479,285	757,558
Food and kindred products.....	55,294	227,002	563,304
Nonelectrical machinery.....	70,593	334,149	530,115
Transportation equipment.....	65,095	312,578	502,692
Fabricated metal products.....	52,806	227,802	414,783
Apparel and related products.....	82,862	223,324	359,564
Textile mill products.....	52,560	206,703	336,094
Primary metal industries.....	39,340	181,332	326,679
Stone, clay, glass products.....	34,042	127,529	216,514
Paper and allied products.....	23,867	105,822	200,372
Instruments and related products.....	25,544	125,315	189,471
Petroleum and coal products.....	18,084	93,885	176,240

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures*, 1953.)

Labor Force.—Nonagricultural employment in June 1955 numbered 1,791,800, and for the full year 1954 averaged 1,775,900. There were 130,000 unemployed workers in June 1955, and the state paid \$117,662,644 in unemployment compensation during the year ending June 31, 1954.

Mining.—New Jersey produces virtually all of the greensand (glauconite) mined in the United States. In 1953 it was the fourth largest producer of zinc, and ranked 34th in the total value of its mineral output, with 0.36% of the United States total.

NEW JERSEY MINERAL PRODUCTION, 1953 (In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	532,185	\$ 1,326,297
Coke ¹	1,175,416	
Iron ore (long tons).....	815,905	10,114,970
Manganiferous residuum.....	293,758	
Marl (greensand).....	6,821	193,404
Peat.....	21,706	
Sand and gravel.....	7,361,935	10,835,948
Sandstone, ground.....	127,921	918,534
Stone ²	6,036,259	13,307,856
Zinc.....	45,700	9,922,990
Other minerals.....		5,325,148
Total.....		\$51,945,147

¹ Values for processed materials are not included in the total. ² Value included with "Other minerals." ³ Excluding that used in making lime. (Source: U.S. Bureau of Mines.)

Fisheries.—Commercial fisheries in 1953 employed 5,878 fishermen whose catch comprised 21,562,000 pounds of shellfish valued at \$7,323,000 and 437,285,000 pounds of fish (\$7,138,000). Totals for leading species were: menhaden, 396,309,000 pounds (\$3,866,000); oysters, 8,484,000 pounds (\$4,119,000); and clams, 10,411,000 pounds (\$2,602,000).

Agriculture.—Cash farm income for the first half of 1955 totaled \$151,462,000, and for the full year 1954 comprised \$217,263,000 from livestock and livestock products, \$120,289,000 from crops, and \$872,000 from government payments. Receipts from principal crops and livestock in 1954 included: eggs, \$113,912,000; dairy products, \$64,120,000; greenhouse and nursery products, \$30,250,000; chickens, \$11,818,000; tomatoes, \$11,360,000; and broilers, \$9,715,000.

The state's 22,686 farms (1,665,241 acres; harvested cropland, 788,398) averaged 73.4 acres and \$27,704 in value of land and buildings per farm in 1954. There were 19,967 farms with telephones and 22,449 with electricity. Livestock on farms (Jan. 1, 1955) included 228,000 cattle and 18,864,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 69,798 family and hired workers were engaged in farming.

NEW JERSEY CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	2,421	2,900	2,800
Corn (1,000 bu.).....	8,823	9,600	5,454
Cranberries (bbl.).....	82,200	87,000	85,000
Hay (1,000 tons).....	448	437	464
Peaches (1,000 bu.).....	1,629	1,910	1,870
Potatoes (1,000 bu.).....	10,207	5,784	6,486
Soybeans (1,000 bu.).....	305	528	546
Strawberries (1,000 crates).....	256*	182	224
Sweet potatoes (1,000 bu.).....	2,336	2,958	2,550
Wheat (1,000 bu.).....	1,771	1,624	1,530

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$62,297,058.80.

Newly completed construction and reconstruction aggregated 60.765 miles.

Highways and roads on Jan. 1, 1955, totaled 28,243 miles (22,243 surfaced). Registered motor vehicles (1954) numbered 1,953,502, including 1,702,264 passenger cars. There were (1955) 27 railroads operating 2,033,958 line miles and 11 regularly scheduled airlines and 127 airports and airfields (60 commercial and municipal, 3 military, and 56 private, and 8 helicopter and 5 seaplane bases).

Communications media included (1955) 19 AM and 6 FM radio stations and 2 operating television outlets; (1954) 27 daily newspapers (circulation, 1,280,663) and 272 other newspapers (circulation, 1,361,641); and (Jan. 1, 1955) 588,493 business and 1,522,609 residential telephones.

Principal Events, 1955.—Gov. Robert B. Meyner in his annual message to the legislature on January 11 urged revision of the election laws, expansion of the highway system, an increase in unemployment benefits, the issuance of motor vehicle licenses by mail, and the development of additional supplies of potable water. In subsequent messages he called for an enlarged mental health program and the construction of a new group of state office buildings. By the end of the year, among other legislative actions (see above, *Legislature*), jobless benefits had been raised from \$30 to \$35 a week, a new car-licensing system had been approved, and a record \$284,396,747 budget had been adopted.

Major attention in the legislature centered on the water problem. A proposal to utilize Round Valley, in Hunterdon County, as a reservoir site was defeated in the Senate. Following studies by a special commission, the legislature approved the holding of a referendum on a \$100,000,000 project to provide for a reservoir at Chimney Rock, in Somerset County, and additional facilities elsewhere. The referendum was defeated by an overwhelming majority in the November election.

Continuing investigation of the affairs of the former director of the Division of Employment Security, Harold G. Hoffman, resulted in the removal or suspension of five state employees and recommendations that seven others be similarly disciplined. In Cape May County a probe of election irregularities led to the indictment of 111 individuals.

Torrential rains on August 18-19, following in the wake of hurricane Diane, caused property damage in the state estimated at \$30,000,000 and the loss of six lives. The northwestern section of the state was particularly hard hit. Four Delaware River bridges were completely destroyed.

In the November 8 election the Republicans retained their 40 to 20 seat margin over the Democrats in the General Assembly. Democratic victories in the counties of Camden, Salem, and Essex—where Donald C. Fox became the first Democrat to win election to the Senate since 1908—reduced the Republicans' strength in the Senate but left them in control, 14 seats to 7.

Economic conditions in the state showed gains over the previous year, with employment reaching the record figure of 1,800,000. The Garden State Parkway, built at a cost of \$350,000,000 by the New Jersey Highway Authority, was opened on July 1 for its entire 164-mile length from Paramus, in Bergen County, to Cape May.

In the field of higher education, Fairleigh-Dickinson College announced the establishment of the first school of dentistry in the state, to begin classes in September 1956. On November 25 the Board of Trustees of Rutgers University approved a reorganization proposal that would vest

control of the university in the state. (See also BRIDGES; HIGHWAYS.)

Principal Events by: RICHARD P. MCCORMICK, Associate Professor of History, Rutgers University; President, New Jersey Historical Society; Author, "The History of Voting in New Jersey" (1955).

NEW MEXICO. Southwestern state, United States; admitted to the Union, Jan. 6, 1912. The "Sunshine State" ranks 4th in area and 39th in population (1955) among the 48 states.

Area and Population.—Area: 121,666 square miles (land, 121,511; inland water, 155), divided into 32 counties. Population: (1950) 681,187; (est., July 1, 1955) 769,000. Urban places with 1950 populations above 10,000 are: Albuquerque, 96,815; Carlsbad, 17,975; Clovis, 17,318; Hobbs, 13,875; Las Cruces, 12,325; Roswell, 25,738; and Santa Fe, the capital, 27,998.

Executive.—Chief state officers in 1955:

Governor: John F. Simms, Jr. (Democrat)
Lieutenant Governor: Joseph M. Montoya
Secretary of State: Natalie S. Buck
Treasurer: Joseph B. Grant
Attorney General: Richard H. Robinson
Supt. of Public Instruction: Georgia L. Lusk

Constitution and Judiciary.—The present constitution went into effect in 1912. The Supreme Court comprises five justices; chief justice in 1955: J. C. Compton.

Legislature.—The Legislature (Senate, 32 members; House of Representatives, 55) meets in odd-numbered years commencing the second Tuesday in January.

The 1955 regular session of the legislature (January 11–March 12) appropriated \$31 million for the 1955–57 biennium and authorized a \$4,250,000 bond issue to finance construction at state institutions and a \$20 million bond issue for highways. Among other enactments were those which controlled price fixing; tightened the state purchasing law; reconstituted the Economic Development Commission; established an Indian Commission, a Forest Conservation Commission, and an office of state budget director; authorized the governor to merge the health and welfare departments; approved bus transportation for private school pupils; extended the 20% overload allowance to all trucks; adopted a Juvenile Code, a uniform drivers' license code, a wind erosion act, a small loans act, a state minimum wage law, an anti-segregation law for public schools, and a measure ordering racial equality in places of public accommodation; and restored the direct primary. State Supreme Court justices' salaries were increased to \$15,000 and District Court judges' salaries to \$12,500; taxes were increased on cigarettes; a state Parole Board was established; and the gas chamber replaced the electric chair for state executions.

Of the six amendments voted on at the September 20 election, two which would have revised the State Corporation Commission and established absentee balloting were defeated. The four which were passed reapportioned the legislature to include one senator from each county and a total of 66 representatives; changed the types of boards governing state institutions; and altered the official names of the Insane Asylum to State Hospital and of the Reform School to Boys' School.

A special session called by the governor on September 26 appropriated \$1 million in emergency funds for the Department of Public Welfare and authorized \$500,000 in contingency loans from state funds. Other legislation established a property liens' bill against the estate of a recipient of public assistance to permit state recovery of welfare payments; initiated a relatives' responsibility bill; authorized publication of welfare rolls; appropriated \$200,000 for the Board of Finance emergency fund; and created a "fire protection" fund for municipalities.

Finances.—State treasury receipts (1954–55 fiscal year): \$179,161,552.68; expenditures, \$180,297,543.43; treasury balance, \$37,239,437.85; long-term indebtedness, \$15,819,069.31.

Taxation.—State tax revenue (1954–55 fiscal year): \$80,210,000, including \$52,432,000 from a 2% general sales tax and selective sales and gross receipts taxes; \$11,393,000 from licensing; \$5,534,000 from property taxes; and \$3,707,000 from individual and corporate income taxes. The state has no poll tax.

Banking.—On June 30, 1955, the state's 26 national banks had \$375,468,000 in assets, \$286,694,000 in demand deposits, and \$66,679,000 in time deposits; the state's 27 other banks had \$149,303,400.07 in assets, \$82,312,299.18 in demand deposits, and \$25,680,824.58 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 16, inclusive. Estimated expenditures for public elementary and secondary education in the 1954–55 school year

totalled \$44,254,000 (\$280 per pupil), and estimated income comprised \$3,874,000 from local school districts, \$34,522,000 from the state, and \$3,450,000 from the federal government. Outlays for construction and improvements were an estimated \$7,589,000. Teachers' salaries averaged an estimated \$4,340 (elementary school teachers, \$4,280; high school teachers, \$4,420).

During the 1953–54 school year there were 572 public elementary schools with 4,061 teachers and 98,883.04 pupils in average daily attendance; 31 public junior high schools with 16,957.43 pupils; and 117 public high schools with 28,934.74 pupils.

Social Welfare.—Public assistance expenditures from state and federal funds (exclusive of costs of administration) in the 1954–55 fiscal year totalled \$13,320,836.40, including \$5,753,162.50 for old-age assistance, \$5,564,228.50 for dependent children, and \$202,670.50 for the needy blind; an average of 41,418 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$1,559,278.22; for penal institutions, \$1,092,251.92. A new penitentiary, to cost approximately \$8 million, was under construction in 1955.

NEW MEXICO WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic (March 10, 1955).....	1	123
Hospitals for the mentally ill (Feb. 14, 1955).....	1	1,150
Sanatoriums for the tubercular (Feb. 14, 1955).....	2	440
Hospitals for crippled children (Feb. 14, 1955).....	1	100
Miners' hospitals (Feb. 23, 1955).....	2	82
Schools for the blind (Oct. 24, 1955).....	1	97
Schools for the deaf (Oct. 24, 1955).....	1	121
Homes for the aged (June 30, 1955).....	2	179
Training schools for delinquent boys (Oct. 1, 1955).....	1	150
Girls' welfare homes (June 30, 1955).....	1	176
Prisons (Oct. 25, 1955).....	1	707
Prison farms (Oct. 25, 1955).....	1	84

Labor Force.—The labor force in April 1955 numbered 267,000, including 12,400 agricultural workers. Nonagricultural employment was 183,600 in July 1955, and in 1954 averaged 174,200. There were 17,900 unemployed workers in April 1955, and the state paid \$4,102,138 in unemployment compensation during the year ending June 20, 1955.

Manufacturing.—Establishments in 1954 numbering 598 had an average of 16,400 "covered" employees who received \$72,482,844 in salaries and wages. In 1953, value added by manufacture was \$129,248,000, and investment in new plant and equipment totalled \$3,932,000. Earnings of production workers in manufacturing averaged \$78.91 for an average work week of 41.1 hours in 1954, and \$79.13 for 41 hours in the first six months of 1955. Chief manufactures are chemicals and allied products, lumber and products, and food and kindred products.

Mining.—In 1953, New Mexico ranked first among the states in the production of potash, perlite, and pumice; third in beryl and helium; and fourth in copper and molybdenum. The state ranked 11th in the total value of its 1953 output, with 2.30% of the United States total.

The accompanying table shows the production of leading minerals during 1955, excluding mineral fuels. Output of the latter in 1954 included: natural gas, 486 billion cubic feet (valued at \$22,356,000); natural gasoline, 5,300,000 barrels (\$13,090,000); and petroleum, 74,500,000 barrels (\$195,935,000). In the 1954–55 fiscal year, 4,058 persons were employed in metal mines and 3,588 in nonmetallic mines.

NEW MEXICO MINERAL PRODUCTION¹

(In short tons, except as noted)

Mineral	Quantity	Value
Coal.....	143,216	\$ 835,520
Copper.....	73,700	43,714,109
Crushed rock ballast (cu. yds.)....	546,798	343,953
Gravel (cu. yds.).....	451,044	702,156
Iron-manganese.....	28,000	112,000
Lead.....	1,821	435,894
Manganese.....	102,661	2,955,936
Molybdenum.....	830	1,202,093
Perlite.....	142,941	1,052,869
Potash.....	10,445,623	51,322,262
Sand (cu. yds.).....	327,551	564,518
Silver (fine ounces).....	141,100	123,525
Uranium.....		4,680,906
Zinc.....	5,239	1,257,336
Other minerals ²		1,196,834

¹ For the year ending June 30, 1955. ² Excluding natural gas, natural gasoline, and petroleum. (Source: *Forty-Third Annual Report*, by the State Inspector of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$61,495,000, and for the full year 1954 comprised \$93,626,000 from livestock and livestock products, \$94,549,000 from crops, and \$2,823,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$64,494,000; cotton lint, \$65,013,000; dairy products, \$9,608,000; cottonseed, \$7,794,000; and sheep, \$6,414,000.

The state's 21,070 farms (49,603,885 acres; harvested cropland, 1,135,073) had an average of 2,354.2 acres and \$38,660 in value of land and buildings per farm in 1954. There were 5,700 farms with telephones and 17,231 with electricity. Livestock on farms (Jan. 1, 1955) included 1,140,000 cattle, 1,271,000 sheep, and 938,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 65,033 family and hired workers were engaged in farming.

NEW MEXICO CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	592	760	620
Beans, dry edible (1,000 bags).....	307	216	167
Broomcorn (tons).....	5,020	4,600	7,400
Corn (1,000 bu.).....	1,550	1,318	1,408
Cotton lint (1,000 bales).....	217	316	265
Cottonseed (1,000 tons).....	88	127	108
Hay (1,000 tons).....	436	513	536
Peaches (1,000 bu.).....	176	300	150
Peanuts (1,000 lb.).....	7,904	6,350	5,500
Sorghum grain (1,000 bu.).....	3,693	2,660	4,356
Wheat (1,000 bu.).....	3,153	643	1,770

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$32,644,628.15, and newly completed construction and reconstruction aggregated 491 miles.

Highways and roads on Dec. 31, 1954, totaled 62,565.1 miles (7,348.5 surfaced). Registered motor vehicles numbered 312,151 on June 30, 1955, including 216,800 passenger cars. There were 9 railroads (1955) operating, in 1954, 2,533 line miles, and there were (1955) 4 regularly scheduled airlines and 73 airports and airfields (23 commercial and municipal, 5 military, 40 private and limited, and 5 others).

Communications media included (1955) 30 AM radio stations and 4 operating television outlets; 13 daily newspapers (circulation, 145,023) and 40 other newspapers; and (Jan. 1, 1955) 68,786 business and 103,226 residential telephones.

Principal Events, 1955.—The year 1955 opened with the inauguration of John F. Simms, Jr., as governor. Among major actions of the state legislature in its regular session (see above, *Legislature*) was the passage of a weight-size truck bill which became the subject of considerable

controversy. Later in the year, owing to financial difficulties in the Department of Public Welfare, a special session met for ten days. Among the several measures passed were those providing \$1,500,000 for public welfare and increasing the number of state police.

Months of drought, forcing cattle sales and requiring federal aid for the feeding of livestock, ended in some sections of the state with late summer rains. Rainfall rendered the eastern ranges in excellent condition, although western ranges remained seriously dry. The rains which helped restore the rangelands resulted in floods to Albuquerque which caused millions of dollars worth of damage and led to federal disaster assistance.

In other actions the federal government appropriated \$11 million to continue Rio Grande flood control and reclamation operations and allocated \$200 million for military installations in New Mexico. At Los Alamos, birthplace of controlled thermonuclear research in the United States, the technical area of the Los Alamos Scientific Laboratory was opened for the first time on an unclassified basis.

Economic progress was steady and economic conditions were excellent in 1955. Labor disputes involving construction in Los Alamos and Carlsbad, and the Kennecott Copper Corporation were, among others, settled during the year. Expansion of mining and oil prospecting activities continued. Bank deposits were higher, federal income tax payments by state residents rose by \$8 million over the previous year, retail sales ran some \$92 million ahead of those of 1954, and employment was at an all-time high.

Principal Events by: DOROTHY WOODWARD,
Professor of History, University of New Mexico.

NEW YORK. Middle Atlantic state, United States; one of the original 13 states. The "Empire State" ranks 29th in area and 1st in population (1955) among the 48 states.

Area and Population.—Area: 49,576 square miles (land, 47,944; inland water, 1,632), divided into 62 counties. Population: (1950) 14,830,192; (est., July 1, 1955) 16,053,000. Incorporated places with 1950 populations above 15,000 are as follows:

Albany (capital).....	134,995	New Rochelle.....	59,725
Amsterdam.....	32,240	New York City.....	7,891,957
Auburn.....	36,722	Bronx.....	1,451,277
Batavia.....	17,799	Brooklyn.....	2,738,175
Binghamton.....	80,674	Manhattan.....	1,960,101
Buffalo.....	580,132	Queens.....	1,550,849
Cohoes.....	21,272	Richmond.....	191,555
Corning.....	17,684	Newburgh.....	31,956
Cortland.....	18,152	Niagara Falls.....	90,872
Dunkirk.....	18,007	North Tonawanda.....	24,731
Elmira.....	49,716	Ogdensburg.....	16,166
Endicott.....	20,050	Olean.....	22,884
Freeport.....	24,680	Ossining.....	16,098
Geneva.....	17,144	Oswego.....	22,647
Glen Cove.....	15,130	Peekskill.....	17,731
Glens Falls.....	19,610	Plattsburgh.....	17,738
Gloversville.....	23,634	Port Chester.....	23,970
Hempstead.....	29,135	Poughkeepsie.....	41,023
Hornell.....	15,049	Rochester.....	332,488
Ithaca.....	29,257	Rockville Centre.....	22,362
Jamestown.....	43,354	Rome.....	41,682
Johnson City.....	19,249	Saratoga Springs.....	15,473
Kenmore.....	20,066	Schenectady.....	91,785
Kingston.....	28,817	Syracuse.....	220,583
Lackawanna.....	27,658	Troy.....	72,311
Lockport.....	25,133	Utica.....	101,531
Long Beach.....	15,586	Valley Stream.....	26,854
Lynbrook.....	17,314	Watertown.....	34,350
Mamaroneck.....	15,016	Watervliet.....	15,197
Middletown.....	22,586	White Plains.....	43,466
Mount Vernon.....	71,899	Yonkers.....	152,798

Executive.—Chief state officers in 1955:

Governor: Averell Harriman (Democrat)
Lieutenant Governor: George B. De Luca
Secretary of State: Carmine G. De Sapio
Comptroller: Arthur Levitt
Attorney General: Jacob K. Javits
Commissioner of Education: James E. Allen, Jr.



WIDE WORLD

Governors Meyner of New Jersey, Ribicoff of Connecticut, and Harriman of New York, and Mayor Wagner of New York City (l. to r.) discuss civil defense problems of the New York metropolitan area in March 1955.

Constitution and Judiciary.—The present constitution went into effect in 1894. The highest tribunal, the Court of Appeals, comprises seven justices; chief justice in 1955 was Albert Conway.

Legislature.—The Legislature (Senate, 58 members; Assembly, 150) meets annually commencing the first Wednesday after the first Monday in January. The principal laws enacted at the 1955 session of the legislature included the following:

New York City.—The city was authorized to levy real estate taxes at $2\frac{1}{2}\%$ of the 5-year average of assessed valuations; to increase the gross business receipts tax to $\frac{1}{4}\%$ and the financial business tax from $\frac{1}{8}\%$ to 1% ; to fund old subway obligations; to reconstitute the Transit Authority as a paid 3-member body; to demolish the Third Avenue elevated line; and to initiate a joint Port of New York Authority and Triborough Bridge Authority construction program of \$600 million.

Housing and Rent.—Cities were authorized to lend up to 90% of the cost of limited profit or nonprofit housing projects for moderate income families and to grant tax reductions for improvements in substandard apartments. Racial discrimination was prohibited in publicly assisted or federally insured housing.

Budget and Taxation.—Appropriations totaling \$1,259 million were approved for the 1955-56 fiscal year, of which \$706 million was allocated for state grants to local governments and \$553 million for state governmental operations.

Crime.—The sale of obscene comic books to minors was barred; and a commission to study juvenile delinquency, a Division of Youth in the state Correction Department, and a legislative committee to investigate wiretapping were created.

Miscellaneous.—Maximum unemployment insurance benefits were increased from \$30 to \$36 weekly; a New York Business Development Corporation was created; a single primary was established; daylight saving time was made mandatory from the last Sunday in April to the last Sunday in October; bingo was legalized for nonprofit organizations; and the rose was established as the official state flower.

Of 10 constitutional amendments presented for the voters' approval at the November 8 elections, the five amendments which passed provided for: (1) an increase from \$25 million to \$34 million in the maximum of annual subsidies for low-rent housing projects; (2) absentee registration and voting by the sick and disabled; (3) transfer of the functions of the state Board of Equalization and Assessments to the state comptroller; (4) permission for municipalities to construct and operate joint sewer systems; and (5) the barring of judges from holding other public office.

Finances.—General Fund receipts (1954-55 fiscal year), \$1,159,155,104; expenditures, \$1,158,127,725; surplus (March 31, 1955), \$1,027,379; long-term net indebtedness, \$682,344,129 (March 31, 1955).

Taxation.—State tax revenue (1954-55 fiscal year): \$1,178,721,062, including \$370,445,720 from excise taxes; \$347,465,507 from individual income taxes; \$312,389,668 from general business taxes; and \$128,420,167 from all other taxes.

Banking.—As of June 30, 1955, the state's 319 national banks had \$10,361,481,000 in assets, \$6,857,351,000 in demand deposits, and \$2,332,810,000 in time deposits; the state's 351 other banks on Dec. 31, 1954, had \$42,489,622,954 in assets, \$18,625,927,867 in demand deposits, and \$19,476,596,610 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$821,271,032.44 (\$362.27 per pupil) for public elementary and secondary education in the 1953-54 school year included \$491,640,030 from local school districts and \$296,182,392 from the state. Expenditures for construction and improvements totaled \$282,342,370.20. Teachers' salaries averaged \$4,697.66.

NEW YORK SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-6).....	4,005	51,177	1,453,706
Public junior high (7-9).....	441	15,279	322,626
Public senior high (9-12).....	835	24,928	526,483
Private and parochial elementary and high schools.....	1,648	...	656,500
Junior colleges.....	27	918	21,394
State teachers colleges.....	11	998	13,828
Colleges and universities.....	94	21,599	362,329
Agriculture and technical institutes.....	6	302	9,531

Social Welfare.—Public assistance expenditures from federal, state, and local funds (exclusive of institutional costs) in 1954 totaled \$471,808,623, including \$95,375,948 for old-age assistance, \$78,762,968 for dependent children, \$4,373,637 for the needy blind, and \$37,263,134 for the disabled; a monthly average of 227,668 persons received public assistance.

NEW YORK WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Institutions for epileptics.....	1	2,227 ¹
Hospitals for the mentally ill.....	18	93,191 ¹
Hospitals for the criminally insane.....	2	3,362 ²
Sanatoriums for the tubercular.....	7	1,157 ³
Schools for the mentally deficient.....	6	20,052 ¹
Cancer research institutions.....	1	140 ³
Hospitals for crippled children.....	1	153 ³
Schools for the blind.....	3	432 ²
Schools for the deaf.....	7	1,294 ¹
Institutions for destitute Indian children.....	1	121 ¹
Veterans homes.....	1	228 ⁴
Training schools for delinquent boys.....	2	2,932 ⁴
Training schools for delinquent girls.....	1	727 ⁴
Institutions for defective delinquents.....	2	1,253 ³
Reformatories for men.....	4	3,983 ³
Reformatories for women.....	1	365 ²
Prisons for men.....	3	3,892 ²
Prisons for women.....	1	299 ²
Receiving prisons.....	3	5,645 ²
Receiving institutions for men (age 16-21).....	1	227 ²

¹ As of Aug. 31, 1955. ² Sept. 1, 1955. ³ 1954-55 fiscal year. ⁴ Dec. 31, 1954.

Labor Force.—The estimated labor force in May 1955 (including members of the armed forces) was 6,560,000. Nonagricultural employment in July 1955 totaled 5,834,400, and for 1954 averaged 5,856,300. Registered unemployed workers totaled 245,161 in July 1955, and the state paid \$262,494,226 in unemployment insurance claims for the 12 months ending July 1955.

Fisheries.—The commercial fish and shellfish catch in 1954 was valued at \$7,551,722. Pound-ages and values of principal species landed were: hard clams, 2,452,472 (\$1,268,595); oysters, 1,707,030 (\$1,138,020); and menhaden, 98,075,250 (\$979,628).

Manufacturing.—Establishments numbering 54,100 in 1953 employed an average of 2,053,428 persons who received salaries and wages totaling \$8,419,085,000. Value added by manufacture was \$14,410,234,000, and investment in new plant and equipment amounted to \$514,135,000. (This compared with \$550,845,000 in 1952.) Production workers in manufacturing earned \$71.50 for an average work week of 38.8 hours in 1954 and \$74.60 for 39.5 hours in the first six months of 1955.

MAJOR NEW YORK STATE MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by manuf. ² (thousands of dollars)
Apparel and related products	393,956	\$1,262,114	\$2,126,938
Printing and publishing	159,303	768,597	1,469,011
Nonelectrical machinery	158,425	723,741	1,267,011
Food and kindred products	140,433	554,925	1,240,474
Transportation equipment	141,850	699,738	1,081,342
Electrical machinery	140,065	576,772	983,274
Chemicals & allied products	67,924	299,231	880,390
Instruments & related products	84,182	398,478	745,446
Primary metal industries	88,872	415,455	732,067
Fabricated metal products	100,301	418,418	725,599
Paper & allied products	71,598	281,652	501,628
Textile mill products	76,091	267,765	453,334
Stone, clay, glass products	41,206	173,371	323,159
Leather and leather products	65,208	200,495	299,390
Furniture and fixtures	39,212	151,659	260,537

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures, 1953*.)

Mining.—In 1953, New York ranked 19th among the states in the value of its mineral output, with 1.30% of the national total. It was the leading producer of talc, emery, garnet, and ilmenite, and the sole source of wollastonite.

NEW YORK MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.) ¹	14,965,164	\$ 39,388,183
Clays	960,791	1,303,281
Coke ²	4,589,609	69,906,676
Emery	10,562	143,974
Ferroalloys ²	267,756	71,735,035
Gypsum	987,156	3,507,207
Iron ore (long tons)	3,414,859	36,346,209
Iron, pig ²	4,697,782	237,030,016
Lead	1,435	375,970
Natural gas (1,000 cu. ft.)	2,347,000	742,000
Petroleum (bbl.)	3,800,000	16,260,000
Salt	3,322,659	17,351,111
Sand and gravel	22,530,891	23,493,857
Slate	113,575	1,733,332
Stone ³	15,961,657	25,250,576
Talc	156,299	940,541
Zinc	51,529	11,851,670
Other minerals	...	8,180,374
Total	...	\$186,868,355

¹ Excludes natural cement, value for which is included in "Other minerals." ² Values for processed materials are not included in the total. ³ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$372,639,000, and for the full year 1954 comprised \$566,484,000 from livestock and livestock products, \$244,836,000 from crops, and \$3,753,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$369,998,000; eggs, \$89,243,000; greenhouse and nurs-

NEW YORK CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	14,046	16,900	17,100
Beans, dry edible (1,000 bags)	1,359	1,287	1,075
Buckwheat (1,000 bu.)	1,592	900	672
Cherries (tons)	22,100	30,100	37,200
Corn (1,000 bu.)	26,326	29,568	31,365
Grapes (tons)	58,920	94,000	88,500
Hay (1,000 tons)	5,755	5,512	5,239
Maple sirup (1,000 gal.)	448	378	461
Maple sugar (1,000 lb.)	51	24	37
Oats (1,000 bu.)	25,692	26,888	29,820
Peaches (1,000 bu.)	1,337	1,010	1,870
Pears (1,000 bu.)	548	285	510
Potatoes (1,000 bu.)	33,341	31,560	29,700
Strawberries (1,000 crates)	382*	351	410
Wheat (1,000 bu.)	10,352	10,766	10,400

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

ery products, \$55,258,000; cattle, \$53,175,000; and potatoes, \$27,040,000.

The state's 105,714 farms (15,070,832 acres; harvested cropland, 5,546,506) averaged 142.6 acres and \$15,179 in value of land and buildings per farm in 1954. There were an estimated 87,640 farms with telephones and 103,490 with electricity. Livestock on farms (Jan. 1, 1955) included 2,356,000 cattle and 14,887,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 244,871 family and hired workers were engaged in farming.

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$235,673,441, and newly completed construction and reconstruction aggregated 493 miles.

Highways and roads on Jan. 1, 1955, totaled 103,837 miles (86,259 surfaced). Registered motor vehicles numbered 4,549,352 in 1954, including 3,705,149 passenger cars. There were (1955) 46 railroads operating 7,373 line miles, 33 regularly scheduled airlines, and 264 airports and airfields (206 commercial and municipal and 9 military fields, 37 seaplane bases, and 12 heliports).

Communications media (1955) included 108 AM and 49 FM radio stations and 21 operating television outlets (18 VHF and 3 UHF); 126 daily newspapers (circulation, 9,721,207) and 533 other newspapers; and (Jan. 1, 1955) 2,271,158 business and 4,493,541 residential telephones.

Principal Events, 1955.—The growth of New York State's urban population continued during 1955, with most of the increase occurring in suburban areas. In February the Temporary Commission on Fiscal Affairs of State Government estimated that by 1960 approximately 85% of the population would be living in cities or suburbs.

Inadequate housing, especially for middle-income families, continued to be a serious problem throughout the state. A proposal (Proposition 1) authorizing \$50 million in state loans for that type of housing was approved in the election of November 8 by the extremely narrow margin of 954,145 to 931,783.

The state's revenue problems and measures received wide publicity in 1955, especially during the early part of the year. In addition to a repetition of the annual controversy between state and New York City officials regarding state aid to the city, much recrimination occurred respecting Gov. Averell Harriman's vetoes of tax reduction bills calling for a continuation of the 10% personal income tax forgiveness and reduction of the levy on income of unincorporated businesses. The fact that by October 17, state revenue was running \$50-\$60 million ahead of executive estimates made earlier in the year added heat to the months-old controversy.

The persistently bad situation along New York City's labor-troubled waterfront aroused statewide interest. For months the International Longshoremen's Association (Independent) resisted efforts of the New York-New Jersey Waterfront Commission to make effective the commission's hiring regulations. By early November, personnel changes made at Albany in New York's representation on the commission were producing widespread charges that the growing effectiveness of the commission's reform efforts were being endangered by politics.

Largely because there were no statewide offices at stake in the general election of November 8, only 5,306,070 persons (6,214,366 in 1954) registered to vote. The limited public interest was mainly confined to local candidacies, particularly mayoralty contests, and to ten pro-



WIDE WORLD

The Third Avenue "El," last of New York City's elevated railroads, undergoes demolition in November 1955.

posed constitutional amendments and one state-aid-to-housing proposition. In the state, Democrats made a net gain of one mayor in 45 city contests. Five of 11 referendum items were defeated—a result widely attributed to voter resistance to higher taxes. (See also above, *Legislature*.)

Additional developments of statewide scope and interest during 1955 included the announcement on February 11 of the Consolidated Edison Company's readiness to build a \$30-\$40 million atomic power plant on the Hudson River, near Peekskill; completion of additional sections of the New York State Thruway, leaving only a three-mile final link (from Yonkers to the Bronx line) of the 427-mile expressway from Buffalo to be completed in 1956; continuing large-scale purchases of land by the New York State Power Authority for the St. Lawrence hydroelectric project; the voting by the state legislature of appropriations totaling a record \$1,259 million; statewide participation on June 15 in a mass civil defense test; the setting of new hot weather records during August; and widespread destruction of property by floods in mid-October.

(See also BRIDGES; CANALS; DAMS; HOUSING; NEW YORK CITY; TUNNELS.)

Principal Events by: RAY W. IRWIN,
Associate Professor of History, New York University.

NEW YORK CITY. This seaboard metropolis is the most populous city in the United States, and is the nation's financial, business, commercial, and arts center.

Covering 315.1 square miles, the city contained some 8,050,000 inhabitants in January 1955, compared with 7,891,957 in 1950. The Department of City Planning reported that the population increase during the 1950-55 period had been confined to three of the five boroughs: Queens, the Bronx, and Richmond. Queens led with a gain of 170,000; Manhattan and Brooklyn showed slight declines. In February 1955 the Temporary Commission on Fiscal Affairs of State Government forecast from Albany, N.Y., an increase of New York City's population to 8,450,000 by 1960, and a continuation of the current large-scale movement to the suburbs.

The problem of obtaining public funds to meet the city's operational and improvement needs continued in 1955 to be a source of controversy between state and city officials. Assessed valuation of New York City's real estate was (May 31) officially set at an all-time high of

\$21,021,108,321 for the fiscal year beginning July 1, 1955. This rise continued a 10-year upward trend and produced a record real estate tax rate of \$3.85 per \$100 of assessed valuation. The state legislature substantially increased the amount of state aid to the city, and granted most of the additional taxing power which the city had requested (see also New York—*Legislature*). In August, Controller Lawrence E. Gerosa reported that during the 1954-55 fiscal year the city's gross debt had risen by \$97 million to \$3,585 million.

The city school budget was estimated by the Board of Education in mid-February 1955 to approximate \$300 million per year for operation of schools and \$450 million for total annual expenses, including pensions, health services, maintenance costs, and building programs. The board later estimated that by October the city's 36,000 public school teachers would be teaching 922,460 pupils: 66,950 in kindergarten, 506,260 in elementary schools, 308,800 in high schools, and 40,450 (full-time) in vocational schools.

New building construction throughout the city during 1955 far exceeded that of 1954. Much of the construction planned or already in progress was that of apartment houses, especially of the "luxury" type. A major area of building activity was the eastern portion of Manhattan. Announcements made during the year of plans for forthcoming construction of important new buildings included those of a \$25 million skyscraper on Lexington Avenue at 46th Street; a 30-story office building at 40th Street and Avenue of the Americas; a \$40 million Union Carbide and Carbon Corporation office building on Park Avenue; a 27-story Canada House at 5th Avenue and 54th Street; and a downtown "Rockefeller Center" being planned by the Chase Manhattan Bank for two large blocks in a section of the financial district.

Despite extensive slum clearance and much new apartment house construction during 1955, adequate moderate-rent housing for low- and middle-income residents remained a serious problem. In April the Board of Estimate committed itself to a \$225 million three-year program designed to provide approximately 15,000 low-rent apartments. A number of bills passed by the state legislature during 1955 gave promise of helping increase low-rent housing and of lessening health and safety hazards in tenements and rooming houses.

Business conditions in New York City were excellent throughout 1955. Indications of a banner year were apparent in successive quarterly reports showing new records being set in almost every business activity. By midyear, profits of industrial manufacturers were higher than ever before in the city's history.

Labor conditions, too, were generally good in 1955, with the rate of unemployment declining and fewer strikes occurring than in 1954. Most of the city's labor disturbances and difficulties centered about the waterfront, and chiefly about persistent resistance by the independent International Longshoremen's Association to hiring regulations which the Waterfront Commission began enforcing on April 1. The courts sustained the position taken by the commission, which in early September began taking disciplinary action against various longshoremen who had participated in tying up West Side piers for three days in March. By early November the deep involvement of the waterfront situation in politics—particularly in respect to modification of personnel of the Waterfront Commission—was arousing speculation as to possible effects which the controversy might have on the 1956 elections.

The city made great progress during 1955 in its fight against crime. Police Commissioner Francis W. H. Adams (who resigned and was

succeeded by Stephen P. Kennedy on August 2), announced on July 25 that during the first six months of 1955 there had been a 13% drop in figures for major crimes, as compared with the same period of 1954. Major crime-reduction measures included an increase of the uniformed police force from 19,840 to 22,162 men by July 24, and to a record high of 22,555 by November 3; the heavy police reinforcement of crime-ridden precincts; an increasing of the subway police force, and, effective June 1, the publication and posting by the Transit Authority of subway timetables for night trains; passage of state legislation, effective July 1, tightening bail requirements for known criminals; increased appropriations by the Board of Estimate to combat crime; and intensified efforts by public and private agencies to lessen juvenile delinquency. Near the end of August a citywide drive was launched by district attorneys of Manhattan, Brooklyn, and Queens to effect stricter enforcement of legislation against sale of deadly weapons to minors. During the second half of 1955, city police and federal narcotics agents smashed three narcotics rings estimated to have been doing a \$50 million-a-year business.

The general election of November 8 aroused little interest. There were few important offices at stake, and no citywide or statewide contests between candidates. Only 1,690,648 persons (as compared with the 1954 city total of 2,463,056) registered to vote. The Democrats made a clean sweep of all contested offices in the city, winning their biggest victory in Queens, where State Sen. Frank D. O'Connor (Democrat-Liberal) defeated Vincent L. Leibell, Jr. (Republican) for district attorney by a margin of 68,371 votes. (See also TUNNELS.)

RAY W. IRWIN,
*Associate Professor of History,
New York University.*

NEW ZEALAND. Lying some 1,200 miles southeast of Australia in the South Pacific Ocean, the principal areas of this self-governing sovereign state of the British Commonwealth comprise two chief islands: North Island (44,281 square miles) and South Island (58,093) with adjacent Stewart Island (670) and Chatham Islands (372). The main islands together have an approximate length of 1,000 miles. Outlying uninhabited groups include the Auckland Islands (234 square miles), Campbell Island (44), and the Antipodes Islands (24). Within the administrative area (103,939 square miles) are the island territories of Cook (84), Niue (100), Tokelau, or Union (3.5), and the Kermadec Islands (13). New Zealand also administers Western Samoa (q.v.) and the uninhabited Ross Dependency (175,000 square miles) in the Antarctic. With the United Kingdom and Australia, New Zealand is a joint trustee of Nauru (q.v.).

Population.—The population numbered 2,087,740 (including 127,384 Maoris) on March 31, 1954, exclusive of the Cook Islands (15,657), Niue Island (4,708), the Tokelau Islands (1,753), and Western Samoa (94,128). Principal urban centers, and their populations on April 1, 1953, are: Wellington, 137,600 (Wellington City, the capital, 126,500); Auckland, 350,500 (city, 181,400); Christchurch, 182,800 (city, 126,600); Dunedin, 97,900 (city, 71,100); and Hutt, 80,200 (Lower Hutt City, 46,000). The white population is almost exclusively of British stock. The indigenous Maoris, a branch of the Polynesian race, are increasing at the rate of 3.47% annually, compared with 1.27% for the country as a whole. Immigrants intending permanent residence numbered 24,896 in 1953-54, during which year 7,048 residents left New Zealand permanently. The total population (including Maoris) was projected at 2,174,000 for 1957 and 2,216,000 for 1958.

Religion.—Religious denominations numbered 27 in 1951, among which adherents of the Church of England (726,626) predominated. Other principal groups are Presbyterian (446,333), Roman Catholic (264,555), Methodist (156,077), and Baptist (81,518).

Government.—A governor general (Lieut. Gen. Sir Willoughby Norrie, assumed office Dec. 2, 1952), representing the British crown, exercises statutory powers, and is assisted by a 15-member Executive Council of ministers in addition to the prime minister, Sidney G. Holland (assumed office Dec. 13, 1949). The legislature, modeled on that of Great Britain, but having no upper house since 1951, consists of an 80-member House of Representatives (including 4 Maoris: 3 for the North Island, 1 for the South Island), popularly elected for a maximum term of 3 years. Following the general election held Nov. 13, 1954, the National Party held 45 parliamentary seats, the Labor Party, 35.

Finance.—The New Zealand pound (£NZ) is at parity with sterling. Total public expenditure for the year ended March 31, 1955, was £NZ325,700,000, of which £NZ184,400,000 represented Consolidated Fund expenditure, while the balance included capital and social security expenditure. Total public revenue, including capital receipts, amounted to £NZ343,400,000, leaving a surplus of £NZ17,700,000. Consolidated Fund expenditure was estimated at £NZ190,300,000 in 1955-56, including £NZ29 million for defense; revenue was expected to amount to £NZ192,700,000, leaving a surplus of £2,400,000. Capital expenditure for 1955-56 was estimated at £NZ73,900,000.

Defense.—Regular forces of the army numbered 3,905 in 1954; youths receiving compulsory training in the territorial forces, on reaching the age of 18, totaled 27,425. The Royal New Zealand Navy comprises 2 cruisers, 6 frigates, 4 ocean minesweepers, and auxiliary vessels; personnel totaled 2,915 officers and ratings in 1954. The Royal New Zealand Air Force in 1955 supplied a special squadron to serve in Malaya.

Education.—Education is compulsory between the ages of 7 and 15 years. At the end of 1953 there were 1,899 public primary schools (300,327 pupils; 9,028 teachers); 310 private primary schools (42,799 pupils; 1,137 teachers); 49 secondary schools (28,014 pupils; 1,317 full-time teachers); 109 district high schools (8,709 pupils; 466 teachers), including 9 Maori high schools with 444 pupils and 25 teachers; and 94 registered private secondary schools, with 12,137 pupils, including 11 Maori secondary schools, with 786 pupils. Technical schools numbered 33, with 18,136 students and 999 teachers, and 27,775 part-time students were attending technical classes. Maori village schools totaled 164 (13,900 pupils, including 800 Europeans); 10 Maori mission schools had 781 pupils. Government expenditure for education amounted to £NZ24,050,000 in 1953-54.

The University of New Zealand had 10,326 entrants for degree and professional examinations in 1953, and the attached agricultural colleges of Canterbury and Massey had an enrollment of 1,141. There are 5 teacher-training colleges.

Production.—New Zealand's gross national product for the year ending March 31, 1954, was estimated at £NZ827 million, a gain of almost 10% over the preceding year. National income rose from £NZ656 million in 1952-53 to £NZ727 million in 1953-54.

Labor Force.—In the year ended Oct. 31, 1954, New Zealand's labor force increased by 17,000 to a total of 776,000. In spite of this rise, the shortage of labor persisted, with job vacancies increasing from 20,000 to 27,000.

Agriculture.—About 20 million acres were being used for farming in 1954-55. Estimated wheat acreage fell from 107,000 in 1953-54 to 100,000 in 1954-55, with a decline anticipated from the 1953-54 yield of 4,783,000 bushels. Total 1954-55 production of oats, however, was expected to exceed the previous harvest of 1,200,000 bushels from 70,000 acres. The yield (1953-54) of barley totaled 3,335,000 bushels; of tobacco, 4,229,000 pounds.

The 1954 livestock population included 648,900 cattle, 36,190,000 sheep, and 1,999,100 dairy cows. The latter total rose in 1954-55, but production of butterfat was not expected to exceed the 1953-54 yield of 590 million pounds. Estimates of meat production indicated that the previous peak figure of 602,000 tons recorded in 1951-52 would be surpassed. The New Zealand Wool Commission estimated wool production in

1954-55 at 434 million pounds (greasy basis), an advance of some 10 million pounds over 1953-54. As of July 15, 1955, an average price of 49.6 pence per pound had been realized for the wool clip, compared with 50.2 pence per pound in the 1953-54 season. Gross proceeds from 1,002,863 bales were £NZ70,400,000.

Lumbering.—A continued high level of timber production was maintained in 1954, with output measuring 572,200,000 board feet. Principal yields (in board feet) included rimu and miro, 219,200,000; and matai, 36,500,000.

Manufacturing and Construction.—There are some 8,512 factories in New Zealand. Output in 1954 included cement (288,200 tons), bricks (41,600,000 units), and tobacco, textiles, and metals. The food and beverage industry engaged 28,030 persons in 1953 and had output valued at £NZ208,090,000. New dwellings built in 1954 numbered 16,600 and were worth £NZ69,490,000.

Mining.—The aggregate value of minerals produced in 1953 was £NZ10,650,000, including principally coal, limestone, gold, and silver.

External Trade.—Exports valued at £NZ221 million in 1954 (in 1953, £NZ234,880,000) included wool, £NZ89,200,000; meat, £NZ50,900,000; butter, £NZ33,900,000; and cheese, £NZ12,400,000; imports totaled £NZ237,700,000 (government imports, £NZ20,200,000). The value of exports to the sterling area was slightly higher, at £NZ202 million, than in 1953, while trade with the dollar area fell by reason of reduced United States wool purchases. Trade with Japan also declined.

In overseas exchange transactions for the year ending in June 1955 a deficit of £NZ42,300,000 was recorded, compared with a surplus of £NZ25,200,000 in 1953-54. Receipts increased by only £NZ6 million to £NZ287,200,000, while payments increased by £NZ73,400,000 to £NZ329,500,000. Increases were recorded in wool receipts, but butter, cheese, and meat receipts all declined.

Communications.—Some 3,504 miles of railway were profitably operated by the government in 1954, earnings amounting to £NZ23,682,365 and expenses totaling £NZ23,621,403. Tonnage of goods carried was 9,635,061; number of passengers carried, 23,270,000. Government motor services carried 22,620,000 passengers. The total road mileage was 55,463, including 5,299 miles of state highways in 1953. Internal air services carried 397,869 passengers, 777 tons of mail, and 25,804 tons of freight in 1954. Overseas air services are operated by Qantas Empire Airways, Pan American World Airways, and Canadian Pacific Air Lines.

Principal Events, 1955.—Following his participation in the Commonwealth conference held in London Jan. 31-Feb. 8, 1955, New Zealand's prime minister, Sidney G. Holland, announced in Parliament that an understanding had been reached with Britain respecting defense commitments. According to the agreement, New Zealand would be relieved of obligations to aid in the Middle East and European theaters. Future military efforts would be concentrated instead in Southeast Asia, especially Malaya, to which New Zealand sent parachute troops in September 1955 to assist in the suppression of Communist rebels.

The formation was completed of 65 local voluntary committees to raise £NZ100,000 for the New Zealand Expedition to the Antarctic, which was scheduled to embark at Wellington in December 1956, led by Sir Edmund Hillary, con-

queror of Mt. Everest. Dog teams, in training in the New Zealand Southern Alps, were to be taken on board at Dunedin, along with stores sufficient for two years in case the expedition was forced to remain longer in the polar area than the scheduled 15 months. In London, it was reported on Jan. 16, 1955, that arrangements were being coordinated between British participants in the Commonwealth 1956-57 Trans-Antarctic Expedition and the New Zealand party. The object was the establishment of contact at the South Pole and then the joint return of the two groups to Ferrar Glacier and McMurdo Sound, in the Ross Dependency, site of the New Zealand base. (See also ANTARCTICA.)

DONOVAN ROWSE,
Author and Publicist.

NEWFOUNDLAND. Including Labrador, this most easterly of the Canadian provinces, bounded on the east and south by the Atlantic Ocean and on the west by the Gulf of St. Lawrence and the Province of Quebec, has an area of 155,362 square miles and a population (1951 census) of 361,416 (1955 estimate, 412,000). Chief urban centers, with 1951 populations, are: St. John's, the capital, 67,749; Bell Island, 10,291; Corner Brook West, 6,831; Grand Falls, 5,749; Bonavista, 3,718; Gander, 3,956; Curling, 3,559; Corner Brook East, 3,435; Botwood, 3,421; and Carbonear, 3,351.

Government.—Newfoundland entered the Canadian confederation on March 31, 1949, and is represented by 6 senators and 7 members of the House of Commons at Ottawa. The province is administered by a lieutenant-governor and a Legislative Assembly of 28 members (20 Liberals, 4 Progressive Conservatives, one Co-operative Commonwealth Federation, and 3 vacancies in 1955). The lieutenant-governor in 1955 was the Hon. Sir Leonard C. Outerbridge; the premier was the Hon. Joseph R. Smallwood.

Finance.—Revenue on current account in 1954-55 was \$37,979,400, and expenditure, \$36,635,300. Estimated revenue for 1955-56 is \$38,846,300.

Industries.—In addition to agriculture, the three basic industries in 1954 yielded the following returns: forest products, \$97 million; mining, \$44,869,000; and fishery products, \$27 million. These industries contribute approximately 32%, 12%, and 10%, respectively, of the provincial income.

Communications.—The Canadian National Railways has a total mileage of 705 in Newfoundland; its main line extends 547 miles from St. John's on the east coast to Port aux Basques on the west coast, with branches to the ports of Argentia, Carbonear, Bonavista, and Lewisporte. Commercial air services, including the Trans-Canada Air Lines, link Newfoundland with the North American continent and Europe. There are worldwide cable connections, and the Dominion government provides telegraphic service throughout the province. There were 33,000 telephones at the end of 1954.

Principal Events, 1955.—Commemoration of the centenary of the granting of responsible government to Newfoundland was held in July. Patrick J. Little of Dublin, Ireland, son of the late Hon. P. F. Little, who played a prominent part in obtaining responsible government and who was the first prime minister of Newfoundland, was the guest of the government for the occasion.

The Legislative Assembly has voted to underwrite a \$16 million loan for the construction of

a 45-mile railway to connect the newly exploited iron ore beds of the Wabush Lake area with the Quebec North Shore and Labrador Railway which runs between Knob Lake and Seven Islands (Sept-Iles), Quebec. Annual shipments of iron ore are expected to total 2.5 million tons by 1957.

J. W. McNEILY,
*Public Relations Officer, Provincial
Government of Newfoundland.*

NEWSPAPERS. See JOURNALISM.

NICARAGUA. A republic of Central America, bounded by Honduras on the north and Costa Rica on the south. Estimated area, 57,100 square miles; pop. (est. Dec. 31, 1954), 1,224,000, of whom about 70% is mestizo, 17% white, 9% Negro, and 4% Indian. Chief cities and 1950 populations: Managua, the capital (109,352); León (30,544); and Granada (21,035). About three fourths of the population is rural. Spanish is the official language.

Government.—Congress consists of a Chamber of Deputies of 42 members and a Senate of 16 (plus former presidents who are appointed for life). Both houses are popularly elected for a term of 6 years. Gen. Anastasio Somoza, elected in 1950, took office for a 6-year term in 1951. Somoza, head of the Nationalist Liberal Party, is the country's strong man, controlling the army as well as the political machine. The Conservative Party exists as a token opposition.

Education and Religion.—An estimated 60% of the population is illiterate. Secondary education is carried on privately, with some government aid. In 1954-55 there were 112,303 pupils enrolled in 1,994 national public schools. There are also several normal, technical, and private secondary schools, a national university at León and an engineering school at Managua. Roman Catholicism is the predominant religion.

Finance.—The budget for 1955-56, approved by the legislature on June 17, 1955, authorized expenditures of 240.3 million cordobas, with revenues estimated at 238 million. Effective July 1, 1955, the par value of the cordoba was decreased from 5 cordobas to the United States dollar to 7.

Production.—Nicaragua's predominantly agricultural economy has profited recently from high world prices for its export crops. Cotton output rose from an average of 7,000 bales in 1945-49 to 109,000 in 1953-54 and 205,000 in 1954-55. This expansion, however, has entailed a reduction in food cultivation; and while a small class of cotton planters has profited, the prices of foodstuffs have soared. Coffee, still the chief cash crop, totaled 369,000 bags (132.3 pounds each) in 1954-55 (prelim.). Other cash crops are sugar, sesame seed, and cottonseed. Subsistence crops are mainly corn, rice, beans, plantains, yucca, and pineapples.

The chief mineral product is gold, worked under foreign concession; shipments in 1954 totaled \$8.15 million. Other minerals are silver, copper, salt, and precious stones. Nicaragua's forests yield valuable hardwoods and gums. Manufactures are of minor importance, consisting chiefly of sugar and coffee processing, cigarettes, soap, simple cotton goods, furniture, cement, matches, beer, and soft drinks. On July 8, 1955, the International Bank for Reconstruction and Development announced it had granted two loans to Nicaragua totaling \$7.5 million for the development of electric power.

Foreign Trade.—Imports in 1954 totaled \$58.35 million; exports (excluding gold), \$54.62 million. Coffee exports were valued at \$25.1 million; cotton, \$16.75 million. Imports are mainly machinery and equipment, iron and steel goods, vehicles, textiles, and chemicals. Nicaraguan exports to the United States in 1954 totaled \$26 million; imports from the United States, \$36.8 million.

Transportation and Communications.—Paved highways in 1955 aggregated 211 miles; all-weather roads, 560; roads passable only in the dry season, 1,121. Railway trackage totals 235 miles (route length). Lineas Aéreas de Nicaragua provides domestic air service and occasional service abroad. Motor vehicles in 1955 included 4,078 passenger cars and 2,302 trucks; telephones, 3,600; radio receivers (1954), about 20,000. An automatic telephone exchange was inaugurated in Managua on May 27, 1955. A new harbor at Puerto Somoza was officially opened on December 11.

Principal Events, 1955.—On Jan. 11, 1955, a group of Costa Rican rebels invaded Costa Rica from bases in Nicaragua. The Organization of American States, meeting in Washington, requested Nicaragua to halt its flow of arms to the Costa Rican rebels. The OAS then set forth a plan for a buffer zone, which was accepted by the two countries and took effect on January 20. Following the defeat of the Costa Rican insurgents, some 300 recrossed into Nicaragua on January 25 and surrendered for internment. In its report of February 17, the OAS investigating commission did not indict Nicaragua for aggression but declared that "a substantial number of rebel forces," as well as supplies, had crossed the Nicaraguan border. In accordance with the commission's recommendations, the two nations set up a five-man committee in early March to deal with illegal border crossings, activities of political exiles, and other sources of tension. In early July, tension again flared briefly when Nicaragua charged Costa Rica with having sponsored a plot for the assassination of President Somoza. (See also COSTA RICA; INTER-AMERICAN AFFAIRS; ORGANIZATION OF AMERICAN STATES.)

NICKEL. The United States is the world's largest consumer of nickel, but there is no significant domestic output. Supply depends on imports, chiefly from Canada. Imports increased from 118,737 short tons in 1953 to 131,784 tons in 1954 and to 73,442 tons during the first half of 1955. The corresponding consumption figures were, respectively, 105,681, 94,733, and 52,206. Of the 1954 consumption, 38,151 tons were used in steel and cast iron, 28,053 tons in nonferrous alloys, 14,783 tons in electroplating, and 6,597 tons in high-temperature and resistance alloys.

Canada established a new record by producing 161,279 short tons in 1954, as compared with 143,643 tons in 1953. Exports from Canada were 157,233 tons in 1954 (143,818 in 1953). During the first 7 months of 1955, production reached 103,032 tons and exports, 102,969 tons. (See MINERAL PRODUCTION for table showing output of major producing countries; also METALLURGY.)

NIGER. See FRENCH WEST AFRICA.

NIGERIA. See BRITISH WEST AFRICA.

NITROGEN COMPOUNDS. A large part of the fixed nitrogen supply of the United States is derived from plants making nitrogen compounds from the nitrogen of the atmosphere. Second in importance is the recovery of ammonia compounds in the byproduct coking of coal. Natural sodium nitrate was, some years ago, virtually the sole source of fixed nitrogen supply, but it now furnishes a relatively small proportion. In 1954 the synthetic plants produced 2,719,666 short tons of anhydrous ammonia (NH_3). The byproduct coke plants produced 221,809 short tons, of which 16,104 tons was NH_3 content of aqua ammonia and 205,705 tons was the NH_3 content

of ammonium sulfate. Thus the total fixed nitrogen (NH₃) production was 2,941,475 short tons, as compared with 2,549,164 tons in 1953. Imports of natural sodium nitrate, the bulk of which originates in Chile, reached 731,530 short tons in 1954, as compared with 568,873 tons in 1953.

NIXON, Richard Milhous, vice president of the United States: b. Yorba Linda, Calif., Jan. 9, 1913. After four years as a naval officer in World War II (1942-46), he was elected to the U.S. House of Representatives in 1946 and again in 1948, and to the U.S. Senate in 1950. As a senator he played a prominent role in investigations of corruption and communism in government. Elected vice president in 1952, he became the administration's chief goodwill ambassador to foreign countries. His numerous activities and abundance of energy helped give the office of vice president a significance rarely manifested in American political history.

Outspoken in his views, Vice President Nixon soon became a principal target of Democratic Party criticism. During the congressional campaigns of 1954, when Nixon revived the 1952 presidential campaign charge of the Democratic Party's failure to remove Communists from government, Democrats, under the leadership of Adlai Stevenson, scored his tactics as irresponsible demagoguery.

In his capacity as goodwill ambassador, Vice President Nixon has toured the Far East (October-December 1953) and the Caribbean area (February-March 1955). His scheduled trip to the Middle East and Africa was temporarily postponed when President Eisenhower suffered a heart attack in September 1955, and he was faced suddenly with having to assume part of the president's duties in a situation not adequately defined by law.

NOBEL PRIZES. See PRIZES AND AWARDS.

NORFOLK ISLAND. Populated principally by descendants of *Bounty* mutineers from Pitcairn Island (q.v.), this South Pacific territory was formerly a part of New South Wales colony; since 1914 it has been administered as a dependency of the Commonwealth of Australia. Lying 930 miles east-northeast of Sydney, New South Wales, and 630 miles northwest of Auckland, New Zealand, its area is 8,528 acres. The population (1,176 in 1952) had declined to 942 at June 30, 1954. An administrator (Brig. H. B. Norman) is assisted by an 8-member Advisory Council. Citrus and bananas are principal crops. Imports, coming mostly from Australia, were valued at £A211,877 in 1952-53 (the Australian pound equals U.S.\$2.24); exports totaled £A42,130. Free primary school pupils numbered 135 in 1952. Air services are maintained with Sydney and Auckland.

NORTH AMERICA. A continent in the Western Hemisphere. Estimated area (including Central America, q.v.), 9,360,000 square miles; pop. (est. 1954), 233,000,000. (See articles on the countries of North America and the Index entry, *North America*.)

NORTH ATLANTIC TREATY ORGANIZATION. The North Atlantic Treaty was signed in Washington on April 4, 1949, by the United States, United Kingdom, France, Italy, Canada, Norway, Denmark, Portugal, Belgium, the Netherlands, Luxembourg, and Iceland. Greece and Turkey joined the organization in 1952, and the German Federal Republic in 1955.

ORGANIZATIONAL STRUCTURE OF NATO

- I. North Atlantic Council (15 states); headquarters, Paris
- II. Military Committee (13)¹
 - A. Military Representatives Committee (13)¹; headquarters, Washington
 - B. Standing Group (3); headquarters, Washington
 1. NATO supreme commands (see separate outline below)
 2. Canada-United States Regional Planning Group (CUSRPG); headquarters, Washington
 3. Channel Committee (4); headquarters, London
 4. NATO Defense College
 5. Military Agency for Standardization (MAS)
 6. European Military Communications Coordinating Committee (EMCCC), including European Long Line Agency (ELLA) and European Radio Frequencies Agency (ERFA)
 7. Advisory Group on Aeronautical Research and Development (AGARD)
 8. Air Training Advisory Group (ATAG)
- III. International Staff/Secretariat, Paris: Secretary General, 1st Baron Ismay of Wormington

Under the authority of the Military Committee, and receiving guidance and direction from the Standing Group, are the following NATO supreme commands:

- I. European Command:
 - A. Supreme Headquarters, Allied Powers, Europe (SHAPE); Supreme Allied Commander, Europe (SACEUR), Gen. Alfred M. Gruenther (U.S.); headquarters, Rocquencourt, near Paris
 - Deputy SACEUR, Field Marshal Viscount Montgomery (U.K.)
 - Deputy (Air), Gen. Lauris Norstad (U.S.)
 - Deputy (Naval), Admiral André Lemonnier (France)
 1. Commander in Chief, Allied Forces, Central Europe (CINCENT), Marshall Alphonse Pierre Juin (France); headquarters, Fontainebleau
 - (a) Commander, Allied Land Forces, Central Europe
 - (b) Commander, Allied Air Forces, Central Europe
 - (c) Commander, Allied Naval Forces, Central Europe
 2. Commander in Chief, Allied Forces, Northern Europe (CINCNORTH), Lieut. Gen. Sir Cecil Sugden (U.K.); headquarters, Oslo
 - (a) Commander Allied Naval Forces, Northern Europe
 - (b) Commander, Allied Air Forces, Northern Europe
 - (c) Commander, Allied Land Forces, Norway
 - (d) Commander, Allied Land Forces, Denmark
 3. Commander in Chief, Allied Forces, Southern Europe (CINCOSOUTH), Admiral William M. Fechteler (U.S.); headquarters, Bagnoli, near Naples
 - (a) Commander, Allied Land Forces, Southern Europe
 - (b) Commander, Allied Land Forces, Southeastern Europe
 - (c) Commander, Allied Air Forces, Southern Europe
 - (d) Commander, Naval Striking and Support Forces, Southern Europe
 4. Commander in Chief, Allied Forces, Mediterranean (CINCFMED), Admiral Sir Guy Grantham (U.K.); headquarters, Malta
 - (a) Commander, Gibraltar Area
 - (b) Commander, Western Mediterranean Area
 - (c) Commander, Central Mediterranean Area
 - (d) Commander, Eastern Mediterranean Area
 - (e) Commander, Northeastern Mediterranean Area
 - (f) Commander, Southeastern Mediterranean Area
- II. Atlantic Ocean Command:
 - A. Supreme Allied Commander, Atlantic (SACLANT), Admiral Jerauld Wright (U.S.); headquarters, Norfolk, Va.
 - Deputy SACLANT, Vice Admiral J. W. M. Eaton (U.K.)
 1. Commander in Chief, Eastern Atlantic Area
 2. Air Commander in Chief, Eastern Atlantic Area
 3. Commander in Chief, Western Atlantic Area
 4. Commander, Striking Fleet, Atlantic
- III. Channel Command:
 - A. Allied Commander in Chief, Channel and South-

¹ Iceland, which has no military establishment, is not represented on the committee, and Belgium represents Luxembourg.

ern North Sea (CINCCHAN), Admiral Sir George Creasy (U.K.); headquarters, Portsmouth, England

- B. Allied Maritime Air Commander in Chief, Channel and Southern North Sea (CINCMAIRCHAN), Air Chief Marshal Sir John Boothman² (U.K.); headquarters, Northwood, England

NATO IN 1955

During 1955, NATO devoted increasing attention to the problem of defending western Europe against air attack. The smaller member nations made it clear to the members of the Standing Group—the United States, the United Kingdom, and France—that they expected to receive more information on nuclear weapons and a greater voice in defense planning. They also exhibited a growing concern with political and economic questions, rather than limiting their discussions to purely military matters.

In addition to meetings of permanent representatives, the North Atlantic Council held a number of sessions at the ministerial level. On May 9, at the opening of a three-day meeting of foreign ministers, the German Federal Republic was formally inducted into membership.³ In a communiqué issued on May 11, the council "reaffirmed the purely defensive character" of NATO; expressed its appreciation of the close relations existing with the Western European Union; welcomed the proposals of the Western Big Three for negotiations with the Soviet Union; and hoped that "there would be a cessation of hostilities in the Far East." Just before the Geneva Conference (q.v.), on July 16, another ministerial session of the council was held; there was general agreement that the West should insist at the conference on the unification of Germany by free elections and on the freedom of the united country to adhere to NATO.

Greek-Turkish differences were considered at a meeting of the council on September 8, at which the Turkish delegate expressed his regrets for anti-Greek riots in Turkey. Here and elsewhere little was accomplished to ease the situation, however, and on October 11 it was announced that Greek forces would not participate in NATO exercises until the matter was settled.

The principal such exercises of 1955 were Operation Carte Blanche, air-atomic exercises held in June by the United States-commanded Fourth Tactical Air Force and the British-commanded Second Air Force, and atomic war games staged in October by United States and French troops. Among other military developments were the approval by President Dwight D. Eisenhower on April 13 of a draft agreement to share certain information on atomic weapons with NATO members, and the allocation by the U.S. Defense Department on August 2 of \$11.3 million for the development by France, Italy, and the United Kingdom of light fighter planes for ground support.

Military matters were considered by the council at a meeting held on October 10–12, at which 12 defense ministers were present (Greece and Turkey did not attend, and Iceland has no armed forces). Concern was expressed over the dispatch by France to North Africa of about three divisions assigned to NATO and their replacement by less adequate reserves, and over the size of the West German defense budget. Gen. Sir John Whiteley, chairman of the Stand-

² Air Vice Marshal Sir Bryan V. Reynold was scheduled to succeed him in April 1956.

³ It became the 15th member of NATO on May 6, when its instrument of accession to the North Atlantic Treaty was deposited in the U.S. State Department in Washington.



WIDE WORLD

General Gruenther (r.) supreme Allied commander, welcomes German General Speidel, at ceremonies admitting West Germany to the North Atlantic community, May 9, 1955.

ing Group, and Admiral Jerauld Wright emphasized Soviet military and naval strength, particularly in submarines, while Gen. Alfred M. Gruenther criticized NATO defense efforts, especially the air command system, which he favored reorganizing in four broad general areas.

The regular ministerial session of the council held on December 15–16 reviewed defense accomplishments in 1955 and approved goals for 1956, 1957, and 1958. Defense expenditures by European members of NATO were expected to aggregate \$10,393 million in 1955, as compared with \$10,313 million in 1954. The council approved plans for "the reorganization and closer coordination of the air defense in NATO European countries," and for a pilot project for a radar warning system combined with a new type of radio communications difficult to jam. At the insistence of the smaller members, a special conference will be held in February 1956 at which the Standing Group will give them information on strategy and new weapons. In the political field, the council expressed its regret at the failure of the foreign ministers' conference at Geneva; reviewed "recent provocative moves and declarations by the Soviet Union regarding the Middle East and Asia," which it considered "created new problems and a new challenge to the free world"; and "recognized that recent developments in the international situation made it more necessary than ever to have closer cooperation between the members of the alliance. . . ."

B. E. E.

NORTH BORNEO. See BORNEO.

NORTH CAROLINA. South Atlantic state; one of the original 13 states. The "Tarheel State"

Albemarle	11,798	Kinston	18,336
Asheville	53,000	Lexington	13,571
Burlington	24,560	Lumberton	14,448
Charlotte	154,042	Monroe	10,140
Concord	16,486	New Bern	15,812
Durham	71,311	Raleigh (capital)	65,679
Elizabeth City	12,685	Reidsville	11,708 ¹
Fayetteville	34,715	Rocky Mount	27,697
Gastonia	34,389 ¹	Salisbury	20,102
Goldsboro	21,454	Sanford	10,013
Greensboro	74,389	Shelby	15,508
Greenville	16,724	Statesville	16,901
Henderson	10,996	Thomasville	11,154
Hickory	14,755	Wilmington	45,043
High Point	39,973	Wilson	23,010
Kannapolis ²	28,448	Winston-Salem	87,811

¹ Special census, 1955; ² Unincorporated.

NORTH CAROLINA

ranks 27th in area and 11th in population (1955) among the 48 states.

Area and Population.—Area: 52,712 square miles (land, 49,097; inland water, 3,615), divided into 100 counties. Population: (1950) 4,061,929; (est., July 1, 1955) 4,190,000. Urban places with populations (1950 unless otherwise indicated) above 10,000 are as shown in the table on page 543.

Executive.—Chief state officers in 1955:

Governor: Luther H. Hodges (Democrat)

Secretary of State: Thad Eure

Treasurer: Edwin Gill

Attorney General: William B. Rodman (succeeded Harry McMullan, who died June 24)

Supt. of Public Instruction: Charles F. Carroll

Constitution and Judiciary.—The present constitution, which went into effect in 1877, is based on the constitution of 1868. The Supreme Court comprises seven justices; chief justice in 1955 was M. V. Barnhill.

Legislature.—The General Assembly (Senate, 50 members; House of Representatives, 120) meets in odd-numbered years commencing the first Wednesday after the first Monday in January.

The 1955 legislative session (January 5–May 26) was the longest in the state's history. After adopting appropriations for the 1955–57 fiscal biennium of \$640 million, including \$424 million for general fund expenditures, the General Assembly considered the primary issue of raising additional revenues, particularly for schools, which it partly resolved by the imposition of new or increased taxes designed to yield \$9,768,000 annually. Other major enactments included the complete revision of state corporation laws (effective July 1, 1957) and school laws; establishment of a Board of Higher Education; creation of a Board of Water Commissioners to study water problems; revision of Superior Court districts; and elimination of alleged abuses in accident, health, and hospitalization insurance.

Finances.—State treasury receipts (1954–55 fiscal year), \$868,233,889.19; expenditures, \$897,444,350.45; treasury balance, \$156,979,449.07; net long-term indebtedness, \$231,236,159.15.

Taxation.—State tax receipts (1954–55 fiscal year): \$190,334,140.32, including \$58,354,853 from a 3% general sales tax and selective sales and gross receipts taxes; \$40,053,010 from individual income taxes; and \$34,957,061 from corporate income taxes.

Banking.—As of June 30, 1955, the state's 46 national banks had \$622,072,000 in assets, \$433,003,000 in demand deposits, and \$130,680,000 in time deposits; the state's 176 other banks and 262 branches had \$1,747,838,512.42 in assets, \$795,356,797.99 in demand deposits, and \$321,019,663.37 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 15, inclusive. Operating expenditures of approximately \$151 million (\$173 per pupil) for public elementary and secondary schools in the 1953–54 fiscal year comprised an estimated \$21 million from local school districts, \$121 million from the state, and \$9 million from the federal government. Outlays for construction and improvements ranged between \$35 million and \$40 million. Teachers' salaries averaged \$3,279.

In the 1953–54 school year there were 2,241 public elementary schools with 22,970 teachers and 761,599 pupils; 937 public secondary schools with 8,081 teachers and 206,467 pupils; and 34 colleges and universities with 38,042 students.

An atomic reactor was dedicated at North Carolina State College in Raleigh on May 23, 1955. The University of North Carolina began operations in January of the state's first non-commercial television station.

NORTH CAROLINA WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic	2	2,091 ¹
Hospitals for the mentally ill	4	9,967 ¹
Sanatoriums for the tubercular	4	1,731 ¹
Schools for the blind	1	328 ²
Schools for the deaf	2	546 ²
Hospitals for crippled children	1	143 ³
Homes for veterans' widows	1	38 ²
Training schools for delinquent boys	3	618 ³
Training schools for delinquent girls	2	197 ³
Prisons	4	1,177 ³
Prison farms	2	445 ³
Prison camps	86	8,011 ³

¹ As of Sept. 1, 1955. ² Oct. 1, 1955. ³ Aug. 31, 1955.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) for the 1954–55 fiscal year totaled \$43,235,227, including \$19,010,136 for old-age assistance, \$13,683,402 for dependent children, \$2,302,150 for the needy blind, and \$4,485,519 for the disabled; a monthly average of 137,766 persons received public assistance. Operating expenditures for health and welfare institutions totaled \$17,894,193; for correctional and penal institutions, \$9,047,225.

Labor Force.—There were 996,800 "covered" workers in nonagricultural establishments in May 1955, and for the year ending May 1955, non-agricultural employment averaged 997,700. Registered unemployed workers numbered 32,637 on June 30, 1955, and the state paid \$37,573,653 in unemployment compensation during 1954.

Manufacturing.—Establishments numbered 7,500 in 1954. Value added by manufacture in 1953 totaled \$2,274,019,000 and expenditures for new plant and equipment amounted to \$135,411,000. Earnings of production workers in manufacturing averaged \$47.88 for an average work week of 38.3 hours in 1954, and \$51.20 for 40 hours during the first six months of 1955.

During 1954, more than 16,800 new jobs were provided by the opening of 131 new industries, valued at \$69 million, and the expansion of 129 plants at a cost of \$43 million. There were 56 new industrial plants and 89 plant expansions in the first half of 1955 at a total cost of \$78.1 million, creating 8,200 new jobs.

MAJOR NORTH CAROLINA MANUFACTURES, 1954

	Persons engaged	Payroll & profit of income (millions of dollars)	Value of output
<i>All manufactures</i>	441,000	\$1,474	\$6,121
Textiles	231,000	664	2,430
Tobacco	33,000	171	1,580
Food products	24,000	85	590
Furniture	34,000	103	295
Lumber	34,000	79	254
Machinery	20,000	98	217
Chemicals	12,000	67	192
Paper and pulp	10,000	61	192
Apparel	18,000	38	124
Printing	7,000	28	61
Stone-clay-glass products	6,000	25	57

(Source: *The Blue Book of Southern Progress, 1955.*)

Mining.—North Carolina ranked first among the states in 1953 in production of feldspar, mica, and lithium minerals; third in talc, tungsten and asbestos; and fourth in vermiculite. It ranked 35th in the value of its 1953 mineral output, with 0.27% of the United States total.

NORTH CAROLINA MINERAL PRODUCTION, 1954¹ (In short tons, except as noted)

Mineral	Quantity	Value
Clays	1,872,541	\$ 2,519,721
Feldspar (long tons)	230,744	2,220,707
Mica, scrap	61,049	1,457,122
Mica, sheet (pounds)	378,230	1,770,867
Sand and gravel	7,441,200	5,508,284
Stone	10,133,728	15,625,331
Talc and pyrophyllite	105,384	1,771,778
Tungsten concentrates (60% WO ₃)	2,538	3
Other minerals	...	9,812,190
Total	...	40,686,000

¹ Preliminary. ² Value included in "Other minerals." (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$161,068, 000, and for the full year 1954 comprised \$221,974,000 from livestock and livestock products, \$705,849,000 from crops, and \$6,107,000 from government pay-

ments. Receipts from principal crops and livestock in 1954 included: tobacco, \$497,287,000; cotton lint, \$68,602,000; dairy products, \$55,528,000; hogs, \$52,270,000; eggs, \$41,287,000; broilers, \$37,903,000; and peanuts, \$32,235,000.

The state's 267,906 farms (18,260,346 acres; harvested cropland, 5,504,204) had an average of 68.2 acres and \$8,105 in value of land and buildings per farm in 1954. There were 45,120 farms with telephones and 250,692 with electricity. Livestock on farms (Jan. 1, 1955) included 933,000 cattle, 1,154,000 hogs, and 12,438,000 chickens (not including commercial broilers). During the week of Oct. 24-30, 1954, there were 523,928 family and hired workers engaged in farming.

NORTH CAROLINA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	1,220	1,900	40
Corn (1,000 bu.)	62,641	51,816	68,055
Cotton lint (1,000 bales)	492	364	355
Cottonseed (1,000 tons)	202	155	149
Hay (1,000 tons)	1,266	1,076	1,244
Oats (1,000 bu.)	11,734	20,397	18,480
Peanuts (1,000 lb.)	297,142	251,980	216,200
Pecans (1,000 lb.)	2,371	1,000	400
Potatoes (1,000 bu.)	8,500	5,889	6,764
Soybeans (1,000 bu.)	3,735	4,720	5,060
Sweet potatoes (1,000 bu.)	5,690	4,100	4,400
Tobacco (1,000 lb.)	855,264	913,871	1,017,685
Wheat (1,000 bu.)	7,178	7,525	7,172

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds spent for highways and streets totaled \$112,388,000 in the 1953-54 fiscal year.

Highways, roads, and streets totaled 68,911 miles (34,646 paved) in 1954. Registered *motor vehicles* numbered 1,495,633 on Aug. 31, 1955, including 1,077,915 passenger cars. There were (1954) 30 *railroads* operating 4,511.35 line miles, 6 regularly scheduled *airlines*, and 106 *airports and airfields* (98 commercial and municipal, 3 military, and 5 others).

Communications media included (1954) 107 AM and 35 FM *radio stations* and 12 operating *television outlets* (8 VHF and 4 UHF); 46 daily *newspapers* (circulation, 958,843) and 171 other newspapers; and (Jan. 1, 1955) 220,124 business and 537,922 residential *telephones*.

Principal Events, 1955.—The regular session of the General Assembly (January 5-May 26) was the longest in North Carolina's history. The legislature also set a record by enacting 1,376 new laws and approving 55 resolutions. Some minor changes were made in the state's tax structure, and several new state agencies were created, the most important of which was a nine-member state Board of Higher Education. In accordance with an enabling act of the legislature, followed by a referendum in October, 65,000 members of the state Retirement System "went on Social Security" by voting overwhelmingly to integrate their retirement systems with federal Old Age and Survivor's Insurance.

Faced with the problem of desegregation in the public schools, as a result of federal court decisions, the legislature made the following basic changes in the state school laws: (1) elimination from the law of any reference to race; (2) transfer of authority over enrollment and assignment of pupils from the state Board of Education to county and city boards; (3) transfer of ownership, operation, and control of the state's 7,200 school buses to local units; and (4) substitution of yearly contracts for teachers and principals in lieu of continuing contracts.

By unanimous vote, the General Assembly resolved that:

The mixing of the races in the public schools within the state cannot be accomplished and if attempted would alienate public support of the schools to such an extent that they could not be operated successfully.

On August 8, Gov. Luther Hodges proposed to the state's citizenry to operate the public schools "in accordance with the policies set out by the General Assembly and at the same time avoid defiance or evasion of the opinion of the United States Supreme Court . . ." by having the children of both white and Negro races "voluntarily attend separate public schools." This proposal was praised by some of the state's newspapers, but it was denounced by the National Association for the Advancement of Colored People and by some individuals and groups within the state. On August 22, the Patriots of North Carolina, Inc., an all-white organization aimed at maintaining "the purity of the white race and of Anglo-Saxon institutions" was incorporated. With only a few exceptions the schools opened in September without incident—and without integration.

Meanwhile three Negro graduates of a Durham High School applied for admission to the undergraduate division of the University of North Carolina. On May 23, the university trustees resolved that "applications to undergraduate divisions will be rejected." The NAACP announced that it would take the cases to the federal courts if the applicants were denied admission. The Negro applicants were admitted in the fall, the first in the university's 166-year history, after three federal judges ruled that the university must process their applications without regard to race or color. The judges also declined a stay of judgment while appeal to the U.S. Supreme Court was pending.

On November 10, Gordon Gray resigned as the university's president after having been named U.S. assistant secretary of defense for international security affairs. Provost J. Harris Purks acted as president pending selection of Gray's successor.

Hurricane Ione caused extensive wind and flood damage to eastern North Carolina on September 19. Five persons were killed, and damage amounted to \$85-\$100 million, including destruction to much of the state's peanut crop (valued at \$32.2 million in 1954).

(See also DAMS; NATIONAL PARKS.)

Principal Events by: HUGH T. LEFLER,
Professor of History, University of North Carolina.

NORTH DAKOTA. North Central state, United States; admitted to the Union, Nov. 2, 1889. The "Flickertail State" ranks 16th in area and 41st in population (1955) among the 48 states.

Area and Population.—Area: 70,665 square miles (land, 70,057; inland water, 608), divided into 53 counties. Population: (1950) 619,636; (est., July 1, 1955) 641,000. Urban places with 1950 populations above 7,500 are: Bismarck, the capital, 18,640; Fargo, 38,256; Grand Forks, 26,836; Jamestown, 10,697; and Minot, 22,032.

Executive.—Chief state officers in 1955:

Governor: Norman Brundage (Republican)

Lieutenant Governor: C. P. Dahl

Secretary of State: Ben Meier

Treasurer: Albert Jacobson

Attorney General: Leslie R. Burgum

Supt. of Public Instruction: M. F. Peterson

Constitution and Judiciary.—The present constitution went into effect in 1889. The Supreme Court comprises five justices; chief justice in 1955 was Thomas Burke.

Legislature.—The Legislative Assembly (Senate, 49 members; House of Representatives, 113) meets in odd-numbered years commencing the first Tuesday after the first Monday in January.

A chief enactment of the 1955 session of the legisla-

NORTH DAKOTA

ture was the establishment of a 22-county Garrison Conservancy District to utilize diversion waters from the Garrison Dam reservoir. In education, the state's per-pupil payments to elementary school districts were increased, and high school equalization fund payments were raised from \$2 to \$3 per week, per pupil; a new Board of Education was created; and the teachers' insurance and retirement program was liberalized. Motorists faced an increase in the gasoline and special fuels tax from 5 to 6 cents per gallon and higher license fees. Other legislations repealed a law against interracial marriage, and authorized the Legislative Research Committee to start a program of continuous statutory revision.

Amendments to be presented to the voters at the June 1956 elections provided for authorization of a \$54 million bond issue for a 10-year highway program and a \$9 million bond issue for payment of a Korean War veterans bonus.

Finances.—State treasury receipts (1954-55 fiscal year), \$60,162,233.36; expenditures, \$60,108,524.86; treasury balance, \$72,453,499.15; long-term indebtedness, \$20,201,750.

Taxation.—State tax revenue (1954-55 fiscal year): \$45,935,000, including \$28,425,000 from a 2% general sales tax and selective sales and gross receipts taxes; \$9,366,000 from licensing; \$3,500,000 from property taxes; \$2,695,000 from individual income taxes; and \$997,000 from corporate income taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 38 national banks had \$279,364,000 in assets, \$180,111,000 in demand deposits, and \$76,713,000 in time deposits; the state's 116 other banks on Dec. 31, 1954, had \$375,891,295.41 in assets, \$285,754,958.90 in demand deposits, and \$59,711,022.06 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 15, inclusive, but is extended to the age of 17 if the eighth grade has not been completed. Expenditures for public elementary and secondary schools in the 1953-54 school year totaled \$31,820,058.80 (\$263.93 per pupil); receipts amounted to \$31,749,221.44, including \$12,257,456.10 from local school districts, \$6,902,918.56 from the counties, \$8,054,876.96 from the state, and \$371,112.73 from the federal government. Outlays for construction and improvements totaled \$2,599,755.21. Teachers' salaries (including those of city superintendents) averaged \$2,770.63.

NORTH DAKOTA SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (1-8)	* 5,050	92,880	
Public secondary (9-12)	* 1,765	28,662	
Junior colleges	2 18	350	
State teachers colleges	5 172	1,930	
Colleges and universities	3 326	4,927	
Other higher institutions	2 33	809	

* A total of 3,051, including elementary and secondary schools.

Social Welfare.—Public assistance expenditures from federal, state, and county funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$9,783,065, including \$6,154,145 for old-age assistance, \$2,269,788 for dependent children, \$76,928 for the needy blind, and \$1,282,204 for all other forms of assistance. A monthly average of 17,700 persons received public assistance. Expenditures for health and welfare institutions totaled \$5,073,639.69; for correctional and penal institutions, \$923,963.07.

NORTH DAKOTA WELFARE INSTITUTIONS (As of Sept. 1, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic	1	1,150
Hospitals for the mentally ill	1	1,960
Sanatoriums for the tubercular	1	107
Schools for the blind	1	31
Schools for the deaf	1	80
Homes for veterans' widows	1	84
Training schools for delinquent boys and girls	1	321
Prisons	1	205
Prison farms	1	6

Labor Force.—The labor force in December 1954 totaled 214,800 persons including 62,600

agricultural workers. Nonagricultural employment was 143,200, and for the full year 1954 averaged 141,600. There were 10,500 unemployed workers in December 1954, and the state paid \$2,622,776 to insured unemployed workers during 1954.

Manufacturing.—In 1953, 7,814 persons received \$24,379,000 in salaries and wages. Value added by manufacture was \$46,765,000, and investment in new plant and equipment amounted to \$13,070,000. Earnings of production workers in manufacturing averaged \$67.55 for an average work week of 44.3 hours in 1954, and \$71.53 for 46.1 hours in the first half of 1955.

Mining.—Because of its production of most of the lignite mined in the United States, and its rapid development of recently discovered oil fields, North Dakota ranked 41st among the states in the value of its mineral output in 1953 (43d in 1952), with 0.13% of the United States total.

NORTH DAKOTA MINERAL PRODUCTION, 1955* (In short tons, except as noted)

Mineral	Quantity	Value
Clay	36,500	\$ 52,000
Coal	2,680,000	6,325,000
Natural gas (million cu. ft.)	1,200	60,000
Petroleum (1,000 bbl.)	8,155	17,452,000
Sand and gravel	7,500,000	2,400,000
Stone	1,500	4,000
Total	...	26,293,000

* Preliminary. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$159,885,000, and for the full year 1954 comprised \$155,081,000 from livestock and livestock products, \$310,135,000 from crops, and \$6,017,000 from government payments. Receipts from principal crops and livestock in 1954 included: wheat, \$169,227,000; cattle, \$74,161,000; flaxseed, \$57,863,000; barley, \$43,492,000; dairy products, \$36,672,000; and hogs, \$20,843,000.

The state's 61,939 farms (41,731,493 acres; harvested cropland, 21,235,735) averaged 673.8 acres and \$24,549 in value of land and buildings per farm in 1954. There were 28,358 farms with telephones and 55,815 with electricity. Livestock on farms on Jan. 1, 1955, included 1,937,000 cattle, 549,000 sheep, 401,000 hogs, and 4,130,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 137,614 family and hired workers engaged in farming.

NORTH DAKOTA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Barley (1,000 bu.)	47,264	66,134	82,064
Corn (1,000 bu.)	25,530	26,166	32,806
Flaxseed (1,000 bu.)	13,050	23,254	24,301
Hay (1,000 tons)	3,183	3,844	4,150
Oats (1,000 bu.)	60,603	49,726	55,104
Potatoes (1,000 bu.)	19,058	20,600	13,485
Rye (1,000 bu.)	2,710	4,928	9,360
Soybeans (1,000 bu.)	201	760	1,209
Sugar beets (1,000 short tons)	223	418	399
Wheat (1,000 bu.)	131,707	69,274	113,482

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways, roads and city streets in 1954 totaled \$34,796,262, and newly completed construction and reconstruction on highways and roads aggregated 1,105 miles.

Highways and roads on Jan. 1, 1955, totaled 116,616 miles (34,485 surfaced). Registered motor vehicles numbered 305,000 on Oct. 1, 1955, including 205,000 passenger cars. There were (1955) 6 railroads operating

5,258.84 line miles, 4 regularly scheduled *airlines*, and 444 *airports and airfields* (118 commercial and municipal, 2 military, and 324 others).

Communications media (1955) included 14 AM *radio stations* and 4 UHF operating *television outlets*; 10 daily *newspapers* (circulation, 143,416) and 112 other newspapers (circulation, 220,000); and (Jan. 1, 1955) 36,354 business and 107,617 residential *telephones*.

Principal Events, 1955.—There were 137 new oil wells completed in 1955, bringing the number of producers to a total of 588 wells in 26 pools. Five new pools were discovered during the year. The Beaver Lodge and Tioga oilfields, largest in the state and containing over 400 wells, were being developed in 1955 at a ratio of one well to each 80 acres.

There is one producing natural gas field in the state. Gas from wells in this field, at Tioga, formerly went to waste. In 1955, however, a 120-mile pipeline was completed from Williston to Minot, and through the Tioga field. This improvement will make natural gas available to 12 more cities in North Dakota, as well as making it possible to store surplus gas in underground reservoirs in Montana.

Garrison Dam, the largest earth-fill dam in the world, was practically completed in 1955, and the pool behind the dam reached a depth of more than 100 feet. By the end of 1955 the dam's turbines were expected to be producing hydro-electric power to be distributed over the federal government's Missouri Basin power system. (See also DAMS.) Under a plan of the U.S. Bureau of Reclamation, Devils Lake, the state's largest natural lake, which is now less than half of its one-time 140 square mile size, would be restored by water from the Garrison Dam reservoir. This step would not only provide water for irrigation but would further improve fishing in the area.

Agriculture in 1955 recorded one of its largest outputs in North Dakota history. Livestock and poultry production, as well as grain harvests, was high.

Politics was quiet in the 1955 off-election year. Perhaps the most interesting development was the discussion within the Nonpartisan League, a major state political faction, as to whether it should shift its base of operations from the Republican to the Democratic Party.

Principal Events by: C. W. LEIFUR,
Principal, Bismarck (N. Dak.) High School.

NORTHERN IRELAND. Under the Government of Ireland Act of 1920, this separate integral part of the United Kingdom of Great Britain and Northern Ireland has an area of 5,238 square miles, excluding inland waters. It is composed of the parliamentary counties of Antrim (pop., 231,145 in 1951), Armagh (114,255), Down (241,184), Fermanagh (53,044), Londonderry (105,448), and Tyrone (132,082), and the parliamentary boroughs of Belfast (443,680) and Londonderry (50,095). The population aggregated 1,370,933 at the 1951 census (1,374,400, est., in June 1952, excluding a net migratory loss of 11,064). Protestants compose about two thirds of the population; Roman Catholics constitute the remainder. Belfast is the capital city and chief port.

Government.—Executive power is vested in a governor (Lord Wakehurst, assumed office Dec. 3, 1952), representing the crown. Parliament consists of a 26-member Senate in which 24 members are elected by a 52-member House of Commons. Northern Ireland also elects 12 members to the United Kingdom House of Commons. To the latter body two members of Sinn Féin (Philip Clarke and Thomas J. Mitchell) were candidates at the general election on May 26, 1955, and headed the poll in Northern Ireland constituencies. On the ground

that they were then serving sentences for treason-felony and hence ineligible, their election was subsequently ruled invalid, and the Ulster Unionist candidates were declared elected.

Finance.—Reflecting an expanding economy, revenue was estimated in the 1955-56 budget at £83,820,000; expenditure at £72,769,000, compared with £76,200,000 and £63,620,000, respectively, in 1954-55. After allowing for an imperial contribution of £11 million (in 1954-55, £12 million), a surplus of £51,000 remained. The yield of £67,429,000 anticipated in 1955-56 from reserved taxes showed an increase over 1954-55 of £6 million and was the highest revenue yet estimated for Northern Ireland.

Education.—Expenditure on education was estimated at £7,730,000 for 1954-55. Educational facilities in 1953-54 included 1,619 primary schools (202,241 pupils; 5,972 teachers); 81 grammar schools (30,332 pupils; 1,595 teachers); 13 intermediate schools (8,240 pupils; 320 teachers); and 13 special (including hospital) schools (1,017 pupils; 66 teachers). Queen's University of Belfast had 2,577 students and a faculty of 214.

Production and Trade.—Agriculture, engaging the holders of more than 80,000 small farms, is the largest industry, and yielded a gross output of £89,250,000 in the 1953-54 crop year. The livestock population in mid-1954 included 957,400 cattle, 32,630 horses, 956,000 sheep, 812,700 pigs, and 11,590,000 poultry. Milk sales totaled 97 million gallons, of which 31,500,000 was used for butter. A decline of the flax acreage from 18,042 acres in 1953 to 10,100 acres in 1954 reflected an increasing trend toward textile production from synthetic fibers. United States purchases of linen declined by 12% in 1954. Synthetic fiber output was increased by the opening of a new mill at Coleraine. Launchings at Belfast shipyards in 1954 totaled 145,920 gross tons, comprising two passenger liners and 10 tankers and cargo vessels.

The value of external trade rose by £56,520,000 to a new record of £552,190,000 in 1954, the adverse trade balance being reduced to £14,760,000. Imports increased by about £24 million to £283,480,000, while exports rose by over £30 million to £268,710,000, agricultural exports being valued at £56,900,000.

In spite of the fact that more than 170 firms have started production in Northern Ireland since 1945, there were 27,785 unemployed (or 5.9% of the insured labor force of 470,000) on Sept. 12, 1955. An Advisory Development Council is helping the government to promote new industries.

Communications.—During 1953 the Ulster Transport Authority carried 478,234 tons of merchandise by rail and 1,426,315 tons by road; and 8,950,000 passengers by rail and 97,200,000 by road. The Great Northern Railway Board carried 1,301,833 tons of merchandise, 663,035 head of livestock, and 8,850,000 passengers. British European Airways maintains services with Great Britain and the continent.

NORTHERN RHODESIA. See RHODESIA AND NYASALAND, FEDERATION OF.

NORTHWEST TERRITORIES. The Northwest Territories comprise all that part of Canada north of the 60th parallel of north latitude (except those portions within the Yukon Territory and the provinces of Quebec and Newfoundland) and the islands in Hudson Bay, James Bay, and Ungava Bay (except those within the provinces of Manitoba, Ontario, and Quebec). The area is 1,304,903 square miles; the population (1951 census), 16,004, including 5,344 whites, 3,803 Indians, and 6,857 Eskimos.

Government.—In 1918, the Northwest Territories were divided for administrative purposes into the three districts of Mackenzie, 527,490 square miles; Franklin, 549,253; and Keewatin, 228,160. Provision is made by the Northwest Territories Act (Chapter 195, Revised Stat-

utes of Canada, 1952, as amended) for the government of the territories by a commissioner and a council of nine (one of whom is deputy commissioner). The council performs legislative functions analogous to those of a provincial legislature. Five of the members (senior federal officials) are appointed, and four are elected from electoral districts in the Mackenzie District (most recent election, Sept. 7, 1954). In 1955 the administration was headed by R. G. Robertson, deputy minister of northern affairs and national resources, as commissioner. The seat of government is Ottawa, but the council meets alternately each year at a point within the territories.

Education.—In 1955, the Department of Northern Affairs and National Resources operated federal schools at 19 locations. In addition, teachers were employed to teach patients in Northwest Territories hospitals, and two schools were conducted by private companies. Schools were also operated by missions of the various churches, with financial assistance from territorial and federal governments. The only organized school districts were at Yellowknife, where a 12-room public high school and a four-room separate school were in operation in 1955. The government of the Northwest Territories makes correspondence courses available free of charge to children and adults.

A vocational training program for the natives of the Northwest Territories and a special curriculum for use in Eskimo schools are being developed.

Public Health and Welfare.—During 1955, 11 hospitals were operated in the Northwest Territories: 8 by missions, 1 by a locally elected hospital board at Yellowknife, and 2 by private companies. Seven health centers were in operation. All hospitals and health centers receive grants from the government of Canada.

Under the program of National Health grants, an eyesight survey was under way in 1955 in the Mackenzie District. Chest X-rays are carried out during the summer months in conjunction with the Department of National Health and Welfare. Cancer diagnosis, tuberculosis treatment, dental services for children in Yellowknife, Fort Smith, and Hay River, and treatment of crippled children are provided without charge. Assistance for the aged, allowances for the blind and disabled, and payment of family allowances in kind are also provided.

Production and Industry.—Mining, fur trading, and fishing are the principal industries. Mineral production for the year 1954 was valued at \$26,414,000, of which uranium and pitchblende accounted for \$15,486,156; gold, for \$10,513,000; and silver, for \$47,880. Yellowknife continued to be the center of gold mining activity in the Northwest Territories. The hydroelectric power development on the Snare River, a federal project 94 miles northwest of Yellowknife, which commenced operation in 1948, assisted the development and operation of mining operations in the Yellowknife area. Crude oil production was continued at Norman Wells and amounted to 369,900 barrels.

Fur production for the year ended June 30, 1954, totaled 418,867 pelts valued at \$758,512. Trapping continued to be the chief occupation of the native population, and was strictly controlled by regulations. Reindeer herding in the Mackenzie Delta region was continued for the benefit of the native population. Reindeer round-ups in 1954 showed that there were about 7,800 animals in the five herds. A buffalo herd of about 12,000 animals in Wood Buffalo Park is preserved and protected. A limited slaughter of reindeer and buffalo for produce is made annually. Reindeer and buffalo meat are sold to residents and to mission hospitals and schools, as well as for Indian relief to the Indian Affairs Branch of the Department of Citizenship and Immigration. To assist needy Eskimos in the eastern Arctic, reindeer and buffalo skins are distributed annually by the Eastern Arctic Patrol.

Commercial fishing in Great Slave Lake and other waters in that vicinity during the summer season of 1954 and the winter season of 1954-55 produced a catch of some 6,627,000 pounds with a market value of \$2,000,000. Whitefish, lake trout, and inconnu constituted the principal catch.

The handicrafts of the Eskimos are being en-

couraged by the Canadian government, and a continually expanding market is being created in the populated centers of Canada by the Canadian Handicrafts Guild.

Transportation and Communications.—The Mackenzie District and western Arctic are served by water and air transportation. The all-weather Mackenzie Highway from Grimshaw, Alberta, to Hay River Settlement on Great Slave Lake continued to be used extensively during 1955. Commercial freight and passenger services were provided by public carriers over this highway, and water carriers operated a freight service across Great Slave Lake between Hay River and Yellowknife. The bulk of the heavy freight is still transported to most settlements during the summer months via the water route commencing at Waterways, Alberta, thence down the Athabasca and Slave rivers to Great Slave Lake and down the Mackenzie River to the Arctic Ocean. Regular mail, passenger, and express services were maintained by air throughout the year to all points in the Mackenzie District. Radio communications between important trading posts and settlements in the Northwest Territories and outside points are maintained through government and private radio stations.

The 1955 Eastern Arctic Patrol, carried out by the C.G.S. C.D. Howe, took supplies and personnel to northern settlements and had Northern Affairs administrative officers and federal medical and dental officers on board.

R. G. ROBERTSON,
Commissioner of the Northwest Territories.

NORWAY. A constitutional monarchy in northwestern Europe, Norway's area is 125,064 square miles and its population (end of 1954), 3,408,000, about 27 per square mile. Twenty cities of more than 10,000 population include the capital, Oslo (447,000), Bergen (116,500), Trondheim (60,000), and Stavanger (52,300).

Government.—The Norwegian Constitution of 1814, with amendments, provides for three separate branches of government. Legislative power is vested in the 150-seat Storting, a modified, unicameral Parliament. The Storting elects three fourths of its members to constitute the Odelsting and one fourth as the Lagting. Franchise is granted to all citizens 21 years of age. Executive authority is vested in the king (since 1905, Haakon VII), who exercises his power through a cabinet headed by a premier (Einar Gerhardsen since January 1955). Cabinet members head 13 government departments. Except for World War II, Norway has had all-Labor governments since 1935.* Judiciary power is centered in the Supreme Court, the ultimate court of appeal, which comprises a chief justice and 18 justices.

Religion and Education.—About 96% of the population are members of the Evangelical Lutheran State Church, but other creeds enjoy full freedom of worship. In 1950 a total of 123,314 persons did not belong to the state church, including 30,036 Pentecostals, 11,570 Methodists, 8,964 Baptists, and 4,753 Roman Catholics.

Elementary education is free and compulsory for all children aged 7 to 14. In 1953-54 a total of 479,334 were registered in elementary schools and 43,958 in secondary schools. Most schools, including universities, are free. The 5-year "gymnasium" qualifies for admission to universities and colleges. Institutions of higher learning include the Oslo and Bergen universities, the Agricultural College at Aas, the University of Technology at Trondheim, and the Dental College at Oslo, the total enrollment in 1953 being 5,057.

Social Welfare.—About 90% of Norway's total population is protected by the Health Insurance Plan, which includes medical examination, extensive hospitalization, special services, and cash benefits. Membership is obligatory for all wage earners, regardless of income. Children between 7 and 18 receive free dental care. The social security program includes mother and child care, family subsidies, unemployment insurance, old-age pensions for persons 70 and over, war disability and seamen's pensions, and care of the poor, blind, and disabled.

* The present Storting, elected Oct. 12, 1953, is composed of 77 Laborites, 27 Conservatives, 15 Liberals, 14 Agrarians, 14 Christian Democrats, and 3 Communists.

Defense.—Norway is a charter member of the North Atlantic Treaty Organization (NATO). Military service is compulsory for men 20 years of age. Conscripts serve 18 months in the navy and air force, and 16 months in the army. The defense program calls for establishment of 2 standing and 9 readily mobilizable brigades; an air force of 11 squadrons; expansion of the navy's coastal units; and a national guard of more than 100,000 men.

Labor.—On Jan. 1, 1955, a total of 538,618 workers, about 50% of all wage earners, belonged to unions affiliated with the Federation of Labor. Most large companies are members of the Norwegian Employers Association. Wage contracts are negotiated through collective bargaining.

Finance and Economy.—The monetary unit, the krone, is divided into 100 öre. The official exchange rate is Kr. 7.15 to the U.S. dollar. The 1955-56 budget, balanced at Kr. 4,471 million, allocates Kr. 900 million for defense. The national debt, as of Jan. 1, 1955, totaled Kr. 5,814 million, including Kr. 1,490 million in foreign debts. The balance of payments on goods and services in the first half of 1955 showed a deficit of Kr. 487 million, as against a deficit of Kr. 463 million in the same period of 1954. At the end of June 1955, Norway had used \$214.6 million of its \$254.8 million credit quota in the European Payments Union.

Foreign Trade.—Norway's commodity exports (excluding ships) totaled Kr. 3,958 million in 1954, as compared with Kr. 3,466 million in 1953. Commodity imports totaled Kr. 6,013 million in 1954, as against Kr. 5,629 million in 1953. Exports of goods and ships in the first half of 1955 totaled Kr. 2,240 million, as against Kr. 1,969 million in the same period of 1954; imports totaled Kr. 3,999 and 2,902 million, respectively. The import surplus, including net ship imports of Kr. 634 million, amounted to Kr. 1,759 million, as against Kr. 1,461 million in the 1954 period. Imports from the United States rose from Kr. 276.3 to Kr. 370.2 million, while exports to the United States declined from Kr. 201.6 to Kr. 185.2 million. Leading exports were pulp and paper, ores and metals, fish and fish products, chemicals and fertilizers, and oils and fats. Major imports were machinery and transport equipment, ores and metals, fuels, textiles, and grains.

Shipping.—By Sept. 30, 1955, Norway operated 1,930 ships over 100 gross tons, totaling 7,170,000 gross tons. Tankers represented 58% of the total.

Fisheries and Whaling.—The total fish catch by mid-1955 was 1,139,000 metric tons, including 1,016,327 tons of herring, as against 1,339,000 tons at the same time in 1954. Norway's nine Antarctic whaling expeditions produced 110,000 metric tons of whale oil, as against 154,000 in the 1954 season.

Industry.—Industrial production in the first six months of 1955 was 4% higher than in the same period of 1954. The biggest increase was scored by the export industries, with a rise of 6%. New dwellings totaled 15,259 units.

Hydroelectric production in 1955 was estimated at 23 billion kw.-hr., averaging 6,500 kw.-hr. per capita, the highest average in the world. Plant capacity was scheduled to reach a total of 4,440,000 kw. by the end of the year. Some 300,000 tons of coal were shipped from Norwegian mines in the Arctic archipelago of Spitsbergen.

Agriculture and Forestry.—Only 4% of the total area is arable. Total farm production in 1955 was estimated at 1,680 million feed units (one unit equals 2.205 pounds, or 1 kilogram, of barley) as against 2,124 million in 1954. Major crops were hay (2,385,000 tons); grains, mainly barley and legumes (340,000 tons); and potatoes (1 million tons). Logging produced 241 million

cubic feet of timber during the first half of 1955.

Communications.—In 1955, the Norwegian State Railways operated a total of 2,719 miles of track, of which 764 miles were electrified. Some 29,000 miles of public roads include over 10,000 miles of state highways, of which 11% are surfaced with concrete or asphalt. Most of the domestic air routes are operated by Scandinavian Airlines System, whose extensive network connects Norway with western Europe, the United States, South America, Africa, the Near East, Hong Kong, and Japan.

Principal Events, 1955.—The 50th anniversary of the peaceful dissolution of Norway's 90-year union with Sweden was marked on June 7, 1955 with commemorative ceremonies reaffirming the present friendship between the two nations. High tribute was paid to King Haakon for the loyalty, wisdom, and leadership he has shown since his election as king of Norway in 1905. The 83-year-old monarch suffered a broken thigh bone in June 1955, but was back on his feet in November. Also in June, the British royal couple paid a 3-day state visit to Oslo.

The government put through a series of measures designed to reduce the big deficit on the foreign balance of payments and to curtail the high rate of capital investments. Toward the end of 1955 there were indications that these measures had begun to take effect.

The steel rolling mill at Mo-i-Rana, with a 170,000-ton capacity, began production in 1955. The first project for exporting hydroelectric power to Sweden was expected to be approved by Parliament, and work was started on an atomic reactor to produce steam for industry. The new Flesland airport, linking Bergen with Oslo and the world air network, was opened. The summer drought cut key farm crops below normal.

Laborite Oscar Torp resigned as premier on Jan. 15, 1955, and was succeeded by Laborite Einar Gerhardsen. Labor's position as the leading party was generally consolidated in the nationwide municipal elections of Oct. 3, 1955.

In early November 1955, Premier Einar Gerhardsen went to Moscow on a 12-day goodwill visit, during which a 3-year trade agreement between the two countries was negotiated. In a joint communiqué, signed by Mr. Gerhardsen and Soviet Premier Bulganin, Norway reiterated that she would not be party to any policy having aggressive aims, and would not permit foreign armed forces to be stationed on her territory unless Norway were attacked or threatened with attack.

Explorer Thor Heyerdahl, of *Kon-Tiki* fame, set off on a year-long archaeological expedition to Easter Island in 1955. Two major Norwegian exhibitions, presenting folk tale drawings by Kittelsen and Moe, and pictorial tapestries by Hannah Ryggen, toured the United States. The third annual Bergen Music Festival was a notable success.

ANDREW MOURSUND,
Editor, "News of Norway," Norwegian
Embassy in Washington.

NOVA SCOTIA. A province situated on the eastern seaboard of Canada, Nova Scotia is 374 miles long, 60 to 100 miles wide, and has 4,624 miles of coastline and 516 fresh-water lakes within its area of 21,068 square miles. Almost an island, the province is connected with the mainland by the Isthmus of Chignecto, which is 17.5 miles wide. The mid-1955 population was estimated at 683,000, all but 25% of whom



NOVA SCOTIA FILM BUREAU

The new Angus L. Macdonald Bridge, spanning Halifax harbor.

are of British origin. The chief centers are Halifax, the capital (90,000; metropolitan area, 125,000, according to mid-1955 figures); and (with 1951 census figures) Sydney (31,317); Glace Bay (25,586); Dartmouth (15,037); Truro (10,786); New Waterford (10,423); and New Glasgow (9,933).

Government.—The province is administered by a lieutenant governor, appointed by the federal government for a 5-year term. He is advised by a House of Assembly of 37 members, elected usually about every 4 years, the term limit being 5 years. The province has 10 federal senators appointed for life, and 12 members of the House of Commons, elected about every 4 years, for a term limit of 5 years.

Education.—About 21% of the population is enrolled in free, compulsory, and nonsectarian public schools. There are 10 universities and colleges, one state-owned agricultural college, a normal college for teacher training, two vocational schools, and 19 recently organized rural and regional high schools. There are also special schools for the blind, the deaf, and for miners in colliery districts, and engineering and technical schools in industrial centers.

Finances.—Estimated revenue for the fiscal year 1955-56 was \$54,529,036. Estimated ordinary expenditures were \$49,925,360, plus sinking-fund payments of \$4,476,085.

Industry.—The returns from agriculture are about \$60 million a year. There are 23,000 farms, and 500,000 acres of arable or cultivated land. The 1955 apple crop, the result of an excellent season, totaled 4 million bushels. Nova Scotia is specializing in egg, poultry, and hog production, with remarkable results.

Coal mining in Nova Scotia has been hard hit by competition from oil and natural gas. Nevertheless, output in 1955 was running at approximately 5,800,000 tons, in comparison with a normal 6 million. The province produces about 90% of Canada's gypsum, the output of which is increasing steadily, and which is valued at over \$4 million annually. The mining of base metals is also active. Total mineral production in 1955 was expected to exceed \$80 million, of which coal would probably account for over \$50 million.

The gross value of factory products in the province in 1955 was estimated at \$324 million. In 1955, Sydney, one of Canada's largest steel centers, produced an estimated 576,000 tons of ingots, including blooms, billets, slabs, rails, and smaller articles.

Fisheries production in 1955 was estimated at 375 million pounds, valued at \$45 million. Nova Scotia is located near fishing grounds which are considered the most prolific in the

world, and leads the world in lobster production. Lumbering production remained normal in 1955 at an annual rate of 425 million board feet (sawn lumber), mostly softwoods. Total forest products were estimated at \$50 million.

Latest figures (1954) on hydroelectric power show that facilities of the Nova Scotia Power Commission produced 431,371,084 kilowatt-hours. In September 1955 an additional plant on the Mersey River was opened, providing a further supply of 6,240 horsepower.

Communications.—Nova Scotia has 15 large, deep harbors; 1,420 miles of first-class railway trackage; and four major airfields in full operation. A new, modern commercial airfield is about to be constructed near Halifax, to leave the Eastern Passage field entirely free for military and naval operations. The Sydney airfield handles a large volume of international transatlantic traffic.

There were in 1955 over 15,000 miles of roads, 1,837 miles of which were paved and 600 miles of which were gravel-surfaced. The remainder are well-maintained country roads. Motor vehicle registration in 1955 was an estimated 145,000.

In 1955 several major transportation projects were inaugurated. These included the \$22,700,000 Canso Causeway, deepest in the world, joining mainland Nova Scotia with Cape Breton Island and eliminating rail and car ferries across the Strait of Canso; the \$11 million Angus L. Macdonald Bridge, spanning Halifax harbor and joining the capital city with Dartmouth (see also BRIDGES); and the \$8,500,000 car ferry *William Carson*, in service between Cape Breton Island and Newfoundland.

The \$5 million modern car and passenger ferry, *Bluenose*, connecting Yarmouth, N.S., and Bar Harbor, Me., began operations on Jan. 4, 1956. Bids have been called for a \$2 million federal highways ferry, to ply between Cariboo, N.S., and Woods Island, Prince Edward Island.

GEORGE E. HERMAN,
Chief, Nova Scotia Travel Bureau.

NUCLEAR PHYSICS. See ATOMIC ENERGY; PHYSICS.

NURSING. Although the supply of nurses has increased sharply in recent years, the total volume of available nursing services does not meet the increased demand. This increased demand has come about for many reasons: increased demand for hospital services; widespread hospital construction, with the resulting increase in hospital beds; delegation to nurses of procedures formerly carried on by physicians to release the physicians' time for the new medical techniques that are being developed; the need for more clinical instruction and supervision of student nurses; the decrease in the length of the work week; and the employment of nurses who work part time and of married nurses who have home responsibilities. These demands have resulted in the employment of many auxiliary nursing workers who need instruction and supervision.

Nearly 400,000 nurses are practicing actively in nursing in the 48 states and the District of Columbia, according to figures released by the U.S. Public Health Service early in 1955. The number of hospital nurses, the largest single group, has increased by 15 per cent in the last 10 years to a total of 231,000. Private duty nurses, the next largest group, number 74,000. There are 32,500 nurses working in doctors' offices, 25,300 public health nurses, 14,000 industrial nurses, and 8,200 nurse educators in schools

of nursing, as well as 1,900 nurses practicing in a variety of other fields. The ratio of nursing personnel, including student nurses, in general hospitals has risen from 69 per 100 patients to 74 per 100, the highest in history.

More students entered schools of professional nursing in 1954 than in any year since World War II. Schools of professional nursing in the United States and territories admitted 44,930 new students, a 3.7 per cent increase over the 43,327 students admitted in 1953. These same schools graduated 28,539 students during 1954.

New York has been added to the growing list of states whose legislatures have provided scholarships, by appropriating \$105,000 for 300 scholarships for students entering schools of nursing in the fall of 1955. Minnesota and Connecticut, as in previous years, again appropriated money for scholarship aid to student nurses.

Funds for nursing research and for fellowships for nurses who are receiving special training in research methods were included in the 1956 appropriation for the U.S. Department of Health, Education, and Welfare. This appropriation, amounting to \$625,000, for the U.S. Public Health Service is the first to be earmarked specifically for these purposes. Previously grants for research projects in nursing came from funds that were made available for scientific investigations in many health fields.

The American Nurses' Association established an independent, nonprofit corporation, the American Nurses Foundation, which can receive "tax-free funds for desirable charitable, scientific, literary, or educational projects in line with the aims and purposes of the American Nurses' Association," and allocated \$100,000 to the foundation for its first budget.

The National League for Nursing, whose membership ranks are open to nurses, members of allied professions, and lay persons, held its second biennial convention in St. Louis in May. Aides, practicing as nursing aides in a general, psychiatric, or other specialized institution, are eligible now for membership.

The National Student Nurse Association met at the same time. This body has established a national headquarters with the two nursing organizations, the American Nurses' Association and the National League for Nursing, at 2 Park Avenue, New York.

On Aug. 9, 1955, President Eisenhower signed the bill authorizing commissions for male nurses and medical specialists in the military Reserves. Under this law—the Bolton Amendment (sponsored by Rep. Frances P. Bolton of Ohio) to the Army-Navy Nurses Act of 1947—Pvt. Edward L. T. Lyon was commissioned the first male army nurse on Oct. 6, 1955.

The *Canadian Nurse*, official publication of the Canadian Nurses' Association, and the *Nursing Times*, official publication of the Royal College of Nursing of Great Britain, observed their 50th anniversaries in 1955.

MARIAN G. KENT,
Assoc. Editor, "American Journal of
Nursing."

NUTRITION. Obesity.—During the last few years there has been a major shift in interest and emphasis in the field of nutrition. Previously nutritionists were primarily concerned with the inadequacies in intake of the essential minerals, vitamins, and proteins. Increased consumption of the various protective foods—those which contain the greatest amounts of the essential nutri-

ents—was continually urged. Now we find much attention being paid to obesity. It is desirable to maintain an adequate intake of the essential food elements, but at the same time prevent the consumption of too much food. This has imposed a much more difficult job of nutrition education.

The reasons for this shift in emphasis are several. Improved food habits, better economic status, enrichment of certain foods, etc., have greatly lessened the problem of undernutrition. At the same time, advances in the control of many infectious diseases have made the so-called degenerative diseases, associated with older age groups, the primary causes of death in the United States. These include diseases of the cardiovascular system and cancer. Statistics gathered by life insurance companies have demonstrated that individuals who are overweight have a life expectancy that is considerably less than those who maintain a normal weight. The implications in nutrition are obvious.

Other studies demonstrate that in certain areas of health, particularly with relation to heart disease, the situation in the United States is unfavorable when compared with other parts of the world. It has been stated that America's health, as measured by the mortality of white males in the productive period between 45 and 64 years of age, is lagging significantly behind that of many countries. Whether this represents primarily a nutrition problem or is due to the greater incidence of obesity in the United States is not clear, but it is significant that countries such as Japan, Italy, and Spain, whose diets are generally considered rather inadequate in several respects, show more favorable mortality statistics in this age group. While many causes must be considered, such as racial differences, previous removal of susceptible persons by other diseases, the presumed excessive tempo of American life, etc., there are strong indications that nutrition plays an important part.

Obesity is caused by the eating of too much food. Prevention or treatment obviously must consist of reducing the food intake. The simplicity of these statements does not imply that treatment is easy. In spite of a multitude of diets and methods which have been recommended, there appears to be no satisfactory method of treatment at present. A substantial number of patients reduce their weight with nearly any method, but most of them regain their previous weight in a matter of months or years. It seems apparent that until more is known of the basic causes of obesity, it is unlikely that substantial progress will be made. Numerous factors, such as the hereditary background, customary food habits, amount of exercise, psychological problems, and metabolic differences, are involved, and to varying degrees in different individuals. Substantial experimental evidence may be cited to support each as the cause of obesity. One might therefore expect that no one method would be uniformly successful in its treatment or prevention.

Obesity places an extra strain on the heart and is undesirable in other respects, but it cannot be considered as proved that it is a cause of arteriosclerosis or other degenerative diseases. The factors, dietary or otherwise, which promote obesity may favor the development of other diseases; or individuals with a tendency to develop obesity may also have a tendency to develop arteriosclerosis, for example. The most suggestive data indicating the value of reducing diets comes from life insurance companies. People refused in-

surance because of obesity at one time, but later insured after they have successfully reduced, show an improved life expectancy, compared with obese people in general. The data may be unreliable, however, since there is no assurance that the observed group is characteristic of the entire obese population.

The psychological aspects of obesity probably deserve greater consideration, particularly in view of the widespread public disapproval of the condition. Some investigators believe that by psychiatric examination it may be possible to determine the likelihood of success of reducing regimens. Also some individuals suffer psychological damage when subjected to reducing diets. A certain degree of self-control is necessary for all people, and particularly for those with a tendency for obesity, but medical supervision is probably desirable when weight control is difficult.

Arteriosclerosis.—Arteriosclerosis (hardening of the arteries) is one of the common causes of death apparently associated with obesity. There is considerable evidence that abnormalities in cholesterol metabolism are also involved. The principal findings are as follows:

(1) Arteriosclerosis similar to that found in man can be produced in a variety of animals by feeding diets containing cholesterol which produces high blood cholesterol levels.

(2) Arteriosclerosis in man is generally associated with high blood cholesterol levels.

(3) The cholesterol levels in the blood of the United States population gradually rise with age and are much higher than in similar populations which do not have a high incidence of arteriosclerosis.

(4) Blood cholesterol levels are higher in men between ages 40 and 65 than in women, and the incidence of arteriosclerosis is also higher in men.

(5) Cholesterol is only found in food products of animal origin. Hence the dietary intake of cholesterol in the United States is higher than in those parts of the world where meat, milk, and eggs are not common components of the diet.

The following evidence suggests that cholesterol intake is not a primary factor in arteriosclerosis:

(1) Most experimental studies have used rather high levels of cholesterol feeding, and the findings may not be germane to the problem in human beings.

(2) Those areas of the world where arteriosclerosis is relatively uncommon have diets that are characterized by a low intake of fat, protein, and generally lower calorie intakes (less obesity). Thus any of these factors may be of as much importance as the cholesterol intake. One group of investigators is particularly impressed with the general correlation over the world between the amount of fat eaten and the incidence of arteriosclerosis. In the United States, 40 to 50 per cent of the calories is commonly consumed as fat, compared with 10 to 20 per cent in Italy, Japan, and Spain.

(3) The cholesterol level in the blood has been shown in various studies to be influenced by weight gain and weight loss, sex hormones, thyroid hormone, and the kind and amount of fat eaten.

(4) Cholesterol is known to be synthesized in the body from other materials. There is considerable evidence that when cholesterol is eaten, the amount synthesized is decreased, and vice versa. If this control over body cholesterol is sufficiently precise, moderate intakes of cholesterol should have no influence on the amount in the blood.

(5) A considerable degree of individual variation is found in the way experimental animals under careful dietary control respond to cholesterol feeding.

The conclusion appears inescapable at this time that the level of blood cholesterol is importantly related to the development of arteriosclerosis, and that high cholesterol levels probably cause the disease. Furthermore, it would appear that practically the entire adult popula-

tion in the United States has levels of blood cholesterol which are high, compared with other parts of the world. It is obviously of importance to delineate the factors involved, but readily apparent that these are not known at the present time.

Vegetable Diets.—Several groups of children in German orphanages have been studied when they were receiving diets almost entirely of vegetable origin. The diets contained large amounts of bread, since the study was designed to determine the value of white bread, enriched white bread, and whole wheat bread. The primary purpose of the study was a partial failure since most of the vitamins added by enrichment were found to be already present in adequate amounts.

In any event it is of considerable interest that these diets allowed very rapid growth in children, although practically no meat, milk, eggs, or cheese was supplied. No difference in value among the kinds of bread could be found, whether it was white, enriched with vitamins, or whole wheat. The children were somewhat underweight and undernourished at the beginning, and all groups improved markedly. Furthermore, after a group of the children had received this diet for a year, a pint of milk was supplied. No improvement could be detected during a six-month period. All of the groups received supplements of vitamins A, D, and C, as well as calcium, since these nutrients are not supplied by bread. The amounts of these materials in the diets did not influence the results. It is apparent that the proteins of vegetable diets are not as inferior as generally believed, and that apparently adequate diets can be formed without many of the high-quality foods usually considered essential. (See also BIOCHEMISTRY; CHEMISTRY.)

D. MARK HEGSTED,
FREDRICK J. STARE,

Department of Nutrition, School of Public Health, Harvard University.

NUTS. In 1955, peanut production in the United States, as estimated by the Department of Agriculture (December 1955 est.) was 1,610 million pounds, as compared with 1,025 million pounds in 1954. The average yield per acre was 956 pounds. Major peanut-producing states, with estimated 1955 production, were as follows: Georgia, 546,000,000 pounds; Texas, 239,235,000 pounds; Alabama, 220,375,000 pounds; North Carolina, 216,200,000 pounds; and Virginia, 177,975,000 pounds.

The 1955 pecan crop was estimated at 96,900,000 pounds, as compared with 92,502,000 pounds in 1954. Chief producing states, with estimated 1955 production, were as follows: Oklahoma, 33,000,000 pounds; Texas, 22,000,000 pounds; and Louisiana, 17,000,000 pounds.

The 1955 almond crop in California was estimated at 35,600 tons, as compared with 43,200 tons in 1954. The English walnut crop in California and Oregon was estimated at 75,400 tons in 1955, the same as for the preceding year. The 1955 filbert crop in Oregon and Washington totaled 7,400 tons, as compared with 8,670 tons in 1954.

NYASALAND. See RHODESIA AND NYASALAND, FEDERATION OF.





OATS. See GRAINS.

OBITUARIES. For a list of prominent persons who died in 1955, see **NECROLOGY**.

OBSERVATORIES. See Index entry.

OCCUPATIONAL REHABILITATION. See Index entry, *Vocational Guidance*.

OCEANIA. A term commonly applied collectively to the Polynesian, Melanesian, and Micronesian island groups of the South and Southwest Pacific, although it is also sometimes taken to include the islands of Australasia and the Malay Archipelago. (See **PACIFIC ISLANDS**.)

OCEANOGRAPHY. *Variations in Sea Level.*—It would be indeed fortunate if there existed on this earth some point whose elevation would not change from time to time and which could be used as a basic reference level for surveying and mapping the earth's surface and the bottom of the seas. Mean sea level has been used for many years as a reference level, but we now know that sea level, even after correcting for tides, varies from month to month, from year to year, and from place to place. For example, at Galveston, Texas, sea level is now about one foot higher than it was in 1910; and Cedar Keys, Fla., in the Gulf of Mexico is about 8 inches higher than St. Augustine, Fla., on the Atlantic coast.

A purely theoretical study on the "Deformation of Ocean Surface Induced by Winds" by Dr. Koji Hidaka,¹ a prominent Japanese oceanographer, is certain to stimulate a renewed and vigorous attack on the problem of sea level variations. Hidaka showed that with certain simplifying assumptions, necessary for solving his equations, and with other assumptions regarding the turbulence of the oceans (which seem not unreasonable today), our present wind systems over the earth may produce a surface elevation as high as 115 feet at 35° north latitude and a depression as low as 130 feet at 60° south latitude. Although he is careful to state that his result is only for a hypothetical case, the magnitude of these effects is so great as to command our attention. It is almost certain that in the near future this problem will be solved in detail with high-speed electronic computers. It is equally certain that in the future no studies on the variation in sea level can be undertaken without a thorough study of the effect of the variation of winds over the surface of the earth.

Stagnant Sea Water.—It is a common occurrence in deep basins of fresh water lakes to find water so stagnant that it contains large amounts of dissolved hydrogen sulfide formed by the decaying organic matter on the bottom. Since hydrogen sulfide is easily detected by its foul odor, its presence is a very convenient indicator of stagnant conditions. In a paper presented before the 18th Annual Meeting of the American Society of Limnology and Oceanography at East Lansing, Mich., in September 1955, F. A. Richards and R. F. Vaccaro of the Woods Hole Oceanographic Institution reported the first instance of hydrogen sulfide in the open ocean. Water samples taken from the Cariaco Trench off the coast of Venezuela showed unmistakable evidence of stagnation.

Stagnant water has been found in the deep parts of the Caspian Sea, which is saline, and from a few almost land-locked fjords and bays; but until now, the open ocean has never shown signs of stagnation in any of its basins. Aside

¹Journal of the Oceanographical Society of Japan, Vol. 10, No. 4, December 1954, pp. 175-188.



FRENCH EMBASSY PRESS AND INFORMATION DIVISION

The bathyscaphe, developed in France, is used extensively in underwater exploration and oceanographic research.

from its obvious newsworthy interest to oceanographers, this discovery will be of definite value in studying the circulation of water in, and in the neighborhood of, a fair-sized basin.

Lake Currents.—For the past 50 years, oceanographers have used the so-called dynamic height method of computing ocean currents. This method has been highly successful on the high seas where the water is at least a half-mile deep. In shallower waters some misgivings have been entertained regarding its validity. A paper by J. C. Ayers of Cornell University, presented at the meeting mentioned above, described a successful application of the dynamic height method to the currents of Lake Huron. The calculated results are in good agreement with direct current measurements. The importance of this work is not so much that one may now use the dynamic height method on the larger lakes (although that in itself is a major contribution), but that oceanographers will have an opportunity to study the conditions under which this method is valid in shallower waters, and thus make an extensive region of coastal waters the subject of study by conventional means.

Underwater Exploration.—The National Geographic Society (q.v.) has long been active in sponsoring various types of underwater exploration. In 1955 three distinct types of exploration were reported in the society's magazine.

The bathyscaphe, a type of submarine developed in France, has made so many descents to deep waters that its operation is almost routine. One descent described by Capt. Jacques-Yves Cousteau turned out to be thrilling, spectacular, and highly informative. When exploring a submarine canyon at a 5,300-foot depth near Toulon in the Mediterranean Sea, the bathy-



WOODS HOLE OCEANOGRAPHIC INSTITUTION

Precision recorders, used here by the Woods Hole Oceanographic Institution, measure ocean depths up to 20,000 feet and accurately indicate contour of ocean floor.

scaphe bumped into one of the precipitous walls of the canyon and started an undersea avalanche which took the form of a "mudslide." The existence of mudslides has been established on good but largely indirect evidence. Although their effects on the shape of the ocean bottom have been disputed for many years, this is the first time one has been observed in action.²

The need for direct observation of the ocean floor is not restricted to great depths alone. Many important processes occur where rivers empty into the ocean, but in these situations, the water is usually so murky as to make observation difficult. The Aquascope, a two-man diving chamber operated from a pontoon barge, was specifically designed for shallow, turbid water. In 1953-54 it was used in the lower reaches of Chesapeake Bay for interesting biological observations and for first-hand study of the effect of intense "tidal scour" and the interesting "two-way undersea river," where there is a layer of fairly fresh water flowing seaward over a layer of ocean water flowing upstream.

Although there are many advantages to direct observation of the ocean bottom, equipment for this work is expensive and observations are usually restricted to a comparatively small area. To explore larger areas, an underwater "sled camera" was devised by Harold E. Edgerton.³ This camera was capable of taking 800 pictures during a one-hour tow over the ocean bottom. However, it can be used only over smooth bottoms. (See also GEOGRAPHY AND EXPLORATION; GEOLOGY.)

F. C. W. OLSON,

*Associate Professor of Oceanography,
Florida State University.*

OFFICE OF DEFENSE MOBILIZATION. The Office of Defense Mobilization was established in the Executive Office of the President by Reorganization Plan No. 3, which became effective on June 12, 1953. Transferred to the new ODM were all of the mobilization planning functions of the National Security Resources Board; the stockpiling functions formerly exercised by the Munitions Board of the Department of Defense; and the responsibilities assigned to the former ODM, including those carried out by the Defense Production Administration under the Defense Production Act of 1950, as amended. As a result, there was established for the first time a single staff

² Cousteau, Capt. Jacques-Yves, "Diving through an Undersea Avalanche," *The National Geographic Magazine*, Vol. CVII, No. 4, April 1955, pp. 538-542.

³ Edgerton, Harold E., "Photographing the Sea's Dark Underworld," *The National Geographic Magazine*, Vol. CVII, No. 4, April 1955, pp. 523-537.

arm responsible for assisting the president in carrying out central leadership, direction, and coordination of the defense readiness and mobilization programs.

The Office of Defense Mobilization is divided into six major areas: production, materials, stabilization, manpower, telecommunications, and plans and readiness. A Science Advisory Committee and a Health Resources Advisory Committee also exist to advise the director.

At the end of fighting in Korea, ODM directed its attention to the long-range problems of rounding out the mobilization base and perfecting a balanced system of plans designed to meet any future emergency. Primary emphasis was placed on identifying and closing those gaps in the nation's mobilization structure which could become serious bottlenecks in the event of stepped-up or full mobilization.

The government has acquired a broad backlog of experience in meeting the problems of limited mobilization, such as was required by the Korean War, and of general mobilization within a secure homeland, such as was effected in World War II. Today, however, a new situation exists because of the capacity of an enemy to inflict a large-scale attack on the United States. So long as the danger of attack exists, priority attention must be devoted to defensive measures which will lessen the country's vulnerability and, as a result, help to lessen the possibility of enemy attack.

Parallel to the Federal Civil Defense Administration's job of protecting people, ODM has the job of protecting the government so that it could provide continued leadership after an attack. This job involves: first, determination of essential wartime functions; second, emergency or permanent relocation of those essential functions outside major target areas; and third, staffing those functions. To help accomplish the latter, the Defense Production Act amendments of 1955 provided for the establishment of an Executive Reserve in the mobilization agencies. Leaders from industry, labor, education, and other private enterprises, who are asked to join the reserve, will be trained to fill important mobilization posts and will be immediately available in case of emergency. Concurrently, an emergency organizational structure is being developed which could be put into effect in the event of attack, to enable the government to cope more effectively with the many unprecedented problems which would face the nation.

ODM and the other government agencies having mobilization responsibilities are also concentrating on the development of measures designed to lessen the vulnerability of the nation's mobilization base through such means as dispersion, protective construction, and stockpiling. Many such operations can be and are being performed by private enterprise and local groups under federal guidance. The financial incentives of the Defense Production Act, the Stockpiling Act, Section 168 of the Internal Revenue Act of 1954, and related legislation assist in meeting these objectives.

ODM has begun a series of "dry run" tests of the adequacy of national mobilization plans, to determine the government's ability to mobilize the economy to meet the needs of a war of survival, and its ability to continue its own essential functions under attack. During June 15-17, 1955, ODM cooperated with the Federal Civil Defense Administration (q.v.) in conducting Operation Alert. Thousands of key officials,

headed by the president, left Washington and practiced performing their essential wartime functions from relocation sites. The test revealed many weaknesses in plans and administrative procedures, which are being corrected. Another large-scale test was scheduled to be held in 1956.

ARTHUR S. FLEMING,
Director.

OFFICE OF EDUCATION, U.S. A major unit of the U.S. Department of Health, Education, and Welfare, the Office of Education was established in 1867 and is now organized for the following principal functions: (1) research in the many phases of education, including studies on status and trends, and of educational programs, procedures, and results; (2) educational services—consultative and advisory; and (3) administration of federal grants to aid education.

Highlights of the work of the Office of Education for the fiscal year 1955 included:

(1) Completion of a 2-year detailed analysis of state programs of financing schools. Information was obtained on sources of tax revenue, amounts collected from each source, amounts devoted to school purposes, and plans for apportioning these funds to local units.

(2) Initiation of studies of the responsibilities of state departments of education in the areas of school housing, curriculum, and public transportation.

(3) Completion of a report on projected building plans, as part of the School Facilities Survey, authorized by P.L. 815, and begun in 1951, for the purpose of determining school plant needs.

(4) Preparation of a detailed history and study of the characteristics of the program of school district reorganization in each state.

(5) Development of a study to determine why some 30,000 college graduates prepared for teaching each year do not teach, and to determine the factors which contribute to the retention or loss of young teachers in communities where rates of turnover vary significantly.

(6) Consideration of teaching of foods and nutrition in terms of current needs of home-making teachers, of other professional home economists, and of homemakers.

(7) Discussion of the strengths, weaknesses, and problems of the junior high school at a national conference called by the Office of Education and held in Washington, D.C., Feb. 24–26, 1955.

(8) Completion of a study made of the range and average salary for beginning rural teachers.

Among other accomplishments, provision was made for a detailed enrollment forecast, by grade, for 1953–54 through 1959–60. Increases in enrollment in public elementary and secondary schools have been so great that there has arisen a strong demand for such a forecast.

Recognition of the increasing importance of suburban development caused the office to curtail slightly the recurring study of "Statistics of City School Systems" in order to develop the kinds of data which might be most useful in comparing suburban schools with each other and with other types of schools.

During the fiscal year the Office of Education cooperated with a number of government agencies; for example, with the Public Health Service in the preparation of a study to stimulate the training of more practical nurses; with the Department of Agriculture and the Labor De-

partment on the development of a uniform transfer card to facilitate the transfer from school to school of children of migrant agricultural workers; with the White House Conference Committee staff in the preparation of a workbook designed to assist the states in planning for their state conferences; with the Federal Civil Defense Administration in providing educators with basic civil defense data and suggestions useful in developing civil defense programs in schools; with the Children's Bureau in preparing its proposal for a program in the field of juvenile delinquency; and with the Department of State in the international field through the International Teacher Exchange Programs, the Technical Training Programs, and active participation with the International Cooperation Administration by supplying professional support for its programs.

Major activities of the office involving non-government organizations included: cooperation with the National Education Association in the planning and managing of the National Conference on Rural Education held in Washington, D.C., Oct. 4–6, 1954; assistance to the American Association for the Advancement of Science on a plan to send traveling science libraries to small high schools; and cooperation with the University of Michigan and the National School Service Institute on a research project on "Children's Body Measurements for Planning and Equipping Schools."

In addition to the foregoing activities, the office issued a number of bulletins, pamphlets, and miscellaneous publications reporting the findings of surveys and studies conducted by staff members. Two monthly periodicals—*School Life* (October–June) and *Higher Education* (September–May) were issued on a subscription basis. (See also EDUCATION.)

SAMUEL MILLER BROWNELL,
U.S. Commissioner of Education.

OFFSHORE PROCUREMENT PROGRAM. See FOREIGN AID PROGRAMS, U.S.

OHIO. North Central state, United States; admitted to the Union, March 1, 1803. The "Buckeye State" ranks 34th in area and 5th in population (1955) among the 48 states.

Area and Population.—Area: 41,222 square miles (land, 41,000; inland water, 222), divided into 88 counties. Population: (1950) 7,946,627; (est., July 1, 1955) 8,946,000. Urban places with 1950 populations above 15,000 are as follows:

Akron.....	274,605	Lorain.....	51,202
Alliance.....	26,161	Mansfield.....	43,564
Ashtabula.....	23,696	Maple Heights.....	15,586
Barberton.....	27,820	Marietta.....	16,006
Canton.....	116,912	Marion.....	33,817
Chillicothe.....	20,133	Massillon.....	29,594
Cincinnati.....	503,998	Middletown.....	33,695
Cleveland.....	914,808	Newark.....	34,275
Cleveland Heights.....	59,141	Niles.....	16,773
Columbus (<i>capital</i>).....	375,901	Norwood.....	35,001
Cuyahoga Falls.....	29,195	Parma.....	28,897
Dayton.....	243,872	Piqua.....	17,447
East Cleveland.....	40,047	Portsmouth.....	36,798
East Liverpool.....	24,217	Sandusky.....	29,375
Elyria.....	30,307	Shaker Heights.....	28,222
Euclid.....	41,396	South Euclid.....	15,432
Findlay.....	23,845	Springfield.....	78,508
Fremont.....	16,537	Steubenville.....	35,872
Garfield Heights.....	21,662	Tiffin.....	18,952
Hamilton.....	57,951	Toledo.....	303,616
Ironton.....	16,333	Warren.....	49,856
Lakewood.....	68,071	Youngstown.....	168,330
Lancaster.....	24,180	Zanesville.....	40,517
Lima.....	50,246		

Executive.—Chief state officers in 1955:
Governor: Frank J. Lausche (Democrat)
Lieutenant Governor: John W. Brown
Secretary of State: Ted W. Brown
Treasurer: Roger W. Tracy
Attorney General: C. William O'Neill
Supt. of Public Instruction: R. M. Eyman



An interchange near Youngstown on the Ohio Turnpike, which was opened for its entire length on Sept. 30, 1955.

Constitution and Judiciary.—The present constitution went into effect in 1851. The Supreme Court comprises seven justices; chief justice in 1955 was Carl V. Weygandt.

Legislature.—The General Assembly (Senate, 33 members; House of Representatives, 136) meets in odd-numbered years commencing the first Monday in January.

The 1955 session of the Ohio General Assembly (January 4 to July 13) appropriated \$981,655,643 for all purposes of state government. Principal legislation included establishment of a \$10 million program in research and training for state mental institution personnel; creation of a Bureau of Workmen's Compensation, a Division of Capital Planning, and a state Board of Education; adoption of a new state school-aid program based on the teacher unit; and abolishment of the fee system of compensating justices of the peace. Legislators' salaries were increased from \$3,200 to \$5,000 (beginning in 1957), and an extra \$2,500 allowance was authorized for the speaker of the House and president pro tempore of the Senate. A new electric roll-call system, used in 1955 for the first time, cut roll-call time from 8 minutes to 1 minute. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$1,287,494,456; expenditures, \$1,209,576,675; treasury balance, \$262,915,764; long-term indebtedness, \$151,870,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$693,962,330, including \$288,955,950 from a 3% general sales tax and excise taxes on cigarettes and alcoholic beverages; \$31,098,818 from licensing exclusive of motor vehicle licensing; and \$46,404,886 from property taxes. The state has no individual income, corporate income, or poll taxes.

Banking.—As of June 30, 1955, the state's 233 national banks had \$4,917,472,000 in assets, \$3,205,875,000 in demand deposits, and \$1,331,348,000 in time deposits; the state's 400 other banks had \$5,608,307,372 in assets, \$2,778,719,519 in demand deposits, and \$2,328,676,308 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 18, inclusive. Operating expenditures for public elementary

OHIO SCHOOL STATISTICS, 1954-55

Type of school	No.	Teachers	Students
Kindergarten..... ¹	1,708	103,563	
Public elementary (1-6, 1-8).....	2,945	30,959	953,851
Public junior high (7, 8, 9).....	130	3,349	91,169
Public senior high (7-12, 9-12, 10-12).....	1,004	18,325	398,807
Private and parochial elementary and secondary.....	788	7,825 ²	269,800
Colleges and universities.....	60	6,090 ²	116,000 ²

¹ Classes numbering 1,137. ² Estimated.

and secondary education in the 1953-54 fiscal year totaled \$336,482,569.51 (\$252.58 per pupil). Income for operating expenditures comprised \$233,323,969.11 from local school districts, \$94,505,836.20 from the state, and \$7,354,878.02 from the federal government. Expenditures for construction and improvements amounted to \$123,447,202.91. Teachers' salaries averaged \$3,857.84 (elementary school teachers, \$3,760.29; high school teachers, \$4,051.09).

Social Welfare.—Public assistance expenditures from federal and state funds (excluding operating costs) in 1954 totaled \$130,564,405, including \$75,571,294 for old-age assistance, \$16,810,837 for dependent children, \$2,735,670 for the needy blind, \$4,863,161 for the permanently and totally disabled, and \$30,583,443 for general relief; a monthly average of 253,933 persons received public assistance. Expenditures for mental institutions amounted to \$42,055,219; for correctional and penal institutions, \$14,035,257.

OHIO WELFARE INSTITUTIONS

(As of June 30, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.....	3	7,443
Hospitals for the mentally ill.....	25	28,663
Hospitals for the tubercular criminally insane (1955).....	1	597
Sanatoriums for the tubercular (1955).....	1	262
Schools for the blind (1955).....	1	190
Schools for the deaf (1955).....	1	253
Juvenile diagnostic centers.....	1	178
Soldiers and sailors homes (1955).....	1	450
Soldiers and sailors orphans' homes (1955).....	1	750
Homes for veterans' widows.....	1	38
Training schools for delinquent boys.....	1	894
Training schools for delinquent girls.....	1	329
Reformatories for males.....	1	2,721
Reformatories for females.....	1	367
Prisons.....	1	4,939
Prison farms.....	2	2,384

Labor Force.—The "covered" labor force in 1954 averaged 2,396,374. Nonagricultural employment in June 1955 numbered 3,035,400. There were 37,400 insured unemployed workers in June 1954, and the state paid \$87,152,791 in unemployment compensation for the year ending June 1954.

Manufacturing.—In 1953, 11,956 establishments employed a yearly average of 1,420,095 persons who received \$6,352,819,000 in salaries and wages. Value added by manufacture was \$11,192,103,000, and investment in new plant and equipment amounted to \$735,425,000. Earnings of production workers in manufacturing averaged \$78.88 for an average work week of 39.6 hours in 1954, and \$84.86 for 40.7 hours in the first half of 1955.

MAJOR OHIO MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (dollars)
Nonelectrical machinery.....	238,788	\$1,163,465	\$2,020,137
Primary metal industries.....	203,235	972,766	1,804,111
Transportation equipment.....	174,375	857,864	1,534,771
Fabricated metal products.....	133,622	586,527	1,026,995
Electrical machinery.....	99,913	418,436	775,144
Rubber products.....	79,900	354,037	570,117
Food and kindred products.....	71,603	264,066	556,369
Chemicals and allied products.....	42,234	192,041	522,043
Stone, clay, glass products.....	64,730	257,399	460,204
Printing and publishing.....	58,673	257,065	457,429
Paper and allied products.....	34,402	150,761	268,809

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—Ohio normally ranks first among the states in production of clays, lime, and building

sandstone, second in crushed stone, and third in sand and gravel. In 1953 it stood fourth as a salt producer. Ohio ranked 12th in that year in the total value of mineral output, with 2.11% of the United States total.

OHIO MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.).....	12,532,437	\$ 32,957,308
Clay.....	5,634,596	9,327,706
Coal.....	34,736,773 ¹	131,475,408 ¹
Coke ²	11,717,556	163,191,278
Ferroalloys ²	424,607	82,178,965
Iron, pig ²	15,025,152	742,881,582
Lime.....	2,945,800	35,310,353
Natural gas (1,000 cu. ft.).....	37,542,000	8,334,000
Petroleum (bbl.).....	3,610,000	9,710,000
Salt.....	3,040,237	7,484,795
Sand and gravel.....	24,032,388 ³	27,076,276 ³
Stone ⁴	25,784,561	39,642,601
Other minerals.....		1,524,014
Total.....		302,843,461

¹ Preliminary 1954 production data: 31,472,066 short tons (\$115,908,361). ² Value for processed materials is not included in the total. ³ 1954 figures: 22,831,747 short tons (\$22,288,647). ⁴ Excluding that used in making cement and lime. 1954 limestone production: 29,997,438 short tons (\$46,983,362).

Fisheries.—The commercial fish catch from Lake Erie in 1954 totaled 23,434,842 pounds. Ohio is normally the leading producing state for blue pike (4,575,956 pounds in 1954), yellow pickerel (4,971,155 pounds in 1954), and yellow perch (3,991,080 pounds in 1954).

Agriculture.—Cash farm income in the first half of 1955 totaled \$476,020,000, and for the full year 1954 comprised \$703,339,000 from livestock and livestock products, \$388,001,000 from crops, and \$6,504,000 from government payments. Receipts from principal crops and livestock in 1954 included: hogs, \$228,502,000; dairy products, \$204,764,000; cattle, \$126,285,000; corn, \$95,478,000; wheat, \$90,629,000; eggs, \$84,557,000; and soybeans, \$68,750,000.

The state's 177,074 farms (19,991,586 acres; harvested cropland, 10,339,955) averaged 112.9 acres and \$21,057 in value of land and buildings per farm in 1954. There were 126,868 farms with telephones and 171,739 with electricity. Livestock on farms (Jan. 1, 1955) included 2,438,000 cattle, 1,359,000 sheep, 2,812,000 hogs, and 19,262,000 chickens (excluding commercial broilers). During the week of Oct. 24-30, 1954, 294,718 family and hired workers were engaged in farming.

OHIO CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	3,114	3,000	3,112
Buckwheat (1,000 bu.).....	287	123	70
Cherries (tons).....	2,344	1,670	2,200
Corn (1,000 bu.).....	177,847	232,066	226,800
Grapes (tons).....	13,270	17,500	17,300
Hay (1,000 tons).....	3,670	3,961	3,906
Maple sirup (1,000 gal.).....	152	123	113
Oats (1,000 bu.).....	44,466	56,684	70,980
Peaches (1,000 bu.).....	929	1,000	890
Pears (1,000 bu.).....	196	150	155
Popcorn (1,000 lb.).....	28,236	28,060	34,875
Potatoes (1,000 bu.).....	6,355	5,750	5,500
Soybeans (1,000 bu.).....	20,250	29,708	30,725
Strawberries (1,000 crates).....	155*	94	153
Sugar beets (1,000 short tons).....	183	247	273
Tobacco (1,000 lb.).....	25,315	28,840	22,520
Wheat (1,000 bu.).....	52,018	48,510	43,993

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1953-54 fiscal year totaled \$115,000,000, and newly completed construction and reconstruction aggregated 400 miles.

Highways and roads in July 1955 totaled 88,895 miles (77,495 surfaced). Registered motor vehicles numbered 3,556,380 on Sept. 8, 1955, including 2,897,481 passenger cars. There were 35 railroads in 1955 operating 8,416 line miles, 13 regularly scheduled airlines, and 398 airports and airfields (174 commercial and municipal, 4 military, and 220 private).

Communications media (1955) included 84 AM and 51 FM radio stations and 12 operating television outlets (10 VHF and 2 UHF); 99 daily newspapers (circulation, 3,310,077) and 265 other newspapers; and (Jan. 1, 1955) 802,966 business and 2,340,723 residential telephones.

Principal Events, 1955.—The 241-mile east-west Ohio Turnpike was opened throughout its entire length at midnight on September 30. The \$326 million superhighway connects the northwestern corner of the state, at the Indiana line, with the Pennsylvania Turnpike near Youngstown. A second toll road, 400 miles long, to run from Cincinnati northeast to Conneaut, with a Toledo spur, had legislative approval, with the governor to fix the exact route. Consulting engineers estimated the cost at \$516,000,000, and toll revenue for 1961 at \$29,123,000. Certain segments, particularly the Toledo spur, were considered doubtful financial risks. A re-examination of construction costs was undertaken at the governor's urging.

Revenues from the controversial axle-mile tax on trucks were endangered by a state Supreme Court decision in July that Michigan trucks were exempted from paying the tax by a 1937 reciprocity agreement, and that levies collected from Michigan truckers should be refunded. Gov. Frank J. Lausche then sent letters to 20 state governors asking that reciprocity agreements be amended to permit the tax; otherwise, he indicated, cancellations of the pacts might be necessary. Renegotiations encountered difficulties, and further litigation was in prospect.

The state General Assembly enacted a stringent law aimed at obscene comic books and films, but turned down Governor Lausche's proposal to restore movie censorship, destroyed by court decisions in 1954. A school foundation subsidy law, effective Oct. 1, 1956, changed the state aid formula from pupil numbers to a teacher-classroom yardstick. The governor criticized the measure for failing to provide additional sources of revenue but let it become law without his signature. During the session the Republican legislature overrode 17 of the Democratic governor's 32 vetoes. (See also above, *Legislature*.)

Four statewide issues drew a large off-year vote to the polls. An initiated bill, backed by organized labor, proposed to increase unemployment compensation benefits and exempt them from being affected by guaranteed annual wage payments. It was defeated by a large margin. The voters also rejected two proposed constitutional amendments to permit the legislature to change the salaries of judges and certain other public officials during their terms of office, but approved a bond issue of \$150,000,000 for a building program for state welfare and educational institutions, to be financed by a 1-cent-per-package tax on cigarettes.

Municipal elections in November indicated a Democratic trend in the larger cities. Lieut. Gov. John W. Brown and Attorney General C. William O'Neill, after the election, announced their candidacies for the Republican nomination for governor. On December 14, Governor Lausche declared his candidacy as a favorite son for the 1956 Democratic nomination. A week later he also announced his candidacy for the U.S. Senate seat held by Republican George H. Bender.

An explosion, apparently of accumulated gas, in a restaurant in Andover, Ashtabula County, killed 21 persons and injured many others in the year's worst disaster in Ohio.

Principal Events by: EUGENE H. ROSEBOOM,
Professor of History, The Ohio State University.

OIL. See PETROLEUM.

OILS AND FATS. See FATS AND OILS.

OKLAHOMA. Southwestern state, United States; admitted to the Union, Nov. 16, 1907. The "Sooner State" ranks 17th in area and 27th in population (1955) among the 48 states.

Area and Population.—Area: 69,919 square miles (land, 69,031; inland water, 888), divided into 77 counties. Population: (1950) 2,233,351; (est., July 1, 1955) 2,136,000. Urban places with 1950 populations above 10,000 are as follows:

Ada.....	15,995	Midwest City.....	10,166
Ardmore.....	17,890	Muskogee.....	37,289
Bartlesville.....	19,228	Norman.....	27,006
Chickasha.....	15,842	Okahoma City	
Duncan.....	15,325	(capital).....	243,504
Durant.....	10,541	Okmulgee.....	18,317
El Reno.....	10,991	Ponca City.....	20,180
Enid.....	36,017	Sapulpa.....	13,031
Guthrie.....	10,113	Seminole.....	11,863
Lawton.....	34,757	Shawnee.....	22,948
McAlester.....	17,878	Stillwater.....	20,238
Miami.....	11,801	Tulsa.....	182,740

Executive.—Chief state officers in 1955:

Governor: Raymond Gary (Democrat)
Lieutenant Governor: Cowboy Pink Williams
Secretary of State: Andy Anderson
Treasurer: John D. Conner
Attorney General: Mac Q. Williamson
Supt. of Public Instruction: Oliver Hodge

Constitution and Judiciary.—The present constitution went into effect in 1907. The highest civil court, the Supreme Court, comprises nine justices; chief justice in 1955 was N. B. Johnson. The highest criminal court, the Criminal Court of Appeals, comprises three justices; chief justice in 1955 was Dick Jones.

Legislature.—The Legislature (Senate, 44 members; House of Representatives, 121) meets in odd-numbered years commencing the first Tuesday after the first Monday in January.

Among other actions in its 1955 session, the legislature created a Department of Industry and Commerce and a Supreme Court Commission; authorized the Department of Health to administer the program of immunization against polio; and permitted school districts to provide special education or training for mentally retarded children. Other legislation amended the school code; adopted various water resources measures; established an agricultural code; increased drivers' license fees; authorized voting machines for certain counties and limited the amount of money which political candidates may spend on their campaigns and which individuals may contribute to political campaigns; facilitated the rehabilitation and redevelopment of slum areas; permitted the formation of multicounty libraries; and created city-county Planning and Zoning Commissions. An amendment to the constitution to revise the sections dealing with school support was adopted on April 5.

Finances.—State treasury receipts (1954-55 fiscal year), \$313,951,414.77; expenditures, \$309,878,954.88; treasury balance, \$75,860,077.19; long-term indebtedness, \$29,454,000.

Taxation.—State tax revenues (1954-55 fiscal year): \$178,203,922.05, including \$71,779,754.15 from a 2% general sales tax and selective sales and gross receipts taxes; \$31,631,856.95 from licensing; and \$18,957,608.44 from individual income taxes. The state has no corporate income or poll tax.

Banking.—As of June 30, 1955, the state's 197 national banks had \$1,891,556,000 in assets, \$1,535,856,000 in demand deposits, and \$202,462,000 in time deposits; the state's 186 other banks had \$409,596,144.02 in assets, \$241,788,500.70 in demand deposits, and \$77,362,052.14 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 17, inclusive. Operating expenditures of \$97,416,867 (\$223 per pupil) for public elementary and secondary schools in the 1953-54 fiscal year comprised \$48,123,932 from local school districts, \$45,493,677 from the state, and \$3,799,258 from the federal government. Expenditures for construction and

improvements totaled \$12,202,062. Teachers' salaries averaged \$3,502 (elementary school teachers, \$3,248; high school teachers, \$3,596).

OKLAHOMA SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-8).....	2,437	11,429	399,392
Public junior high (7-9).....	227	1,940	
Public senior high (9-12).....	760	6,326	123,578
Junior colleges.....	16	272	6,103*
State teachers colleges.....	6	354	8,751*
Colleges and universities.....	11	2,070	36,627*

* Data for 1954-55.

Social Welfare.—Public assistance expenditures from federal and state funds (excluding operational costs) for the 1954-55 fiscal year totaled \$105,779,607.51, including \$66,430,546 for old-age assistance, \$13,616,249 for dependent children, and \$1,704,366 for the needy blind; a monthly average of 168,272 persons received public assistance. Expenditures for health and welfare institutions amounted to \$15,662,939.96; for correctional and penal institutions, \$3,418,195.45.

OKLAHOMA WELFARE INSTITUTIONS, 1954-55*

Type of institution	No.	Pop.
General hospitals (1954).....	2	13,379
Veterans hospitals (1954).....	1	1,189
Institute for cerebral palsied (1954).....	1	145
Hospitals for the mentally deficient.....	2	1,891
Hospitals for the mentally ill.....	4	7,919
Sanatoriums for the tubercular (1954).....	2	775
Schools for the blind.....	1	103
Schools for the deaf.....	1	208
Hospitals for crippled children.....	1	150
Homes for dependent children.....	2	336
Soldiers and sailors homes.....	1	160
Training schools for delinquent boys.....	2	206
Training schools for delinquent girls.....	2	139
Reformatories for males.....	1	482
Prisons.....	1	2,093

* Monthly average.

Labor Force.—Nonagricultural employment on Aug. 1, 1955, numbered 548,300, and for the full year 1954 averaged 535,400. There were 8,600 "covered" unemployed workers in August 1955, and the state paid \$12,474,594.92 in unemployment compensation benefits to insured workers in 1954.

Manufacturing.—All "covered" establishments, numbering 1,050 in 1954, employed an average of 78,129 persons who received \$314,391,441 in salaries and wages. Value added by manufacture in 1953 totaled \$553,816,000, and investment in new plant and equipment amounted to \$62,894,000. Earnings of production workers in manufacturing averaged \$72.04 for an average work week of 41.4 hours in 1954, and \$73.34 for 41.2 hours in the first half of 1955.

MAJOR OKLAHOMA MANUFACTURES, 1954

	Persons engaged	Payroll & profit of income (millions of dollars)	Value of output
All manufactures.....	84,000	\$487	\$1,732
Petroleum and coal products.....	12,090	145	712
Food products.....	15,000	63	378
Transportation equipment.....	13,000	75	182
Machinery.....	10,000	55	111
Stone-clay-glass products.....	6,000	33	67
Fabricated metals.....	6,000	29	63
Primary metals.....	3,000	21	47
Printing.....	5,000	20	40
Chemicals.....	2,000	11	32
Lumber.....	2,000	7	22

(Source: *The Blue Book of Southern Progress, 1956.*)

Mining.—Oklahoma stood 6th among the states in value of mineral output in 1953, with

4.72% of the United States total. The state ranked 4th in production of petroleum and natural-gas liquids.

OKLAHOMA MINERAL PRODUCTION, 1954

(In short tons except as noted)

Mineral	Quantity	Value
Clays.....	296,000	\$ 355,000
Coal.....	1,800,000	10,800,000
Lead.....	12,600	3,427,200
Natural gas (1,000 cu. ft.).....	625,000,000	34,300,000
Natural gasoline (bbl.).....	10,200,000	27,500,000
Petroleum (bbl.).....	188,423,000	500,000,000
Petroleum gases (bbl.).....	11,500,000	17,200,000
Sand and gravel.....	5,130,000	4,435,000
Stone*.....	9,500,000	8,800,000
Zinc.....	42,650	9,468,300
Other minerals.....	.....	12,206,300
Total.....	.....	628,491,800

* Excluding that used in making cement or lime.
(Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm receipts for the first half of 1955 totaled \$183,692,000 and for the full year 1954 comprised \$307,458,000 from livestock and livestock products, \$244,816,000 from crops, and \$6,211,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$193,011,000; wheat, \$142,909,000; dairy products, \$53,178,000; cotton lint, \$48,591,000; and hogs, \$24,762,000.

The state's 118,979 farms (35,630,045 acres; harvested cropland, 10,249,134) averaged 299.5 acres and \$18,840 in value of land and buildings per farm in 1954. There were 53,299 farms with telephones and 108,450 with electricity. Livestock on farms (Jan. 1, 1955) included 3,182,000 cattle, 432,000 hogs, and 7,248,000 chickens (not including commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 227,224 family and hired workers were engaged in farming.

OKLAHOMA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Broomcorn (tons).....	12,830	9,000	17,100
Corn (1,000 bu.).....	20,287	3,624	8,112
Cotton lint (1,000 bales).....	390	293	450
Cottonseed (1,000 tons).....	160	122	183
Hay (1,000 tons).....	1,761	1,576	2,004
Mung beans (1,000 lb.).....	10,975	400	7,000
Oats (1,000 bu.).....	15,781	20,750	12,002
Peanuts (1,000 lb.).....	110,572	40,500	127,840
Pecans (1,000 lb.).....	19,160	14,500	33,000
Rye (1,000 bu.).....	526	918	490
Sorghum grain (1,000 bu.).....	9,736	4,797	13,375
Soybeans (1,000 bu.).....	330	170	437
Wheat (1,000 bu.).....	79,304	70,770	23,784

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$42,046,189.78, and newly completed construction and reconstruction aggregated 349.5 miles.

Highways and roads on Jan. 1, 1955, totaled 10,432.8 miles (8,691.8 surfaced). Registered motor vehicles numbered 986,565 in 1954, including 707,412 passenger cars. There were 19 railroads (1955) operating, in 1954, 6,240.34 line miles and (1955) 5 regularly scheduled airlines and (1954) 149 airports and airfields (64 public and 85 limited).

Communications media included (1955) 51 AM and 2 FM radio stations and 10 operating television outlets; 52 daily newspapers (circulation, 699,538) and 244 other newspapers; and (Jan. 1, 1955) 199,545 business and 473,045 residential telephones.

Principal Events, 1955.—The 25th Legislature, in session from January to May, adjourned without passing any measure to increase taxes. To provide for proper financing of an integrated public school system, however, the legislature submitted to the people a referendum measure

for a proposed constitutional amendment. This action was necessary because the state constitution provided for separate public schools for Negro and white students, with separate tax levies for school support and maintenance. The measure to revise the tax structure in support of public schools was approved in a special election held April 5, by a vote of 231,097 to 73,021. In the field of higher education the state Board of Education on June 6 voted to open all state colleges and universities to Negroes. Formerly undergraduate students had attended Langston University, a segregated institution, although Negro graduate students had for several years been admitted to other state colleges.

Recent decisions by the U.S. Supreme Court relative to integration have likewise furnished other guidance to Oklahoma. A. B. McDonald, an Oklahoma City Negro, on November 14 won his fight against an Oklahoma statute which required identification of his race on an election ballot. Another decision, on the use of public parks and playgrounds by all races, caused Oklahoma to abandon plans for a half-million dollar lodge and recreational area for Negroes in the Sequoyah State Park.

A tornado smashed through Blackwell (1950 pop., 9,199) on May 22, killing 20 persons, injuring 250 others, and crushing some 400 homes and other structures.

Indian City, two miles southeast of Anadarko, was officially opened in August as a permanent tourist attraction. Here may be seen re-created habitations of Indians of the Plains Tribes before contact with the whites: the thatched roof and sidings of a Caddo tribal home, Wichita grass houses, Apache wickiups, Pawnee earth lodges, and tepees of the Kiowa, Comanche, Cheyenne, and Arapaho tribes. Visitors are invited to watch Indians at work and play and to attend ceremonial dances.

The site of the National Cowboy Hall of Fame, at the northeastern fringe of Oklahoma City and near two national highways, was dedicated on November 11. The cowboy shrine and museum, a cooperative enterprise of organizations in 17 western states, will be a tribute to the principal legend of the West and to the cattle-men who made the legend possible.

*Principal Events by: J. STANLEY CLARK,
Author, "Open Wider Please: The Story of
Dentistry in Oklahoma" (1955).*

OLD-AGE AND SURVIVORS INSURANCE. See Index entry.

OLD-AGE STUDIES. See the Index entry, *Gerontology*.

OLEOMARGARINE. See MARGARINE.

OLIVES. See FRUITS.

OMAN AND MUSCAT. See ARABIA.

ONIONS. See VEGETABLES.

ONTARIO. Ontario, Canada's second largest province, has an area of 412,582 square miles (including 49,300 square miles of water), 10.7% of the total area of Canada. It is the most populous of the provinces, its population being estimated by the Dominion Bureau of Statistics at 5,183,000 as of June 1, 1955. Of its 29 cities, the principal ones (with populations as of Dec. 31, 1954) are: Toronto, the provincial capital (metropolitan area, 1,250,773; city of Toronto, 682,415); Hamilton, 220,705; Ottawa, the federal capital, 208,915; Windsor, 126,034; and London, 98,666.

Government.—The province is administered by a lieutenant-governor (the Hon. Louis O. Breithaupt), who



NATIONAL FILM BOARD OF CANADA

Boy Scouts trade items of interest at their 8th World Jamboree, at Niagara-on-the-Lake, Ont., in August 1955.

is appointed by the federal government; an Executive Council, or cabinet; and the Legislative Assembly, composed of 98 members. As of Jan. 13, 1956, the standing of the political parties in the Legislative Assembly was as follows: Progressive Conservatives, 84; Liberals, 10; Cooperative Commonwealth Federation, 3; and Liberal-Labour, 1. The prime minister is the Hon. Leslie M. Frost.

Education.—There is a complete system of elementary and secondary schools in Ontario. During the school year 1954-55, there were 1,056,902 pupils enrolled, and 33,093 full-time certificated teachers. The province has 7 universities. The University of Toronto had an enrollment of 10,464 in October 1954.

Finance.—For the year ended March 31, 1954, net ordinary revenue totaled \$372,973,316; and net ordinary expenditure, \$372,040,302, including interest, exchange, etc., on the public debt of \$52,456,200. The gross capital debt as of March 31, 1954, was \$884,231,206.

Agriculture.—A little less than 13 million acres are in improved, occupied farm land. Cash income from the sale of farm products in 1954 was estimated at \$704,544,000, of which grain, seeds, and hay accounted for 4%; vegetables and other field crops, 15%; and livestock and poultry, 46%.

Forestry.—Forestry occupies an important place in Ontario's economy, the net value of production in 1952 being \$108,744,000.

Minerals.—Mineral production in 1954 amounted to \$503,757,000. Ontario is not only Canada's foremost producer of gold (2,361,000 ounces in 1954, valued at \$80,460,000), but is the world's foremost producer of nickel (316,019,000 pounds in 1954, valued at \$176,556,000). Copper, platinum, silver, and iron are also produced.

Manufacturing.—Ontario is the chief manufacturing province in Canada. In 1953 there were 13,114 manufacturing establishments employing 634,554 persons, to whom \$2,017,982,000 was paid in salaries and wages. The gross value of factory shipments was \$8,876,505,000. The five leading industries included in the latter figure are: motor vehicles and parts, \$1,122,347,000; nonferrous metal smelting and refining, \$376,501,000; pulp and paper, \$352,414,000; primary iron and steel, \$352,408,000; and slaughtering

and meatpacking, \$327,326,000. Other important industries are rubber goods, heavy machinery, agricultural implements, and petroleum products.

Hydroelectric Power.—Most hydroelectric power is made available throughout Ontario by the publicly owned Hydro-Electric Power Commission of Ontario. The chief sources of developed power within the province are the Niagara, Ottawa, Abitibi, Nipigon, and Mississagi rivers. The dependable peak load, both generated and purchased, as of Dec. 31, 1953, was 3,565,350 kw., and the total energy, both generated and purchased, was 20,912,445,364 kw.-hr.

Transportation.—There were approximately 80,892 miles of public highways, roads, and urban streets in 1953. Motor vehicle registrations in 1954 numbered 1,487,210. In 1953 there were 10,385.6 single-track miles of railways operated in Ontario, the principal operating companies being the Canadian National Railways, the Canadian Pacific Railway, and the Ontario Northland Transportation Commission. In 1954 there were 167 licensed airports, of which 82 were land ports and 85 were water ports.

Principal Events, 1955.—The Canadian National Exhibition held its annual show at Toronto in late August and early September; it was attended by approximately 3 million people during its two-weeks' duration. This is the world's largest annual exhibition, and is held in its own permanent buildings. The Canadian International Trade Fair, which is held annually in Toronto in the early summer, is the continent's largest annual business fair, and is centered at the Canadian National Exhibition grounds.

Ontario continued in 1955 to attract large numbers of tourists. The total number of traveler's vehicle permits issued for United States automobiles entering the province in 1954 was 1,492,378.

The eighth world jamboree of the Boy Scouts was held August 20-27 at Niagara-on-the-Lake, attended by 10,800 Scouts from 64 countries.

In the election of June 9, the Progressive Conservatives won an overwhelming victory, returning 83 members to the Legislative Assembly. (See also OTTAWA; TORONTO.)

H. G. ROWAN,

Department of Economics, Province of Ontario.

OPERA. See MUSIC.

OPHTHALMOLOGY. Glaucoma.—A drug called diamox acetazolamide is now being used in the treatment of glaucoma. Taken by mouth, this drug reduces pressure within the eyeball, thereby alleviating for many patients the main symptoms of glaucoma. Diamox acts through the suppression of the enzyme carbonic anhydrase, thus lessening the secretion of aqueous fluid in the anterior chamber of the eye. This in turn causes the eye to be softer. Diamox may also favorably affect any condition in which there is an excess of fluid, whether in the eye, the meningeal spaces, or elsewhere in the body. Improvement in the symptoms of edema, when they take the form of excessive intraocular pressure, may also be expected by the administration of diamox.

Toxoplasmosis.—Another condition affecting the eye is toxoplasmosis. Toxoplasmic involvement in the eye is the result of an infection with an animal parasite, *Toxoplasma gondii*. Multiple lesions are produced in the choroid and retina. The clinical diagnosis is based on accompanying symptoms consisting of X-ray evidence of cerebral calcification, and serological findings. Cur-

rent treatment consists of using sulfonamides, antibiotics, the adrenocorticotrophic drugs, and antiparasitic drugs.

Uveitis.—The main single destroyer of sight is chronic uveal tract inflammation. Uveitis may be due to infection from without or within the body. The chief clinical features of this condition are impaired vision, mild pain, ocular fatigue, photophobia, ciliary injection, a deeper anterior chamber, sometimes filled with exudates and containing scars binding the iris to the lens of the eye. Pressure within the eyeball may also be increased. Complications are retinal detachment, cataract, and atrophy of the retina or entire eyeball. This condition has stubbornly resisted all treatment. Lately, however, treatment results have been somewhat improved by the use of the sulfonamides, antibiotics, and adrenocorticotrophic drugs.

Retinal Detachment.—Improvements have been devised in the diagnosis and treatment of retinal detachment, which is still a serious eye condition. It is believed that almost every retinal detachment has a hole, but the latter cannot always be located. Instruments called transilluminators are used to help find these holes, and more delicate and accurate transilluminators have been devised. Improvements have also been made on diathermization needles and equipment.

In addition to diathermization, scleral resection has been used as a treatment. This operation consists of excising a small strip of the sclera (the white coat of the eye) and resewing the scleral envelope. This enables the retina to reattach in a smaller scleral envelope.

Toxic Damage.—Improved types of goggles, helmets, face masks, hoods, gas masks, supplied-air respirators, air line respirators, and cartridge type respirators have been devised to protect industrial workers from toxic eye hazards. Antibiotics, cortisone, and hydrocortisone are the main drugs used after initial first aid is required. Later, scarring may be lessened by application of the beta ray. If scarring is very severe, a corneal transplant frequently results in the restoration of vision.

Fungus Infection.—Improved treatment has been utilized for both fungus infections of the eye and lids, and the effects of fungicides. Fungus diseases usually involved are actinomycosis, blastomycosis, and histoplasmosis. Fungicides frequently responsible for ocular irritation include chlorophenol, cycloheximide, formaldehyde, pentachlorophenol, paradichlorobenzene, and tetrachlorophenol.

Genetic Effects of Radioactivity.—Considerable thought has been given to eye conditions which might result from the genetic effects of radioactive fall-out. It is possible that individuals exposed to excessive radioactivity will develop recessive characteristics through a series of generations so that a recessive tapeto-retinal disease will emerge. Radioactive fall-out might develop individuals with recessive mutant characteristics of the cornea, lens, iris, choroid, or optic nerve. It might be able to produce recessive carcinogenic characteristics.

In the past, ophthalmologists have been concerned with curing defects that were acquired by the patient. Defects of a hereditary character were considered incurable unless they were cataracts which could be removed, or corneas which lent themselves to keratoplasty. Improvement in diagnosis, in the knowledge of prophylaxis, and in the means of treatment will change prognosis from unfavorable to favorable.

The genes act in certain ways in the development of characteristics. These can be reduced to biochemical terms. They are similar to protein changes stimulated by enzymes. The genes control the production of enzyme proteins, which in turn have an effect on the characteristics that are developed. Ophthalmologists hope to be able to utilize nuclear fission and nuclear fusion to change the effects of enzymes wherever they are deleterious.

ROLAND I. PRITIKIN,
Eye Surgeon and Consulting Ophthalmologist;
Author of "Essentials of Ophthalmology."

M. L. DUCHON,
Ophthalmologist; Author of "What to Tell the Parents of a Cross-Eyed Child," etc.

OPINION POLLS. See the Index entry, *Public Opinion Surveys.*

ORANGES. See FRUITS.

ORCHESTRAS. See MUSIC.

OREGON. Northwestern coastal state, United States; admitted to the Union, Feb. 14, 1859. The "Beaver State" ranks 9th in area and 32d in population (1955) among the 48 states.

Area and Population.—Area: 96,981 square miles (land, 96,315; inland water, 666), divided into 36 counties. Population: (1950) 1,521,341; (est., July 1, 1955) 1,664,000. Urban places with populations above 10,000 (1950, unless otherwise indicated) are as follows:

Albany.....	10,115	Medford.....	19,050*
Astoria.....	12,331	Pendleton.....	11,774
Bend.....	11,409	Portland.....	373,628
Corvallis.....	16,207	Salem (capital).....	44,947*
Eugene.....	35,879	Springfield.....	12,436*
Klamath Falls.....	15,875		* Special census, 1954.

Executive.—Chief state officers in 1955:

Governor: Paul Patterson, Republican (died Jan.

31, 1956; succeeded by Elmo Smith)

Secretary of State: Earl T. Newbry

Treasurer: Sigfrid B. Unander

Attorney General: Robert Y. Thornton

Supt. of Public Instruction: Rex Putnam

Constitution and Judiciary.—The present constitution went into effect in 1859. The Supreme Court comprises 7 justices; chief justice in 1955: Harold J. Warner.

Legislature.—The Legislative Assembly (Senate 30 members; House of Representatives, 60) meets in odd-numbered years commencing the second Monday in January.

The 1955 meeting of the legislature appropriated a budget of about \$217.8 million for the fiscal year 1955-56. It also broadened the base of corporation excise taxes and increased prices in state liquor stores. Other enactments included: creation of an administration procedures code and a Water Resources Coordinating Board; establishment of a Marketing Development Division of the Department of Agriculture; and provision for a \$15 million building program to include a new state mental hospital in the Portland area, a reformatory near Salem, and a classroom building at Portland State College. In addition, wire tapping was banned, except by court order; a life sentence was set for sex offenders against children; equal pay guaranteed to women for equal work; workmen's compensation rates and unemployment compensation were increased; penalties were stiffened for peddling narcotics to juveniles; and provision was made for 5 subdistricts in Multnomah County for the election of state representatives. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$389,996,177.41; expenditures, \$417,486,920.10; treasury balance, \$115,771,765.52; long-term indebtedness, \$177,657,100.

Taxation.—State tax revenue (1954-55 fiscal year): \$117,711,781.56, including \$56,000,000 from income and excise taxes; \$35,050,658.52 from motor vehicle fuel taxes; \$21,023,907.60 from licensing; and \$3,419,012.19 from inheritance taxes.

Banking.—As of June 30, 1955, the state's 13 national banks had \$1,713,093,000 in assets, \$972,133,000 in demand deposits, and \$596,951,000 in time deposits; the state's 38 other banks had \$194,108,778.66 in assets and \$159,687,402.82 in total deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 17, inclusive. Operating expenditures of \$90,291,372 (\$334.13 per pupil) comprised an estimated 61% from

OREGON

local school districts, 36% from the state, and 3% from the federal government. Expenditures for construction and improvements amounted to \$33,883,883. Teachers' salaries averaged \$3,988 (elementary school teachers, \$3,842; high school teachers, \$4,292).

OREGON SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-8).....	1,065	8,627	236,745
Public secondary (9-12).....	221	3,243	75,819
Public junior colleges.....	1	5	210*
State teachers colleges.....	3	115	2,348*
Public colleges and universities..	3	900	14,782*

* Cumulative for 1954-55 school year.

Social Welfare.—Public assistance expenditures from state and federal funds for the 1954-55 fiscal year (exclusive of institutional operating costs) totaled \$29,398,836.98, including \$15,488,181.24 for old-age assistance, \$5,439,295.60 for dependent children, \$315,015.04 for the needy blind, \$2,767,129.19 for the disabled, and \$5,389,215.91 for general assistance; a monthly average of 51,700 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$9,583,230; for correctional and penal institutions, \$2,603,867.

OREGON WELFARE INSTITUTIONS

(As of June 30, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic....	1	1,756
Hospitals for the mentally ill.....	2	4,898
Sanatoriums for the tubercular.....	3	436
Schools for the blind.....	1	86
Schools for the deaf.....	1	203
Training schools for delinquent boys.....	1	264
Training schools for delinquent girls.....	1	74
Prisons.....	1	1,474
Prison farms.....	1	130*
Prison camps.....	1	60*

* Included in prison population figure.

Labor Force.—"Covered" nonagricultural employment in July 1955 numbered 485,100, and for 1954 averaged 315,941. There were 8,573 unemployed persons in August 1955, and the state paid \$23,460,573 in unemployment compensation to insured workers during 1954.

Manufacturing.—During 1953, 132,385 persons in nonagricultural establishments received \$556,923,000 in salaries and wages. Value added by manufacture was \$985,834,000, and investment in new plant and equipment amounted to \$63,377,000. Earnings of production workers in manufacturing averaged \$83.81 for an average work week of 38.8 hours in 1954, and \$91.91 for 40.1 hours in the first six months of 1955.

MAJOR OREGON MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
Lumber and products (except furniture).....	70,772	\$307,919	\$532,730
Food and kindred products....	17,501	63,312	137,604
Paper and allied products....	6,089	26,554	67,160
Furniture and fixtures.....	2,665	9,390	13,733
Textile mill products.....	2,721	10,411	12,944
Transportation equipment....	1,988 ³	8,564 ³	12,082 ³
Electrical machinery.....	1,366	4,570	11,173

¹ Average per year. ² Value of product less cost of materials, supplies, fuel, electric energy, and contract work.

³ 1952 figures. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—Oregon ranked third among the states in 1953 in production of chromite, diatomite, and gem stones, and fourth in mercury and pumice. It stood 39th in order of the value of

mineral output, with 0.17% of the United States total. An average of 1,182 persons were employed in the state's mineral industries during 1954.

OREGON MINERAL PRODUCTION, 1955¹

(In short tons, except as noted)

Mineral	Quantity	Value
Chromite.....	5,000	\$ 400,000
Clays ²	322,000	352,000
Gold (fine ounces).....	1,470	51,450
Mercury (76-pound flasks).....	1,050	305,000
Pumice.....	80,000	200,000
Sand and gravel.....	13,000,000	14,000,000
Stone ³	5,600,000	8,000,000
Other minerals.....	.....	9,741,550
Total.....	.....	33,050,000

¹ Preliminary. ² Excluding clays sold or used for cement.

³ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Fisheries.—The commercial fish and shellfish catch for the 12 months ending March 31, 1954, was valued at \$6.7 million. Oregon is a leading producer of salmon, Pacific Ocean perch, and crabs. Poundages of principal species landed in the year ending March 31, 1955 were: salmon, 9,742,860; bottom fish, 20,940,590; crabs, 7,449,375; shad, 643,028; smelt, 522,988; and albacore tuna, 469,440. Some 4,401 persons were engaged in the state's commercial fisheries in June 1954.

Agriculture.—Cash farm income for the first half of 1955 totaled \$137,249,000, and for the full year 1954 comprised \$164,287,000 from livestock and livestock products, \$218,374,000 from crops, and \$5,108,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$57,397,000; wheat, \$53,973,000; dairy products, \$50,886,000; eggs, \$17,272,000; and barley, \$15,192,000.

The state's 54,442 farms (21,062,340 acres; harvested cropland, 3,265,753 (averaged 386.9 acres and \$27,785 in value of land and buildings per farm in 1954. There were 38,615 farms with telephones and 52,666 with electricity. Livestock on farms on Jan. 1, 1955, included 1,458,000 cattle, 689,000 sheep, and 3,626,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, there were 109,988 family and hired workers engaged in farming.

OREGON CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	2,734	2,710	2,900
Barley (1,000 bu.).....	9,909	18,972	17,888
Cherries (tons).....	23,540	28,800	34,800
Cranberries (bbl.).....	16,910	30,000	30,000
Filberts (tons).....	6,750	8,000	6,900
Hay (1,000 tons).....	1,784	1,867	1,631
Hops (1,000 lb.).....	16,260	7,011	4,602
Oats (1,000 bu.).....	9,147	12,087	10,327
Peaches (1,000 bu.).....	572	300	568
Pears (1,000 bu.).....	5,480	4,065	6,050
Potatoes (1,000 bu.).....	3,002	3,960	4,355
Prunes (tons).....	62,010	42,500	53,700
Strawberries (1,000 crates).....	1,367*	1,700	2,457
Sugar beets (1,000 short tons).....	346	389	372
Walnuts, English (tons).....	7,320	8,400	5,400
Wheat (1,000 bu.).....	26,559	25,832	21,899

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in 1954 totaled \$64,300,000, and newly completed construction and reconstruction aggregated 400 miles.

Highways and roads on Dec. 31, 1954, totaled 55,039 miles (32,455 surfaced). Registered *motor vehicles* numbered 780,685 on Dec. 31, 1954, including 688,911 passenger cars. There were (1955) 24 *railroads* operating 5,149.69 track miles, 8 regularly scheduled *airlines*, and 165 *airports and airfields* (74 commercial and municipal, 1 military, 23 private, and 67 others).

Communications media (1955) included 53 AM and 8 FM radio stations and 5 operating television outlets (4 VHF and 1 UHF); 22 daily newspapers (circulation, 613,969) and 100 other newspapers (circulation, 168,457); and (Jan. 1, 1955) 154,915 business and 381,640 residential telephones.

Principal Events, 1955.—The state legislature enacted 774 laws, among which were those requiring meat inspection, regulating and licensing billboards visible from highways, and legalizing the use of radar in traffic control. The Motor Vehicle Department was transferred from the office of secretary of state to that of the governor. There was an increase in the state income tax, and a 3-cent cigarette tax was passed. A constitutional amendment authorizing the legislature to attach emergency clauses to tax bills was referred to the people at the general election in 1956. Portland State College (formerly the Portland Extension Center) was established with degree-granting privileges. Minimum salaries for teachers in the public schools were increased. The controversial partnership policy with respect to hydroelectric power facilities was endorsed. (See also above, *Legislature*.)

Early in 1955 a number of lumber mills were forced to close because of a temporary shortage of box cars for the shipment of lumber. The largest number of forest fires since 1952 caused the destruction of much valuable timber. A "tree planting festival" at Oakridge in October resulted in the planting of 3,000 seedlings which will ultimately produce merchantable timber. Several large fires in commercial and industrial buildings in Portland were believed to have been set by arsonists. A bomb was exploded in Portland's largest department store following an extortion threat to the owners.

The sesquicentennial of the arrival of the Lewis and Clark Expedition near the mouth of the Columbia was celebrated at Astoria and other points in the state early in November, at which time a replica of Fort Clatsop, the explorers' winter quarters, was erected, and there were parades in which great-grandsons of the two explorers participated. The annual Shakespearian Festival at Ashland throughout August attracted large numbers of people from far and near.

There was considerable highway construction in 1955, including a 4-lane freeway from Portland to Salem which was opened to traffic in October, as was also another freeway running northeastward from Portland to a point on the Columbia River. (See also ALUMINUM; DAMS.)

Principal Events by: DAN E. CLARK,

Professor of History, Emeritus, University of Oregon.

ORGANIZATION FOR EUROPEAN ECONOMIC COOPERATION (OEEC). See Index entry.

ORGANIZATION OF AMERICAN STATES. The Organization of American States, an association of the 21 republics of the Western Hemisphere, functions in accordance with a charter signed at Bogotá, Colombia, in 1948. The organization carries on its activities through six agencies: (1) the Inter-American Conference; (2) the Meeting of Consultation of Ministers of Foreign Affairs; (3) the Council of the OAS; (4) the Pan American Union; (5) the specialized conferences; and (6) the specialized organizations.

The outstanding event of 1955 was the tension that developed between Costa Rica and Nicaragua (q.v.). On January 8 the government of Costa Rica, in a note addressed to the Council of the Organization, invoked the Inter-American Treaty of Reciprocal Assistance signed

at Rio de Janeiro in 1947, alleging that its territory, sovereignty, and independence were threatened by acts that had their origin in Nicaragua. The council convoked the Meeting of Consultation of Ministers of Foreign Affairs and constituted itself the provisional organ of consultation in accordance with the terms of the treaty. A committee of investigation, composed of the representatives of Mexico, the United States, Brazil, Ecuador, and Paraguay, was appointed on January 11 to proceed to Costa Rica and Nicaragua to determine the facts and to submit a report. On the following day the council requested governments in a position to do so to place planes at the disposal of the committee for the purpose of undertaking peaceful flights of observation.

On January 16 the council took a further step when it requested member governments to expedite arrangements for the purchase by Costa Rica of military aircraft which it may have ordered from them. On the same day the United States announced that it had sold four F-51 fighter planes to Costa Rica.

Following the presentation of the report of the investigating committee on February 18, the council appointed a special committee to cooperate with Costa Rica and Nicaragua in the preparation of a bilateral agreement and the establishment of a commission of investigation and conciliation to deal with problems that might arise between the two countries. On September 8, negotiations between the two governments had reached a stage at which it was possible for the council to cancel the Meeting of Consultation of Ministers of Foreign Affairs and to terminate its status as provisional organ of consultation.

On the same day the government of Ecuador requested a Meeting of Consultation of Ministers of Foreign Affairs to deal with a frontier problem with Peru. The council first decided to communicate with the four guarantor states (Brazil, Argentina, Chile, the United States) named in 1942 to assist Ecuador and Peru in implementing the agreement fixing the boundary between them. As a result of the action of these four states, the representative of Ecuador informed the council on September 26 that a meeting of the organ of consultation was no longer necessary.

The Inter-American Economic and Social Council continued during 1955 to carry out a broad program of inter-American economic and social cooperation. The council also continued to sponsor a program of technical assistance with the cooperation of inter-American specialized organizations and the Pan American Union. This program, which is carried out with financial contributions received from member states, consists of training centers established in different countries.

Three inter-American specialized conferences were held in 1955: the Tenth Pan American Child Congress at Panama City, on February 6-15; the Third Inter-American Statistical Conference at Rio de Janeiro, on June 9-22; and the Sixth General Assembly of the Pan American Institute of Geography and History at Mexico City, on July 25-August 6.

On Oct. 19, 1955, Dr. Carlos Dávila (q.v.), secretary general of the OAS since June 1954, died in Washington. On November 16, Dr. Cesar Tulio Delgado of Colombia was elected chairman of the Council of the OAS, succeeding Dr. José A. Mora of Uruguay.

(See also INTER-AMERICAN AFFAIRS.)

WILLIAM MANGER,
Assistant Secretary General.

ORGANIZATION OF CENTRAL AMERICAN STATES.

See Index entry.

ORGANIZATIONS, American. See SOCIETIES AND ORGANIZATIONS.

ORGANIZATIONS, European Political. See EUROPEAN ORGANIZATIONS.

ORIENTAL RELIGIONS. See RELIGION.

ORKNEY ISLANDS. Separated from the coast of Caithness by the Pentland Firth, this archipelago (land area, 375 square miles), comprises 90 islands (34 inhabited), and constitutes politically a Highland county of Scotland. Kirkwall (pop., 3,673), on Pomona (or Mainland), is the county seat. The population, estimated at 20,700 in December 1954, is steadily declining, censuses showing successively the following totals: 24,111 (1921); 22,077 (1931); and 21,258 (1951). Fishing is the principal industry at the chief islands of Hoy, South and North Ronaldshay, Westray, Sanday, Eday, Stronsay, and Rousay. Oats is the chief food crop, and livestock is raised on about 16,000 acres of pasture. A seawall joining Pomona to South Ronaldshay protects the British naval base of Scapa Flow.

ORNITHOLOGY. See Index entry, *Birds*.

ORTEGA Y GASSET, José, Spanish man of letters and philosopher: b. Madrid, Spain, May 9, 1883, d. Madrid, Oct. 18, 1955. Long the symbol of liberal intellectualism and the leading advocate of the "Europeanization" of Spain, Ortega had been in exile and retirement since the outbreak of the Spanish Civil War in 1936. Previous to that date he had labored successfully as writer, editor, publisher, lecturer, professor, and politician for the overthrow of the monarchy. Like his old friend and master, Miguel de Unamuno, he was always a "philosopher of the marketplace," never hesitating to popularize and disseminate his ideas.

Son of the famous Madrid journalist, Don José Ortega y Munilla, he soon showed his precocity by remarkable feats of memory and by rebelling against his Jesuit teachers. He completed his doctorate in philosophy and literature at the University of Madrid at the age of 21. Crossing Spain's "Chinese wall, the Pyrenees," he went to study philosophy in Germany, notably with the neo-Kantian Hermann Cohen at Marburg, imbibing the aristocratic spirit of the old German universities. On his return, he finished a brilliant first in the competition for the coveted chair of metaphysics at Madrid; founded the magazine *Faro* (*The Beacon*) in 1908; and later the periodicals *Europa, España*, and the daily *El Sol*. As early as March 1914, he emerged as a national antimonarchist leader in a speech called *Old and New Politics*. In 1923 he began *La Revista de Occidente* in order to make foreign thought available in Spain. When King Alfonso XIII was finally overthrown, Ortega was elected to the Cortes as deputy from the province of Leon, and helped to write the Constitution of the Spanish Republic, only to find it "sad and sour" in comparison with his expectations. When the Spanish Civil War began, he spent nine years of exile in France, Argentina, Peru, and Portugal, returning to Spain "merely to exist" in a kind of armed truce with Franco after 1945.

Three years before Hitler came to power, Ortega published his best-known and prophetic work, *The Revolt of the Masses* (1930; Eng. tr., 1932), misunderstood by many as justifying a fascist elite, although its author actually de-

manded intellectual aristocrats who were superior to the masses "because they demanded more of themselves." Always a doubter, Ortega fought the church in many battles, nevertheless receiving its rites in his last hours before dying of cancer. A master of extraordinary and beautiful metaphor, Ortega shunned the usual abstractions of the philosopher in a style that had much of the vigor and honesty of the man.

Other works by Ortega available in English (and dates of their English translation) include: *The Modern Theme* (1933), *Toward a Philosophy of History* (1941), *Mission of the University* (1944), *Concord and Liberty* (1946), and *Dehumanization of Art* (1948).

HAROLD A. LARRABEE,
Ichabod Spencer Professor of Philosophy,
Union College; American Editor of
"Bibliography of Philosophy."

OSTEOPATHY. Osteopathic medicine is a system of medicine and major operative surgery, emerging from American medical practice during the latter part of the 19th century. In the intervening half century the profession has grown in the United States to include more than 12,000 osteopathic physicians.

To become an osteopathic physician a student must successfully complete four years of high school; three years of preprofessional training in an accredited college or university, and four years of professional education in one of the six approved osteopathic colleges. Practically all osteopathic students add to this 11-year period of education a year of internship in an approved osteopathic hospital.

Graduate education in osteopathic medicine, if it involves specialization, follows a distinct program carried out under the continuing supervision of the profession's approving and accrediting agencies. Certification in any given specialty requires a five-year program above the internship level.

Osteopathy emphasizes the fundamental importance of the musculoskeletal system in interacting with the cardiovascular system, the nervous system, the respiratory system, etc. Disturbances in the musculoskeletal system are held by osteopathic physicians to be factors in the establishment and maintenance of the disease process by lessening the natural ability of man's body to stand up under stress. Detection of these disturbances is basic to the distinctive approach of osteopathic physicians, and the treatment of these aberrations is widely known as an "osteopathic manipulative treatment."

Osteopathy claims and administers as a part of the continuum of medicine, all the medical, surgical, immunological, pharmacological, psychological, and hygienic procedures that are of proven value in securing abundant health, in preventing an establishment of the disease process, or in treating the various syndromes or diseases that arise therefrom.

The American Osteopathic Association, national organization of the profession, has its headquarters at 212 East Ohio Street, Chicago 11, Ill. Dr. Hobert C. Moore of Bay City, Mich., was president for 1955-56; Dr. R. C. McCaughan is executive secretary. The association publishes *Journal of the American Osteopathic Association*, *Forum of Osteopathy*; and *Health*.

RAYMOND P. KEESECKER,
Editor, The American Osteopathic Association.

OTTAWA. The capital city of Canada (Dec. 1955 est. pop., 224,000; area, about 42 square

miles) is located in eastern Ontario at the junction of the Ottawa and Rideau rivers. The mayor is Dr. Charlotte Whitton.

Throughout 1955 Ottawa had reasons to be sharply conscious of the growing conflict between its ambition to develop as an important metropolitan center and its desire to adhere to a long-cherished plan for national capital beautification. As one of Canada's rapidly growing communities, Ottawa is coping with all the problems of greatly enlarged industrial and administrative activity: sites, services, accommodations, schooling, housing, etc. At the same time the city is obliged to cooperate with the national and provincial governments, with the Federal District Commission, and with neighboring municipalities in efforts to protect "green belt" areas and to harmonize private exploitation of local resources with overall community planning. Much disagreement and disputation among the parties concerned was seen in 1955; and several important matters, such as the site for a much-needed city hall, were in a state of acrimonious stalemate at the year-end.

Closely related to all the other growth problems of 1955 was the matter of traffic control, Ottawa's situation being considered one of the most difficult in North America. The appointment

of Woodrow Rankin, of Wichita, Kans., as Ottawa's traffic control engineer was announced in October. Work was speeded on the new cross-town expressway, a \$15 million project designed to ease the traffic worry. Two substantial exits from the city's downtown were provided in 1955 with the completion of the Dunbar Bridge and the Hurdman Bridge, both crossing the Rideau River. Also under active development in 1955 was a plan to build a new \$10 million high-level bridge across the Ottawa River, to supplement the long out-moded Alexandra Bridge between Ottawa and Hull.

Material prosperity was very evident in Ottawa in 1955. The erection of huge supermarkets in outlying areas, the completion of midtown office buildings and apartment blocks, schools, and hospitals, and enormous new residential developments gave the construction industry its greatest year in Ottawa's history. The Red Feather Campaign went over its \$575,000 objective with ease. The Ottawa Exhibition broke all records with a total 7-day attendance of 431,797.

WALTER B. HERBERT,

Director, The Canada Foundation, Ottawa.

OUTER MONGOLIA. See MONGOLIAN PEOPLE'S REPUBLIC.



PACIFIC CHARTER. See SOUTHEAST ASIA TREATY ORGANIZATION.

PACIFIC (ANZUS) COUNCIL. In San Francisco on Sept. 1, 1951, Australia, New Zealand, and the United States (whose initials form the word "ANZUS") signed the Tripartite Security Treaty, which represents primarily a collective attempt—within the framework of the United Nations—on the part of the three countries to establish a program for the mutual defense of their territories, armed forces, ships, and aircraft against aggression in the Pacific area. A council of the foreign ministers (or their deputies) of the three nations was established "to consider matters concerning the implementation of this Treaty." The secretariat of the council is made up of U.S. State Department officials and members of the Australian and New Zealand embassies in Washington, D.C.

Following Australia's request on Aug. 11, 1955, for an early meeting to discuss the problems of the Pacific area—especially those related to Australia's garrisoning troops in Malaya, the Pacific Council met in secret session in Washington on September 24. The principal ANZUS representatives were U.S. Secretary of State John Foster Dulles and ministers of external affairs Richard G. Casey of Australia and Thomas L. Macdonald of New Zealand. A communiqué issued after the meeting hailed the establishment of the Southeast Asia Treaty Organization (q.v.) as a "highly significant development toward sustaining and strengthening peace and security" in the Pacific. The foreign ministers also declared that the free nations of the Pacific must continue their defense measures so long as the threat of Communist aggression continued.

PACIFIC ISLANDS. The term Pacific Islands commonly signifies the innumerable islands and

island groups, chiefly of volcanic or coral origin, generally referred to as Oceania. Oceania is divided into three main classifications (although authorities sometimes differ in which of these classifications they place certain fringe island groups):

(1) *Polynesia*, in the central and southeastern Pacific, includes principally Hawaii, Samoa, Tonga, and Pitcairn Island (qq.v.); the Tuamotu Archipelago and the Society and Marquesas groups (see FRENCH OCEANIA); and the Ellice and Phoenix groups (see WESTERN PACIFIC ISLANDS, BRITISH).

(2) *Melanesia*, in the western Pacific, includes mainly Fiji and New Caledonia (qq.v.); the Bismarck Archipelago, and the New Hebrides, Louisiade, Admiralty, Solomon, Loyalty, and Santa Cruz groups (see PAPUA AND NEW GUINEA, TERRITORY OF AND WESTERN PACIFIC ISLANDS, BRITISH); sometimes Australia, New Zealand, and the Malay Archipelago are also included.

(3) *Micronesia*, in the central Pacific, includes chiefly Nauru and Guam (qq.v.); and the Caroline, Marshall, Mariana, Gilbert, and Bonin groups.

The natives of Oceania comprise a mixture of Negroid, Mongoloid, and Caucasian strains, with the Negroid peoples predominating in Melanesia and the lighter-skinned peoples in Polynesia and Micronesia. Language and culture also vary considerably.

Excluding Australia, New Zealand, and the Malay Archipelago, types of government include crown colony, protectorate, condominium, territory, and United Nations trusteeship; governing authorities are the United States, Great Britain, France, Australia, and New Zealand.

U.S. PACIFIC ISLANDS

Most of the Pacific islands administered by the United States are important chiefly as strategic bases and landing points for air and water traffic.

Trust Territory of the Pacific Islands.—This territory, which includes the Mariana (except

Guam), Marshall, and Caroline island groups, is scattered over some 3 million square miles in the western Pacific north of the equator. It comprises over 2,100 separate islands (97 inhabited) with a total land area of 687 square miles. Formerly a League of Nations mandate of Japan, it became a United Nations trust territory, with the

PACIFIC ISLANDS OF THE UNITED STATES

(Asterisk indicates reference to separate article)

Island or group	Area (sq.mi.)	Population (1950 census)
*Aleutian Islands.....	6,821	5,600
Baker.....	1	..
Canton and Enderbury ^a	27	272
*Guam.....	203	59,498
*Hawaii.....	6,423	499,794
Kure (Ocean).....	18	..
*Palmyra.....	2	..
Howland.....	1	..
*Jarvis.....	2	..
Johnston.....	^b	46
Kingman Reef.....	^c	..
*Midway.....	2	416
*Samoa, American.....	76	18,937
Swains.....	1	..
Trust Territory of the Pacific Islands.....	687 ^d	54,843
*Wake.....	3	349

^a An Anglo-American condominium in the Phoenix group of the Gilbert and Ellice Islands, used as air and communications bases; Enderbury Island was uninhabited in 1950.

^b Including nearby Sand Island; total area, less than 0.5 sq. mi. ^c About 150 feet long and 120 wide at high tide; area about 40 sq. mi., including submerged shoals. ^d Dry land.

United States as trustee, on July 18, 1947. The indigenous population of 61,102 (June 30, 1954), broadly classified as Micronesian, includes 9 main linguistic groups. English is displacing Japanese as the lingua franca. Bikini Atoll in the Marshalls was the site of two United States atomic bomb tests in 1946. Eniwetok Atoll, also in the Marshalls, was subsequently converted into an atomic proving ground, where test explosions took place in 1948, 1951, 1952, and 1954.

Government.—The territory is administered by the U.S. Department of the Interior, with the exception of Saipan, Tinian, and other islands of the northern Mariana group (not including Rota), which are administered by the Navy Department. Headquarters of the high commissioner were removed from Honolulu, Hawaii, to Guam, on Sept. 29, 1954. Acting High Commissioner Delmas H. Nucker assumed the duties of office on Sept. 1, 1954, succeeding Frank E. Midkiff, who resigned. Native self-government is encouraged on a local level. Elected native congresses and councils on district and regional levels have advisory functions. The 1953–54 budget totaled \$5,929,967, of which \$1,570,266 was derived from local revenues.

Education and Religion.—In 1954 there were 149 public elementary and 6 public secondary schools with a total of 7,386 pupils, and 16 mission elementary and 7 mission secondary schools with 1,833 pupils. The Pacific Islands Central School on Truk provided education on the high school level to 121 pupils. In 1954 there were 115 missionaries in the territory, including 26 indigenes. The greater part of the population has been converted to Christianity, although many native beliefs persist.

Economy.—Subsistence agriculture, coconut cultivation, and fishing are the chief activities. Cacao and coffee cultivation has been introduced experimentally. Copra, trochus shell, boats, and handicraft items are produced. The phosphate deposits on Angaur (in the Palau group of the Carolines) were worked by a Japanese company

until 1955, when mining operations ceased. In the 1953–54 fiscal year, imports totaled \$2,258,326; exports, \$3,342,790. Chief exports were copra, trochus shell, and phosphate (105,702 long tons). Almost all external trade is with the United States and Japan. Majuro, in the Marshall Islands, was established as a world port for the trust territory in October 1954.

Other Former Japanese Islands.—The Japanese Peace Treaty of 1951 stated that Japan "will concur in any proposal of the United States to the United Nations to place under its trusteeship system with the United States as the sole administering authority," the Ryukyu Islands and the Daito Islands; the Bonin Islands, Marcus Island, Rosario Island, and the Volcano Islands; and the island of Parece Vela. The United States, meanwhile, is to exercise full power and jurisdiction over the islands. On Dec. 24, 1953, the United States returned to Japan the Amami Oshima group (area, 471 square miles; pop. 1953, 201,753) of the Ryukyus.

Ryukyu Islands.—The Ryukyu Archipelago extends some 500 miles southwest of Japan. The islands under United States control total 848 square miles in area, with a population (est. 1954) of 777,000. The natives, known as Luchuan, resemble the Japanese physically and came under Japanese rule in the 1870's. A native government, including a 29-member legislature, exists under the American civil administration. In 1952 the Ryukyus had 291 primary schools (127,546 pupils), 202 secondary schools (75,680), 13 technical schools (4,547), and 5 higher institutions (1,133). The population is predominantly agricultural. Chief crops are sweet potatoes, rice, vegetables, sugar, and tea. Industries include fishing, lumber, ceramics, textiles, silk, dyes, cement, and brick-making. Agricultural and industrial output is below pre-World War II levels, and the population is dependent on United States aid. Exports in 1953 totaled \$8.2 million; imports, \$34.7 million. Largest of the Ryukyu Islands is Okinawa (579 square miles; pop. 665,315), which contains important United States fighter and bomber bases.

The Daito Islands (area, 18 square miles; pop. 1950, 2,691) form the easternmost group of the Ryukyus, about 200 miles east of Okinawa. Sugar and phosphate are produced.

Bonin Islands and Volcano Islands.—These groups lie about 800 miles east of the Ryukyus. The Bonins comprise 27 islands; total area, 30 square miles; pop. (1953) 151. Marcus Island (1 square mile), east of the main group, is usually classified as one of the Bonins. The Volcano group, south of the Bonins, comprises 3 islands (total area, 11 square miles), including Iwo Jima, which has an excellent airstrip and is now used mainly as a refueling point for U.S. Air Force planes.

Rosario Island lies to the west of the Beechey group of the Bonins. **Parece Vela** lies some 400 miles southwest of Iwo Jima.

M. J. G.

PAINTING, SCULPTURE, AND PRINTS. The year 1955 was notable, not for aesthetic issues and controversies, but for expansion of plant. Throughout the United States, museums completed or announced plans for additions to existing buildings, costing many millions of dollars. The era of prosperity, heralded in political circles, had leaked over into cultural areas. Conflicts on aesthetic and social matters were not lacking, however.

Issues and Controversies.—Tides of aesthetic opinion were evidenced by an increasing number of critical letters to art magazines, attacking abstractionism. The question of subjects in art was raised even in the magazines under fire, and newspaper critics also became critical of the academy of the abstract. *Reality: The Journal of Artists' Opinion* joined in the attack, describing the "revolt of the critics" as a long overdue reaction against non-subject matter propaganda.

On the other hand, academic styles in sculpture received severe criticism. The low aesthetic quality of sculpture commissioned and paid for by the government was charged to a sculptors' lobby in Washington. Thirteen war monuments in Europe, North Africa, the Philippines, and the United States were challenged on creative-expressive grounds. The sum spent for these was reported to be almost \$300,000. In a spirit of plain speaking, the critics held the National Sculpture Society responsible.

Too great emphasis on abstract manners in art was charged against the Corcoran Gallery of Art (Washington, D.C.) in connection with its 24th biennial exhibition of contemporary American painting, selected by an outside jury of three museum directors. From 2,101 entries, a total of 64 works was chosen, in contrast with 226 in 1953 and 271 in 1951. The gallery had expected to show about 200, but the jury could not satisfy itself with more than a third of that number. Showing a cross section of current styles also came in for criticism.

Social, rather than aesthetic, was the controversy which rocked Los Angeles in the spring of 1955. Christian Nationalists picketed the new Police Facilities Building, demanding the removal from its façade of Bernard Rosenthal's 14-foot semiabstract bronze sculpture.* Liberally minded elements in the community formed the Los Angeles Art Committee and, with the help of public opinion throughout the nation, blocked the attempt to have the \$10,000 work removed and melted down. Members of the American section of the International Association of Art Critics went on record as opposing the right-wing attack as contrary to the democratic process.

The reception given by the French press to the "American Art of the Twentieth Century" exhibition, shown in Paris in the spring of 1955, was not friendly. This was the opening feature of the "Salute to France" program of cultural events held in Paris under the auspices of the American embassy and at the request of the French government. More than 500 paintings, sculptures, prints, architectural models, still photographs, examples of industrial design, and motion pictures from the Museum of Modern Art were on display. The press' reaction did not prevent the French public from crowding into the Musée d'Art Moderne, but this critical cold shoulder did not promote cordial Franco-American relations, and many Americans wrote letters of protest to the art press at home and abroad.

Contemporary Exhibitions.—Displays of art now being produced showed qualities like those under criticism in the Corcoran biennial. In an effort to represent a cross section of all styles, museum directors and juries made selections which were uneven in quality. The tendency to be excessively selective in a quantitative way also resulted in

smaller exhibitions, with decreased exhibition opportunities for the submitting artists. For example, the Los Angeles County Museum annual exhibit received 1,422 entries from 875 artists; but the jury chose only 186 works by 174 artists. At the Brooklyn Museum, the ninth annual print exhibition had 1,200 entries, but only 87 were shown. In 1954 the number was 150.

The Carnegie International exhibition, with 328 paintings, also evoked protest. First prize of \$2,000 went to Alfred Manessier of France, and other prizes went to artists from Mexico, Italy, Chile, and Japan. Critics and laymen commented on the lack of recognition for Americans. The exhibition, a critic noted, reflected "the deepening crisis of contemporary painting."

Praiseworthy in purpose was the competition held by the National Council for U.S. Art, Inc., a private nonprofit organization, for mural sketches and sculpture models for the decoration of the United Nations headquarters in New York. Artist juries invited five painters and five sculptors to submit designs for two sites in the U.N. Secretariat Building, selected by the secretary general. These designs were shown in the fall of 1955 at the Whitney Museum of American Art; those already chosen were by Nathaniel Kaz (for sculpture) and by Stuart Davis and Jacob Lawrence (for painting).

The Whitney Museum held several exhibitions during 1955 which reflected current unrest in art. One of these was "The New Decade," showing the work of 35 relatively unknown American painters and sculptors who emphasized human subjects. Early in the year the museum held a two-man show of the work of Jack Levine and Hyman Bloom.

The Whitney's 1955 annual exhibition of contemporary American painting in the fall was apparently selected to represent all schools of aesthetic practice. Though stylistic eclecticism is not unique with the 20th century, it seems to be more marked now than in other periods. The Whitney annual ranged from academic naturalist work to the manner termed "abstract expressionism," in which the painter expresses his inner life without recognizable images. This is unlike the German expressionists of forty years ago, who used objects from nature as symbols for their emotions.

The state of American art was also shown by the Whitney Museum's large exhibition of paintings, drawings, prints, and other works by Reginald Marsh, who died in 1954 at the age of 56. The exhibition was booked to travel to museums all over the country until the end of 1956.

Among other contemporary art exhibitions was the Art Institute of Chicago's 58th annual, which displayed 225 works produced within a 100-mile radius of the city; \$7,850 was awarded in 22 prizes. Top prize of \$1,500 went to Joseph Goto's 14-foot stainless steel sculpture, *Struggle*, and the second prize of \$1,000 to Gerald McLaughlin's painting, *The Orator and the Ladies*. Honoring the painter, Charles Sheeler, who was 72 in July, an exhibition was circulated from San Diego, Calif., to Utica, N.Y. Reports stated that his work had never been shown to better advantage. To encourage local talent, the San Francisco Museum of Art showed an exhibition entitled "Bay Region Painting and Sculpture," by 43 artists.

Encouragement of contemporary art in 1955 was not confined to Americans. In the early fall the Museum of Modern Art held a two-man show of the work of the late Yves Tanguy and the

* This group attacked as "subversive" the North Atlantic Treaty Organization, the United Nations Educational, Scientific, and Cultural Organization, the National Association for the Advancement of Colored People, Rhodes scholars, and the Carnegie, Ford, and Rockefeller foundations, along with others.



WILLIAM H. LANE FOUNDATION, LEOMINSTER, MASS.

New England Irrelevancies (1953) by Charles Sheeler, honored in 1955 by an exhibit celebrating his 72d birthday.

Italian artist, Giorgio de Chirico. Tanguy used the surrealist style to express vistas of vanishing space. Chirico (who in the second decade of the 20th century fathered a style called *pittura metafisica*—that is, metaphysical painting) painted his perspectives with psychological overtones.

The Solomon R. Guggenheim Museum in New York City held a comprehensive exhibition of the sculpture of Swiss-born Alberto Giacometti, whose abstract *Female Figure* the museum recently acquired. Later in the year the Guggenheim Museum showed a major retrospective exhibit of the work of Rumanian-born Constantin Brancusi. Included was the abstract *Bird in Space*, which United States Customs a quarter of a century ago sought to tax for its weight in brass because it was not judged to be a work of art.

Special Exhibitions.—Art made headlines in the theft from the Brooklyn Museum of eight small silver sculptures of antiquity, stolen from an exhibition entitled "Sculpture in Silver," organized by the American Federation of Arts. Two teen-age boys had taken them out of a showcase. Fortunately these items of irreplaceable cultural and historic value were recovered. Shown with them were examples of early American silversmithery and works commissioned from eight contemporary sculptors by the Towle Silver-smiths of Newburyport, Mass.

In January the Pennsylvania Academy of the Fine Arts opened its 150th anniversary exhibition in Philadelphia. The academy chose to exhibit, not Americans who had shown in its annuals, but those who had studied in its school. The result was that a number of important figures were not included. Ironically, the place of honor was held by Thomas Eakins, who had been forced to resign his teaching post there almost three-quarters of a century ago. Twenty-six of his magnificent canvases filled the central hall and flanking bays, among them the *Gross Clinic* and the *Agnew Clinic*. Except for Eakins and Charles Willson Peale, Philadelphia's most interesting contribution to American art was the work of

Robert Henri and his students, "The Eight," and others.

One of these was the late John Sloan, whose biography by the literary critic Van Wyck Brooks was published early in the year, and at that time the Kraushaar Galleries in New York showed his graphic art. The late John Marin, who represented an opposite aesthetic tendency, was exhibited at the Museum of Fine Arts in Boston, with 68 water colors, 34 oils, and a number of etchings. In October the Cincinnati Art Museum displayed 80 works by 12 recently rediscovered artists, covering the period from 1750 to 1900. Included were Feke, Earl, Bingham, Mount, Blythe, Quidor, Harnett, and Peto. The New-York Historical Society showed English mezzotint prototypes of colonial portraiture, comparing 19 paintings and the engravings from which they derive. The exhibition was based on the research of the late Waldron Phoenix Belknap, Jr.

Of interest was the first showing at the Pasadena Art Museum of its Galka E. Scheyer collection, built around the "Blue Four." It contains 60 Klees, 46 Feiningers, 20 Kandinskys, and 120 Jawlenskys, as well as works by Picasso, Nolde, Rivera, Archipenko, Moholy-Nagy, and other moderns, collected by Mme. Scheyer for a number of years. The collection provides the west coast with valuable study material.

News of Art.—Early in the year the establishment of a museum of indigenous art, to be opened in New York in 1956, was announced. Art objects created in the Americas, Africa, Oceania, Asia, and Europe, from the collection of Nelson A. Rockefeller, constitute the initial nucleus of the museum; however, gifts from other collectors of primitive art are welcome. The foundation of such an institution exemplifies the increasing aesthetic interest of the past half-century in the artifacts of so-called primitive peoples.

At the opposite pole stands the proposed Arts Center at Columbia University. Plans call for a \$6 million 10-story building to house classrooms, work rooms, libraries, studios, and theaters for students in the fields of architecture, painting and sculpture, the history of art, music, dramatic arts, and communication arts.

West of the Alleghenies, the Cleveland Museum of Art began to construct a \$5 million 3-story addition. Thirty galleries will give needed exhibition space, and a research library will be housed in the new wing. This expansion of plant is noteworthy because over \$2 million was raised by public subscription.

Also noteworthy is the \$2.2 million 3-story wing of the Virginia Museum of Fine Arts in Richmond. More than half the cost was paid by the state from public funds. This is another growing museum, with collections valued at \$3.5 million. In Atlanta the local museum opened a \$1 million 2-story air-conditioned wing for gallery space and an auditorium. Early in 1955 the architect, Mies van der Rohe, began to design a new wing for the Houston Museum of Fine Arts.

Appropriate was the establishment of the Donald Bear Endowment Fund for the Santa Barbara Museum. A leading west coast director, who died in 1953, Bear played a major role in developing the region's art activities. Community appreciation was shown when a sale of work by 30 well-known Los Angeles artists was held in May 1955 to swell the fund.

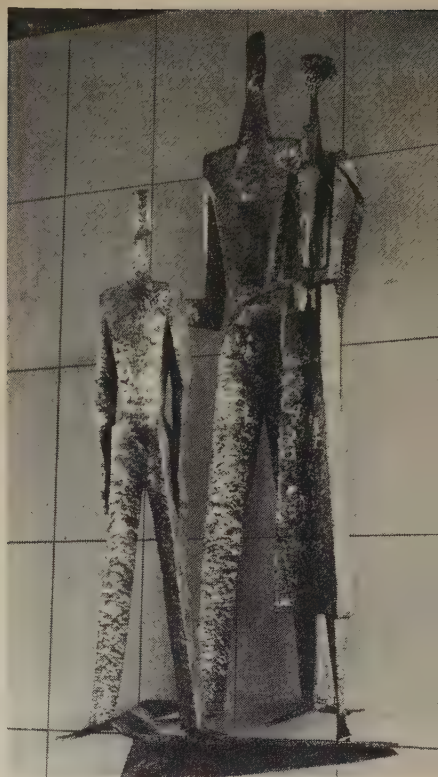
During the summer the Sterling and Francine Clark Art Institute opened in Williamstown,



(Above) Sir Jacob Epstein's *Social Consciousness*, in Fairmount Park, Philadelphia. (Below) *Struggle* (1954), by Joseph Goto, top prize winner at Art Institute of Chicago's 58th Annual. (Right) Sculpture by Bernard Rosenthal on the façade of Los Angeles Police Facilities Building.



(TOP) PHOTO BY CORTLANDT V. D. HUBBARD; (BOTTOM) COURTESY JOSEPH GOTO



COURTESY BERNARD ROSENTHAL

Mass. The inaugural exhibition included 35 paintings and seven bronzes. Goya, Turner, Degas, Mary Cassatt, and Winslow Homer were included, as well as academic masters. This collection has been a mystery though the first purchase was made in 1911. It is said to contain fine examples of Goya, Piero della Francesca, and Renoir, with many others.

Honors and awards included those from the National Institute of Arts and Letters to Edward Hopper and to Henry Allen Moe, secretary general of the John Simon Guggenheim Memorial Foundation. To Hopper went the gold medal for painting. (The last such medal was awarded to the late John Sloan in 1950.) To Moe went the award for distinguished service to the arts, created in 1940 and awarded only five times.

Guggenheim fellowships were awarded to painters Ben Kamihira, Seong Moy, Hobson Pittman, and Donald Stuart Thrall, and to sculptor Sahl Swarz. History of art grants were made to Dr. Kenneth John Conant of Harvard, Bartlett H. Hayes, Jr., of the Addison Gallery of American Art, and Dr. Horst Woldemar Janson of New York University.

Appointments.—In August 1955 the appointment of James J. Rorimer as director of the Metropolitan Museum of Art, succeeding Francis Henry Taylor, was announced. This set at rest rumors that an English or other European person would be appointed to the most important museum position in the Western Hemisphere. Rorimer has been with the Metropolitan since his graduation from Harvard in 1927, and has had a major role in the construction and development of the Cloisters, of which he has been director since 1949.

Another major appointment was that of Henri Marceau to succeed the late Fiske Kimball as director of the Philadelphia Museum of Art. Kimball retired early in 1955, after thirty years service, and died soon afterward. Marceau, who had been on the staff since 1929, was associate director since 1945.

Other appointments included: Edgar Craig Schenk, from director of the Albright Art Gallery in Buffalo to director of the Brooklyn Museum; Charles Nagel, from director of the Brooklyn Museum to director of the City Art Museum of St. Louis; Charles Edward Buckley, from general curator of the Wadsworth Athenaeum to director of the Currier Gallery of Art in Manchester, N.H.; D. Gordon Smith, from director of the Currier Gallery to director of the Albright Art Gallery; and Robert O. Parkes, from curator of the John Herron Art Institute in Indianapolis to director of the Smith College Museum of Art.

In 1955 the Museum of Modern Art, New York City, established a permanently endowed lectureship in honor of Alfred H. Barr, Jr., who has been associated with the museum since it was founded in 1929 and who was its first director. Following the death of Samuel H. Kress, the National Gallery of Art in Washington, D.C., announced the election of Chester Dale as its president. At the same time the resignation was announced of Director David Finley, who had held this post since the founding of the gallery in 1938.

Acquisitions.—The death of the late Samuel H. Kress pointed up the Kress Foundation's gift to the M. H. de Young Memorial Museum in San Francisco. The foundation has presented works valued at \$75 million to museums in Seattle,

Denver, Kansas City, Honolulu, Houston, and elsewhere, as well as to the National Gallery, which received further gifts in the Kress will. The gift to San Francisco, comprising 39 paintings by 35 artists from the 14th through the 18th century and requiring three new galleries for installation, is among the most munificent made by the Kress Foundation.

In memory of the late Curt Valentin, art patron and art dealer, friends gave New York's Museum of Modern Art a cast of Rodin's monumental statue to the great French novelist Honoré de Balzac. The 10-foot standing figure is one of the most controversial works created by the French sculptor, who fought academicism, went into a critical decline, and recently has been rediscovered as a precursor of 20th century aesthetic movements. Commissioned as a memorial to that stormy figure of French letters, Rodin's Balzac was rejected by the French government in 1898. Not until 1939 was it erected as a public monument in Paris, at the intersection of the boulevards Raspail and Montparnasse. The museum's cast is one of four made from the original study.

The important monumental group sculpture entitled *Social Consciousness*, by Sir Jacob Epstein, was installed in 1955 as part of the Ellen Phillips Samuel Memorial in Fairmount Park, Philadelphia. Another addition to the nation's art treasury is the stained glass façade designed by painter Adolf Gottlieb for the chapter house adjoining the Park Avenue synagogue in New York City. The front of the building, 1,300 square feet, is divided into 91 alternate stained and clear glass panels.

In 1955, 212 prints by 207 contemporary American graphic artists were given to the Metropolitan Museum of Art in honor of the late John Taylor Arms and his wife, the late Dorothy Noyes Arms. President of the Society of Graphic Arts for more than 20 years, Arms was not only an excellent craftsman, but also a loyal friend of artists of all schools of expression.

The Baltimore Museum of Art, celebrating its 25th anniversary, acquired a unique collection of Gandhara sculpture of the second and third centuries from Afghanistan, northwestern India, and the Punjab, expressing Buddhist symbolism. The Currier Gallery of Art in Manchester, N.H., acquired a 13th century Italian panel painting, *Madonna and Child*, in the Italo-Byzantine style. The Smith College Museum of Art acquired Degas' *Ballet Girl on Stage*.

Auction Sales.—Totals of sales for 1954-55, as for 1953-54, showed increases. Parke-Bernet, leading American auction house, reported a gross of \$5,447,634 for 77 sales, a gain of \$1,198,664 over the 81 sales of 1953-54. The highest single price paid was \$34,000 for Pieter de Hooch's *Woman Nursing Her Child*, as compared with the \$17,000 paid in the previous season for a Pissarro. The Plaza Art Galleries, in its 40th year, reported sales of \$2,054,739, a gain of \$143,404 over 1953-54.

Necrology, 1955.—Yves Tanguy (55), French-born surrealist painter; in Waterbury, Conn., January 15.

William R. Leigh (88), American artist known for Western scenes; at New York City, March 11.

Bror J. O. Nordfeldt (77), Swedish-born painter and printmaker; in Henderson, Texas, April 21.

Karl Hofer (76), German modernist; in West Berlin, April 3.

Langdon Warner (73), a leading American orientalist, former curator of oriental art at the Fogg Museum of Art, and pioneer in presenting Japanese art to the United States; in Cambridge, Mass., June 9.

Fiske Kimball (66), former director of the Philadel-

phia Museum of Art; in Munich, Germany, August 14.

Fernand Léger (q.v.), (74) French painter and proponent of the "interieur mécanique" concept; near Paris, August 17.

Charles Rufus Morey (77), chairman of the Princeton University Department of Art and Archaeology from 1925 to 1943; in Princeton, N.J., August 28.

Carl Milles (80), Swedish-born sculptor, many of whose monumental sculptures were made in the United States; in Lidö, near Stockholm, September 19.

Samuel H. Kress (q.v.) (92), founder of the Kress Foundation, whose \$75 million collection has been given to museums throughout the United States; in New York City, September 22.

Hans Knoll (41), well-known industrial and interior designer; in Cuba, October 8.

Maurice Utrillo (q.v.) (71), French painter of Paris and its suburbs; in Dax, France, November 5.

ELIZABETH MCCAUSLAND,

Art Historian and Critic.

PAINTS, VARNISHES, AND LACQUERS. Sales of paint, varnish, and lacquer continued to expand throughout 1955 to make it the best year in the industry's history.

By July 1955, practically all producers were marketing a latex paint for interior use, and many were also making a latex paint for exterior masonry. Providing strong competition for latex, however, were the alkyd resin—flat odorless paints for interior walls. Speckled or multicolor paints and fire-retardant coatings were introduced by a number of producers. Modern formulations provided high-quality products. New epoxy resins, or their modifications, and catalytic-cured coatings were improved and their use on quality furniture expanded. Paints and enamels came in many new colors, as did the coatings for automobiles and household appliances.

The highly active "do-it-yourself" market continued throughout the year. An estimated 48% of the exterior painting of homes was done by a family member. Although men applied most of the exterior paints, women assisted 8% of the time. Interior painting in homes was done by a family member in 71% of the cases, the wife playing an important role in such projects. She selected the color 72% of the time, chose the brand 44% of the time, actually purchased the paint 36% of the time, and in 33% of the cases applied the paint herself.

During the year, employment in the industry averaged about 72,000, of whom approximately 45,000 were production workers.

JOSEPH F. BATTLEY,

President, National Paint, Varnish and Lacquer Association, Inc.

PAKISTAN. A sovereign independent dominion, continuing full membership in the British Commonwealth of Nations, Pakistan is the world's largest Moslem state, and lies in two parts about 1,000 miles distant from each other. East Pakistan (54,501 square miles) is northeast of the Republic of India, and West Pakistan (311,486 square miles) lies to India's northwest. The aggregate area is 365,987 square miles, and the population is 75,842,165 (1951 census). Some 85.9% of the population is Moslem; 12.9%, Hindu; and 0.7%, Christian. The capital of Pakistan is Karachi, with a population of 1,270,000 (1954 est.); and of East Pakistan, Dacca, with a population of 411,000 (1951 census). Areas and populations of Pakistan's states and provinces (with their capitals) are shown in the table on page 571.

Excluded from the table are Jammu and Kashmir, claimed by both Pakistan and India (see KASHMIR). Also excluded are Junagadh and Manavadar (3,438 square miles) on the Indian Kathiawar Peninsula, which are occupied by India but claimed by Pakistan. Lahore is the cultural and academic capital of Pakistan. Other

STATES AND PROVINCES OF PAKISTAN

Component	Square miles	Population	Capital
East Pakistan ¹	54,501	42,063,000	Dacca (411,000)
West Pakistan ²			
Punjab	62,987	18,828,000	Lahore (849,000)
Bahawalpur State	15,918	1,823,000	Bahawalpur (969,000)
North-West Frontier Province, settled districts	13,815	3,253,000	Peshawar (152,000)
North-West Frontier, tribal area ³	27,232	2,647,000	
Sind	50,443	4,608,000	Hyderabad (242,000)
Khairpur State	6,050	320,000	
Baluchistan	52,990	622,000	Quetta (84,000)
Baluchistan States ⁴ . .	81,239	552,000	
Federal Capital Area, Karachi . . .	812	1,126,000	Karachi (city, 1,127,000)
Total, West Pakistan . . .	311,486	33,779,000	
Total, Pakistan	365,987	75,842,000	

¹ East Bengal. ² For the inauguration of the Province of West Pakistan on Oct. 14, 1955, see the section, *Principal Events, 1955*. ³ Excluding Gilgit and Baltistan. ⁴ Comprising Khairpur (pop., 54,000), Kalat (283,000), Makran (143,000), and Las Bela (76,000).

principal centers, with their populations in 1951, are: Rawalpindi, 237,219; Multan, 190,122; Lyallpur, 179,144; Sialkot, 167,543; and Gujranwala, 120,860. Chittagong (294,000) is the port of East Pakistan.

Government.—Following the proclamation dissolving the Constituent Assembly on Oct. 24, 1954, an emergency ordinance was promulgated on March 27, 1955, by the then governor general (who represents the British crown), Ghulam Mohammad. He also validated 35 of the 44 acts of the late assembly and conferred virtually complete authority upon his office. The Federal Court declared, however, on April 12 that the governor general had exceeded his legal authority. In order to break the constitutional deadlock, Ghulam Mohammad proposed the formation of a new 80-member legislature, elected through the provincial assemblies. While the new National Assembly was engaged in framing another constitution, ill health forced the resignation of the governor general on Sept. 19, 1955. He was succeeded by Maj. Gen. Iskander Mirza, who had served as acting governor general since August 7. Syed Amjad Ali, then Pakistan ambassador to the United States, joined the cabinet on October 17 as minister of finance, and was succeeded in Washington by Mohammad Ali, who had resigned as prime minister on August 7 after losing his leadership in the Moslem League Party in the National Assembly. Mohammad Ali was succeeded as prime minister by Chaudhry Mohammad Ali on Aug. 11, 1955.

Finance.—With the approval of the International Monetary Fund, the Pakistan rupee was devalued on July 31, 1955, the new parity being 4.7619 rupees per U.S. dollar (3.30852 before devaluation). Revenues, estimated at Rs.1,114.7 million in the 1954-55 budget, improved in revised estimates to Rs.1,154.4 million; for 1955-56 estimated revenues showed a further increase of Rs.35.8 million. Estimated expenditures for 1955-56 were Rs.1,203.9 million, as against the revised estimates of Rs.1,179.5 million for 1954-55. The 1955-56 capital budget called for a total expenditure of Rs.1,148.4 million (an increase of Rs.443.7 million over 1954-55), including an investment of Rs.151.1 million in the Industrial Development Corporation and Rs.34 million for the Warsak and other hydroelectric projects. Development loans aggregating Rs.1,109.7 million to provinces and states were provided in the 1955-56 budget. During the three years ending March 1954, Pakistan had been given an aggregate of Rs.549.1 million in foreign economic aid and technical assistance, including \$110.2 million in various forms of aid from the United States in the fiscal year 1954-55.

Education.—The 1951 census showed the literate population to be 13,958,013, or 18.9% of the whole. Progressively larger expenditures are being made to enlarge Pakistan's educational facilities, which in 1954-55 included 42,474 primary, and 5,118 secondary schools; 169 colleges; 6 universities; 134 teacher-training institutions; 220 technical and industrial institutions; 22 commercial schools; and 10 institutes for the handicapped. In the Federal Capital Area there are 122 government primary and secondary schools, and 4 teacher training schools. To meet the acute shortage of trained graduate teachers, a teacher-training college was established in 1954-55. Grants-in-aid to higher education included Rs.3.5 million to the University of Karachi; Rs.500,000 for the equipment and maintenance of private colleges;

and Rs.250,000 toward a new arts and science college for men in Karachi in 1955-56.

Agriculture.—Pakistan is predominantly an agricultural country, and nearly 80% of her people are engaged in the cultivation of the land. The area under wheat was 10,640,000 acres in 1954-55, and the crop was estimated at 3,680,000 tons in 1953-54. Rice production amounted to 9,150,000 tons in 1953-54, and exported rice surpluses aggregated 309,225 tons. The area under jute (Pakistan's major economic resource) was officially estimated at 1,150,215 acres in 1954-55 (760,000 acres in 1953-54); and jute production, at 2,708,230 bales of 400 pounds each. (Unofficial estimates placed the figure as high as 4.5 million bales.) In 1954-55 cotton production was expected to amount to about 1.6 million bales of 392 pounds from 2,824,000 acres, as compared with 1,370,000 bales from 3,094,000 acres in 1953-54. The production of sugar, in which Pakistan is deficient, had been increased to 85,000 tons in 1954-55. Development plans call for the installation of 12 more sugar factories, and 2 new factories went into production in 1955.

Industrial Production.—The installed capacity of the cotton industry at the end of January 1955 stood at 1,380,000 spindles and 19,040 looms, with Pakistan having neared self-sufficiency in the production of coarse and medium varieties of cotton textiles. In the jute industry, the target of 6,000 looms (with a production capacity of 200,000 tons, worth Rs.220 million) to be installed within 6 years under the Six-Year Development Plan (1951-57), had been achieved ahead of schedule by June 30, 1955. The woolen industry had 11,700 woolen spindles and 10,184 worsted spindles in production in 1955. Jute production was expected to reach 140,000 tons, which would provide an exportable surplus in 1955 of 100,000 tons. Some Rs.165 million was being invested in the further development of the jute industry under the government Industrial Development Corporation, with private enterprise furnishing about Rs.100 million of total capital outlay. In 1955 the corporation was responsible for 30 major projects, most of which were nearing completion, at a total expenditure of Rs.560 million.

Development Projects.—The direct capital outlay by the central government on development projects was Rs.335.4 million for 1954-55, and totaled Rs.519.4 million in the 1955-56 estimates. Expenditures from development funds for social improvement projects (Rs.90.9 million in 1954-55) were estimated at Rs.495 million for 1955-56, the total estimated development expenditure being Rs.1,148.4 million.

Civil works were nearing completion in 1955 at the Warsak multipurpose project, toward which Canada had thus far provided \$8.9 million.

Foreign Trade.—A favorable trade balance was maintained in 1954-55. The estimated value of transactions on private account from July 1954 to March 1955, inclusive, were as follows: imports, Rs.740 million; and exports, Rs.830 million. These may be compared with imports of Rs.745 million and exports of Rs.1,275 million for the full trading year 1953-54. Principal imports (July 1954 to March 1955, inclusive) included millwork and machinery, Rs.262.7 million; mineral oils, Rs.89 million; chemicals, Rs.40 million; and vehicles, Rs.38 million. Exports in the same period were, principally, jute, Rs.460 million; cotton, Rs.180 million; tea, Rs.52 mil-

lion; and hides and skins, Rs.21 million. Wool exports during the period July 1954 to February 1955 amounted to 14.9 million pounds (valued at Rs.29.6 million), as against 14.6 million pounds (valued at Rs.30.8 million) during the corresponding period of the preceding year.

Communications.—Pakistan's government-owned railways comprise the North Western Railway (5,200 miles) in West Pakistan, and the East Bengal Railway (1,844 miles) in East Pakistan. The passengers carried numbered 129,300,000 in 1954-55, as compared with 121,670,000 in 1953-54. Since partition, 4,350 miles have been added to the highway system, which aggregated nearly 60,000 miles in 1954-55. Motor vehicles totaled 60,943 in 1954. The port of Karachi handled an aggregate tonnage of 2,890,000 in 1954-55, while 488,314 tons were handled at the Chalna anchorage in East Bengal. The Pakistan International Airlines increased its Karachi-Dacca service to four flights weekly on Jan. 1, 1955.

Principal Events, 1955.—Pakistan registered a notable advance toward administrative unity when the new Constituent Assembly, which convened July 7, 1955, adopted a bill on September 30 for the merger of the various provinces and states of West Pakistan into a single unit. This unit came into existence on October 14 under a governor and an interim 310-member Legislative Assembly, to be elected at an early date. Principal areas, with legislative representation, are: the Punjab, 124 seats; North-West Frontier Province, 41; Sind, 57; and Karachi, 14.* Also on October 14, East Bengal was officially renamed East Pakistan.

With respect to the inclusion in West Pakistan of the Pathan tribal areas of the North-West Frontier, the unification plan brought threats of "grave consequences" by the government of neighboring Afghanistan (q.v.). On April 1 the raiding and looting of the Pakistan embassy in Kabul took place. A protest by Pakistan to the Afghanistan government was supported by the governments of Turkey, Great Britain, and the United States. On September 13, tension was relaxed when the Afghanistan foreign minister again raised the Pakistan flag in Kabul with ceremonial honors. It was also announced that the Grand Assembly of Chieftains would convene on November 15 to discuss the question of a local plebiscite in the Pathan areas.

Pakistan's enduring dispute with India (q.v.) over Kashmir was discussed during a visit to New Delhi in January by Governor General Ghulam Mohammad. In May the then prime minister, Mohammad Ali, held extended negotiations with India's Prime Minister Jawaharlal Nehru. No apparent advance toward a settlement was made, however.

During a state visit to Pakistan in February by Celâl Bayar, president of Turkey (with which Pakistan signed a military agreement in April 1954), it was announced that negotiations had been completed with Iran, Lebanon, and Syria for them to join Turkey and Pakistan in a defensive alliance of Moslem states in the Middle East. It was also announced that Jordan and Yemen would soon become members. Pakistan's accession to the mutual cooperation pact between Iraq and Turkey (the Baghdad Pact of

Feb. 24, 1955) was formally accepted at Baghdad on September 23. (See also above, *Government*.)

DONOVAN ROWSE,
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PALEONTOLOGY. See Index entry.

PALESTINE. A former League of Nations mandate in the Middle East relinquished by Great Britain on May 14, 1948. The greater part of Palestine is now divided between Israel and the Hashemite Kingdom of the Jordan (qq.v.). A narrow southern coastal strip in the vicinity of Gaza is held by Egypt. The demilitarized El 'Auja zone along the southern border serves as a headquarters of the United Nations Truce Supervision Organization in Palestine.

PALMYRA. An atoll of some 52 islets, included within the Line Islands of the central Pacific, located about 960 miles south of Honolulu. Its area is about 250 acres. Palmyra is within the Territory of Hawaii and under the jurisdiction of the city and county of Honolulu.

PAN-AMERICAN GAMES. See SPORTS, GAMES, AND SHOWS.

PAN AMERICAN UNION. See Index entry.

PANAMA. Occupying the isthmus joining North and South America, this Latin American republic is divided by the 10-mile-wide Canal Zone (see PANAMA CANAL) leased to the United States. With a population (est. mid-1954) of 886,000, the 28,575 square miles of Panama are thinly populated, the more so because a considerable proportion of the population is concentrated in and near the central cities. Panama City, at the Pacific end of the canal, had 127,407 inhabitants in 1950; Colón, the second city, at the Atlantic end of the canal, had 52,035. The bulk of the population is of mixed Spanish-Indian stock, but there is a considerable Negroid element. Spanish is the official language.

Government.—The constitution of 1946 provides for a president and a unicameral National Assembly of 53 deputies, elected for 4-year terms by direct popular vote. The president (currently Ricardo Arias, who took office on Jan. 15, 1955) is not eligible for re-election, even if he has served only part of the current term. The 9 provinces have governors appointed by the president. The 5 judges of the Supreme Court are nominated by the president with the consent of the cabinet and the approval of the National Assembly.

Religion and Education.—Roman Catholicism is the predominant religious faith. Considerable educational progress has been made in recent decades. In 1925 approximately 75% of the population was illiterate; by 1954 the figure had been reduced to 35%. In 1952-53 there were 125,398 children enrolled in 939 public and 74 private primary schools and 21 public and 72 private post-primary schools. Higher education is provided primarily by the National University of Panama, which had an enrollment of 1,575 students in 1953.

Finance.—The balboa, the monetary unit, is at parity with the U.S. dollar. Total government revenue in 1954 was \$43,280,000, as compared with \$42,140,000 for 1953; expenditures were \$43,860,000. The budget for the first half of 1955 was estimated at \$22 million, while revenues totaled approximately \$24 million (\$2.5 million above revenues in the corresponding period of 1954).

Production.—The national economy is poorly developed and integrated. Per capita income is not much over the \$343 average of 1952 when total national income was \$288.1 million. Capital is concentrated in the central cities, and especially in commercial enterprise, rather than in agriculture and industry. Production is primarily agricultural, but Panama is not self-sufficient in foodstuffs, despite considerable progress in recent years.

In 1954 the banana industry remained the most profitable agricultural activity, accounting

* The other territories comprising West Pakistan are Baluchistan Province, Bahawalpur, Khairpur, the Baluchistan States Union, and the states of Amb, Chitral, Dir, and Swat, in addition to the tribal areas of Baluchistan, the Punjab, and North-West Frontier Province.

for approximately 10% of the government's ordinary revenue. Banana cultivation increased sharply in 1954, as measured by an increase of about 20% in exports over 1953; 5,699,809 stems with a value of approximately \$9.9 million were exported, as compared with 4,689,360 stems worth some \$8 million in 1953. Rice production, after increasing during the past several years, declined during the 1954-55 crop year to 1,957,557 quintals, as compared with 2,207,894 for 1953-54. Refined sugar production totaled 398,798 quintals in 1954, a 5-year high.

Faced with a declining export market, the cement industry, with the aid of a high rate of domestic construction, managed to maintain a relatively high rate of activity. However, total cement production for 1954 fell to 1,646,664 bags (94 pounds each) from 1,928,006 bags in 1953. Electric power production at Panama City rose in 1954 to nearly 82 million kw.-hr., as compared with less than 78 million in 1953.

Foreign Trade.—The value of Panama's visible exports remained low in 1954, although they increased to approximately \$17 million (excluding trade with the Canal Zone) from \$15.5 million in 1953. The large banana crop accounted for over 57% of the total value. The second most important export item was shrimp, valued at \$2,044,429, as compared with \$1,915,585 in 1953. Imports in 1954 were valued at approximately \$72.6 million, an increase of \$1 million over 1953. The large gap between visible exports and imports was partly closed, as usual, by the export of labor to the Canal Zone, income from ship registrations, and expenditures in Panama by tourists and by residents of the Canal Zone. Panama's foreign trade is conducted primarily with the United States.

Transportation and Communications.—In 1953, Panama had 1,430 miles of roads, approximately 584 miles of which were dirt. The canal in central Panama is paralleled by the paved Boyd-Roosevelt Highway and the Panama Railroad. On July 14, 1955, the International Bank for Reconstruction and Development extended Panama a \$5.9 million loan to help finance a 4-year, \$9.56 million highway rehabilitation program.

The very large and mostly foreign-owned Panamanian merchant fleet, the fourth largest among maritime nations, changed little in 1954; it included 843 vessels, with a total gross tonnage of 4,867,746 at the end of the year. Two airlines provide domestic air service. Panama City is an important air terminus for 9 international airlines.

Principal Events, 1955.—The assassination of President José Remón on Jan. 2, 1955, and the legal and political repercussions flowing therefrom, overshadowed all other events. Remón's office devolved upon First Vice President José Guizado on January 3. Shortly afterward, Rubén Miró, a Panamanian lawyer, confessed the slaying of Remón, and implicated Guizado and some of the latter's business associates. On January 15, the National Assembly voted the impeachment of Guizado and ordered his arrest. The second vice president, Ricardo Arias, assumed the presidency the same day. On January 18, the Panama Supreme Court upheld the action of the Assembly, which subsequently tried Guizado, and, on March 29, found him guilty as an accessory to Remón's murder and sentenced him to 10 years imprisonment (the term was later reduced to 6 years and 8 months). Thirteen other men, including Rubén Miró, were to be tried in ordinary court for complicity in the crime. By August

1955, Guizado's lawyer was planning an appeal on the following grounds: that Miró had recanted his confession; that accomplices should not be tried before principals; and that the National Assembly lacked jurisdiction over common crimes.

While these events were occurring, parties were registering with the Ministry of the Interior, and nominating their candidates, in preparation for the presidential election scheduled for May 1956. There was considerable speculation as to the role the national guard—the only armed force in the country—might play in the campaign and election.

On January 25 the new treaty with the United States covering use of the Panama Canal was signed; by August 1955 the instrument was in force. Under this agreement, the United States increased its annual annuity to Panama from \$430,000 to \$1,930,000; turned over some real estate no longer needed for operation of the canal; promised equality of opportunity for Panamanians working in the Canal Zone; and barred non-United States nationals from commissaries in the zone. In return, Panama granted the United States several concessions, including rights to a military maneuver area at Rio Hato for 15 years. (See also PANAMA CANAL AND CANAL ZONE.)

In June, President Arias and President José Figueres of Costa Rica met to discuss possible Panamanian participation in the Organization of Central American States. Apparently President Arias decided that it was not to the advantage of Panama to join the organization.

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PANAMA CANAL and CANAL ZONE. The Panama Canal, extending across the Isthmus of Panama, connects the Atlantic and Pacific oceans. Owned by the United States, the waterway was opened to traffic in 1914. It extends 51.6 miles from deep water to deep water, or 40.27 miles from shoreline to shoreline. The Canal Zone is the area under United States jurisdiction extending generally 5 miles on either side of the center line of the Panama Canal and 3 marine miles beyond low-water mark in the Atlantic and Pacific oceans, for a total of 648.01 square miles, including tidal waters. It is, in effect, a United States government reservation, with nearly all residents being United States government personnel, and with private business being restricted to categories directly related to canal operations.

Under the terms of a treaty between Panama and the United States, signed at Panama on Jan. 25, 1955, the United States increased Panama's annuity for rights in the Canal Zone from \$430,000 to \$1,930,000, and extended various commercial and other privileges to Panama. (See also PANAMA.)

Population.—The federal census of 1950 showed a total population of 52,822. A local census of November 1954 placed the civilian population at 38,953, a decrease of 3,096 from the previous count of June 1953.

Civilian populations of the larger towns, as of November 1954, were: Rainbow City, 4,845; Paraiso, 3,008; Balboa, 2,709; Santa Cruz, 2,059; Margarita, 1,446; Ancon, 1,290; New Cristobal, 1,130; Diablo Heights, 1,124; and Gamboa, 1,018.

Administration and Government.—The Panama Canal Company, reorganized July 1, 1951, by act of Congress, operates the Panama Canal and its adjuncts in the Canal Zone. The company, which is a wholly-owned United States government corporation, is self-supporting and operates on its current revenues (net income, 1954-55, \$581,134).

The Canal Zone government, also established by act of

Congress, maintains such functions as police and fire protection, schools, postal service, customs, immigration, magistrates' courts, hospitals, and public health and sanitation facilities. Its net operating expenses are reimbursed to the U.S. Treasury by the Panama Canal Company.

The joint functions of governor of the Canal Zone and president of the Panama Canal Company are held by Brig. Gen. John S. Seybold, USA, who took office on May 27, 1952. Other officials include: George H. Roderrick, chairman of the board; Col. H. W. Schull, Jr., USA, lieutenant governor and vice president; W. M. Whitman, secretary; Philip L. Steers, Jr., comptroller; E. C. Lombard, executive secretary; and Capt. Frank A. Munroe, Jr., USN, marine director. Sigurd E. Esser is superintendent of schools; Guthrie F. Crowe is federal district judge; and William G. Arey, Jr., is public information officer.

Education.—School attendance is not compulsory for children living in the Canal Zone. Expenditures for public education in the fiscal year ended June 30, 1955, totaled \$2,986,000, and teachers' average salaries ranged from \$1,749 to \$5,407 for the 1953-54 school year.

The Canal Zone program of public education provides two types of schools—United States schools and Latin American schools. The former, attended primarily by United States citizens, affords a program of education in the English language comparable with that of schools in the United States. The curriculum includes the teaching of Spanish in every grade, 1 through 12. The Latin American schools are attended by noncitizens. In these schools, beginning with the school year 1954-55, classes from kindergarten through grade 6 were conducted in Spanish. This program was expanded to include grades 7 through 12, beginning with the school year 1955-56. The curriculum will follow that of the schools of the Republic of Panama.

The accompanying table shows statistics for the 1954-55 school year. (Columns headed by "US" refer to United States schools; by "LA," Latin American schools.)

Public Schools	Number		Teachers ¹		Students ⁵	
	US	LA	US	LA	US	LA
Elementary (K-6).....	11	5	140.25	71.5 ³	4,600	2,566
Junior high.....	2	4	26.0	31.7	729	888
Senior high.....	2	2	42.0	30.1	1,155	581
Totals.....	15	11	208.2	133.3	6,484	4,035
Junior colleges ⁴	1	1	8	1	145	9

¹ Includes part-time expressed as equivalent of full-time. ² Does not include 9 special teachers of Spanish. ³ Does not include 2 special teachers of Spanish. ⁴ Excludes extension division classes for adults. ⁵ As of Oct. 15, 1954.

Social Welfare.—During the 1955 fiscal year, operating costs were \$154,233 for the Canal Zone Penitentiary and \$559,220 for both the Corozal Hospital for the insane and indigent (277 patients) and the Palo Seco Leprosarium (113 patients).

Industry.—No private industry is maintained in the Canal Zone, although there are a few private business enterprises related to the canal operation. A few agricultural licenses are issued for small vegetable gardens operated by Chinese gardeners. An experimental garden of 320 acres, devoted chiefly to the development and propagation of tropical plants, is operated by the canal organization.

Canal Traffic.—A record high of 7,997 transits of the Panama Canal were made by toll-paying, ocean-going commercial ships of more than 300 tons net during the 1955 fiscal year. Ocean-going United States government vessels made 296 transits, as compared with 800 in the previous year. Tolls in the fiscal year totaled \$35,136,529, of which \$1,217,536 was in toll credit for United States government vessels. The net amount of cargo shipped through the canal in the fiscal year 1955 aggregated 40,646,300 long tons, the highest in the history of the canal. (See also CANALS.)

Communications and Transportation.—Exclusive of those thoroughfares in armed forces reservations, there were in 1955 a total of 132.4 miles of improved streets and highways on which, including sidewalk repairs, \$217,652 was disbursed in the 1955 fiscal year. Registered motor vehicles in 1955 numbered 13,253. Railway transportation is furnished across the isthmus by the 48-

mile Panama Railroad. Public transportation to various areas within the Canal Zone is provided by a consolidated bus company, and numerous small commercial bus companies furnish service to various Zone areas from the cities of Panama and Colón in the Republic of Panama.

There are 7,371 telephones in service. Although there are no commercial radio stations in the Canal Zone, an armed forces radio station functions at Fort Clayton.

WILLIAM G. AREY, JR.,
Panama Canal Public Information Officer.

PAPAGOS, Alexander, premier of Greece: b. Athens, Greece, Dec. 9, 1883; d. Athens, Oct. 4, 1955. Leader of the Greek forces which defeated the Italian Army in World War II and the Greek Communist rebels in 1949, he was premier of Greece from 1952 until his death.

Alexander Papagos was educated for a military career at the Brussels Military Academy, the Cavalry School at Ypres, Belgium, and the Greek War Academy. Commissioned a 2d lieutenant in 1906, he participated with distinction in the Balkan Wars of 1912-13, World War I, and the Greco-Turkish War of 1920-22. In 1932, Papagos, then a major general, was named deputy chief of staff of the Greek Army, and in 1934, inspector general of the cavalry. With the establishment of a dictatorship by Ioannes Metaxas in 1936, he was appointed chief of the Greek General Staff, and devoted the next four years to modernizing the obsolete military establishment.

General Papagos became a national hero in 1940-41 when his troops, in one of the outstanding victories of World War II, repulsed Mussolini's invading legions and forced their withdrawal deep into Albania. His small and poorly equipped army, however, was no match for the German military machine that rolled through northern Greece into Athens in April 1941. Following defeat, Papagos was interned in a German concentration camp until his liberation by American troops in 1945. He retired from active duty in 1947 to become grand chamberlain and military adviser to King George II.

In January 1949, when a loyalist defeat at the hands of Greek Communist insurgents was imminent, General Papagos was named supreme commander of the Greek armed forces and given full power to conduct the campaign against the rebels. By September 1949, the Communists had been decisively defeated, and peace was restored. In October he was named field marshal by King Paul I.

Following a rift with the king over the latter's interference in military matters, General Papagos resigned as commander of the Greek Army on May 30, 1951. Subsequently he became leader of the new, conservative Greek Rally Party, which in the general election of 1951 gained more votes than any other party, but failed to obtain an absolute majority. Called to form a coalition government, the marshal refused the offer. In the election of Nov. 16, 1952, however, after the proportional-representation system had been replaced by a simple-majority system, Papagos' party won an overwhelming victory, and on Nov. 19, he became premier. (See also GREECE.)

PAPER INDUSTRY. The pulp and paper industry of the United States registered an 11% gain in production in 1955 as compared with its record high in 1954. Output exceeded all forecasts made by even the most optimistic paper manufacturers early in the year. Despite the industry's most strenuous efforts to produce enough paper

to meet an unprecedented demand, unfilled orders were higher at the end of the year than at its beginning.

As can be seen from the accompanying table, all classifications of paper and paperboards showed increases in 1955 over 1954. As a matter of fact, the 1955 volumes of every grade except newsprint exceeded all previous records.

U.S. PAPER AND BOARD PRODUCTION
(Tons of 2,000 pounds)

	1953 census	1954 census	1955 estimate
Newsprint.....	1,068,661	1,191,760	1,500,000
Groundwood.....	771,228	807,980	900,000
Machine-coated printing and converting.....	1,182,150	1,215,243	1,300,000
Book, uncoated.....	1,622,960	1,559,577	1,700,000
Fine.....	1,297,569	1,323,944	1,500,000
Coarse.....	2,697,401	2,631,921	2,900,000
Shipping sack.....	701,381	796,687	825,000
Special industrial and absorbent.....	554,396	526,209	640,000
Sanitary.....	1,277,694	1,320,353	1,385,000
Tissue.....	232,066	240,981	256,000
Building paper.....	1,316,672	1,355,941	1,550,000
Container board.....	6,613,206	6,432,250	7,046,000
Bending boxboard.....	3,566,528	3,671,184	4,000,000
Nonbending boxboard.....	945,081	920,064	1,000,000
Cardboard.....	75,215	79,227	89,000
Other board.....	1,226,383	1,076,312	1,260,000
Building board.....	1,379,290	1,506,998	1,675,000
Total.....	26,527,881	26,656,631	29,526,000

(Source: 1953 and 1954 figures from the U.S. Bureau of the Census; 1955 estimates by the American Paper & Pulp Association.)

Prices for paper and most paper products were strong throughout 1955. Increases averaged approximately 4%, but were made to appear much higher by the newspapers in their all-out protest against the newsprint increase from \$126 to \$131 per ton effective Nov. 1, 1955. Congressional committees were asked to investigate the situation, despite the fact that this was the first newsprint price increase since 1952, during which time many newspapers had increased their own newsstand prices considerably.

During 1955, only four walkouts, each of short duration, marred the usually good labor-management relations in the industry. Labor rates increased approximately 4% in 1955.

The industry had no significant problems with respect to raw-material supplies, but many mills, particularly in New England and the South Atlantic region, were harassed by the floods and high winds which struck those areas in August and October.

During 1955, the industry increased its capacity by more than one million tons to nearly 31 million tons of paper and paperboard annually. Three fourths of the increase resulted from the addition of 22 new paper machines, the balance being due to improvements in older machines. New capacities were directed particularly to tissue, newsprint, kraft, liner board, and the bleached food boards.

DERNELL EVERY,
Secretary Kraft Paper Association, Inc.

PAPUA AND NEW GUINEA, Territory of. A dependency of the Commonwealth of Australia, Papua was united on July 1, 1949, for administrative purposes, with the adjoining Territory of New Guinea, of which the Commonwealth government is trustee under agreement (Dec. 13, 1946) with the United Nations. These areas comprise the eastern half of the island of New Guinea, lying to the north of Australia (total area, 183,540 square miles; pop., June 30, 1954, 1,701,458). Port Moresby, Papua's chief seaport, is the territorial capital.

The government is directed by an administrator (Brig. Donald M. Cleland), appointed by the Commonwealth government, assisted by an Executive Council and a 29-member Legislative Council (17 officials and 12 nonofficials).

The annual Australian grant rose to £A7,600,000 in 1954-55 (in 1953-54, £A5,500,000). Estimated expenditure of £A10,460,000 in 1954-55 included £A670,000 for education and £A840,000 for native welfare and advancement.

Rubber and copra are the chief crops cultivated on about 239,672 acres. Major exports, sold principally to the United Kingdom, are copra, coconut oil, rubber, cacao beans, and coffee beans. Gold (valued at £A1,414,265 in 1953-54) is mined chiefly in the Territory of New Guinea, which also has an important timber industry. Regular shipping service is maintained between Port Moresby and Sydney, New South Wales. Air transport companies operate internal and external services, using 175 airfields and seadromes.

Papua, Territory of.—This former British protectorate has been administered by the Commonwealth government since 1906. Its area of 90,540 square miles comprises the southeastern portion of the island of New Guinea (87,786 square miles), and the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups of islands (2,754 square miles). The population in mid-1954 was 494,709 (indigenous, 488,396; nonindigenous, 6,313). Revenue in 1953-54 totaled £A3,296,593; expenditure, £A3,240,309. Schools numbered 850 (administration, 33; mission, 817), with 45,136 pupils on June 30, 1954. Total exports in 1953-54 were valued at £A1,921,162, and imports at £A5,722,166. There are 950 miles of highways.

New Guinea, Territory of.—This trust territory of the United Nations is also within the scope of the South Pacific Commission (q.v.). Its area (93,000 square miles) comprises North Eastern New Guinea (69,700 square miles), Bismarck Archipelago (New Britain, New Ireland, Lavongai, and the Admiralty Islands, 19,200 square miles), and the northernmost Solomon Islands (Bougainville and Buka, 4,100 square miles), the rest of the Solomons constituting the Solomon Islands Protectorate (see WESTERN PACIFIC ISLANDS, BRITISH). The population in mid-1954 was 1,206,799 (indigenous, 1,195,357; non-indigenous, 11,442).

Revenue in 1953-54 totaled £A4,094,789 (direct grant from the Commonwealth government, £A3,103,076; internal revenue, £A1,991,713); expenditure, £A5,094,789. Schools numbered 2,852 in 1954 (administration, 79; mission, 2,773), with 92,987 pupils (administration, 4,495; mission, 88,492). Total exports, valued in 1953-54 at £A9,192,110, included copra, 71,780 tons, £A5,031,676; coconut oil, 10,215 tons, £A1,397,999; cacao beans, 713 tons, £A245,950; and gold, 90,857 fine ounces, £A1,409,480. Imports in 1953-54 totaled £A9,444,628. There are 2,904 miles of vehicular roads.

PARAGUAY. Occupying an area of 157,047 square miles in central South America and embracing a largely mestizo population of 1,565,000 (1955 U.N. est.), Paraguay is a landlocked republic situated in both the tropic and temperate zones. Bounded by Brazil on the northeast, Bolivia on the northwest, and Argentina on the south, Paraguay's single access to the sea is the vital Paraguay River, which divides the country into the sparsely populated Chaco region and the populous eastern sector. Asunción, the capital, has a population (1955 est.) of 250,000. Other principal cities (with 1950 populations) are Encarnación (40,906), Coronel Oviedo (34,442), Concepción (32,556), and Villarrica (27,794).

Government.—The 1940 constitution established a highly centralized form of government, headed by a president (Gen. Alfredo Stroessner), popularly elected for a 5-year term. He is assisted by a 10-man cabinet; a 40-man unicameral Chamber of Representatives, elected by direct proportional representation; a presidentially appointed Council of State possessing executive, legislative, and judicial powers; and a judicial system headed by a Supreme Court of three judges. Paraguay is divided into 16 departments, each of which is governed by a presidential appointee.

Finance.—Total appropriations in the national budget

for the calendar year 1955 amounted to 978.9 million guaraníes (at the official rate, 21 guaraníes equal U.S.\$1), an increase of 15% over the 1954 figure. Defense was allotted 298.3 million guaraníes; interior, 149.5 million; public health and welfare, 49.8 million; public works, 53 million; and public debt retirement, 123.3 million. Major sources of revenue are internal taxes, import duties, and income taxes.

Education and Religion.—The illiteracy rate continues high in spite of constitutional provisions specifying free and compulsory education on the primary level. Many areas are completely lacking in school facilities. Education and religion received 146.5 million guaraníes, or about 14% of the 1955 budget. Staffed by 5,984 teachers, the 1,447 primary schools in 1950 had about 195,607 students. Also enrolled were 4,174 students in the 14 secondary schools, 1,721 in 116 technical schools, and 1,651 in the National University. Financial aid from the United States has been extended to the university to help it develop its medical school.

The official state religion is Roman Catholicism, but other groups, including colonies of Mennonites and Hutterites, are tolerated.

Agriculture and Industry.—While only 3% of its land is arable, Paraguay's economy is based on agriculture and livestock, from which half of the national income is derived. The chief crops are: cotton (12,357 metric tons in 1953), tobacco (11 million pounds in 1954), manioc, oilseed, corn, sugarcane, and yerba maté. Quebracho logs are the most important timber product. Prolonged drought and heat early in 1955 caused the failure of the corn crop and seriously affected the cotton crop, making a second planting necessary. A bumper crop of tobacco was harvested, however. A severe frost in August ruined the banana, manioc, and pineapple crops in the northwest.

The combined effects of 1954 floods and the drought of this year drastically reduced the number of cattle on the Chaco ranges. Stern government measures were taken to curb black market activities when shortages in various staples developed.

The few industries produce largely for local consumption, with the exception of the sawmills and the plants which make quebracho extract. The principal manufacturing is textiles. In an effort to attract foreign capital, Paraguay adopted a new investment code in 1955 which granted tax and duty exemptions to imported capital goods and to exports produced by the newly established foreign industries.

Foreign Trade.—In 1954 Paraguay's exports were valued at 812,985 guaraníes and its imports at 992,399 guaraníes. In 1953 the following products, with their value in millions of guaraníes, were the more important exports: cotton (199.0), timber (103.9), quebracho extract (82.6), tobacco (40.7), and hides (32.3).

Transportation and Communications.—Plans to establish a direct cargo service between Asunción and New York were delayed in 1955 because drought conditions had reduced the Paraguay River to too low a level for large vessels. There are six airlines serving Paraguay, and a new air service between Uruguay and Paraguay was inaugurated in 1955. The Export-Import Bank of Washington announced a \$700,000 loan for reconditioning and enlarging the International Airport in Asunción. With financial aid from the International Bank for Reconstruction and Development, Paraguay has embarked on a program to improve its highway system (less than one third of its 3,750 miles of road are usable throughout the year). The International Cooperation Administration has granted Paraguay \$100,000 to train personnel in the use and maintenance of highway equipment. Work continued in 1955 on the Chaco all-weather road, financed jointly by the government, the Chaco ranchers,

and the Mennonites. Paraguay has 713 miles of railroad in operation.

Principal Events, 1955.—An unsuccessful attempt by military and civilian elements, led by an ex-Colorado Party leader, to overthrow the government of Gen. Alfredo Stroessner occurred in January. Sporadic demonstrations by the outlawed Communist Party caused tightening of security measures. In August, President Stroessner asked for and received authority to punish with prison terms all those who helped to spread communism. He was also empowered to take action against those who circulated derogatory information about Paraguay abroad.

In December, Stroessner quickly put down a new uprising against his government. The revolt was said to have been instigated by influential businessmen and officers of the First Cavalry Division.

Paraguay came prominently into the news when it granted asylum in October to the deposed Argentine president, Juan Peron.

Asunción will benefit by an Export-Import Bank loan of \$7.2 million to defray the cost of installing a water supply system in the capital. An autonomous agency has been created to carry out construction of the system, which will furnish 15 million gallons of water a day to about 135,000 persons living in central Asunción. The water will be taken from the Paraguay River.

LEO B. LOTT,
*Instructor in Political Science,
Ohio State University.*

PARAPSYCHOLOGY (PSYCHICAL RESEARCH).

This new branch of natural science deals with all interaction between a person and his environment that does not depend on the usual sensory and motor functions. Thus it has to do with man's direct knowledge of his outer world (extrasensory perception, or ESP) and his ability to exert a direct influence upon it (psychokinesis, or PK).

Parapsychology is still a topic of lively debate, but it is of increasing interest as well. Articles both for and against ESP have in recent years appeared in many of the leading periodicals of American science, including *Science*, *The Scientific Monthly*, and *The American Scientist*.

Likewise, there has been, during the last two years, an increasing number of international conferences centering on the problems of parapsychology. Some of these conferences have been supported by the Parapsychology Foundation of New York, the most recent one being a conference on spontaneous psychic experiences held at Cambridge University in July 1955 by the Society for Psychical Research. The Ciba Foundation of London, interested mainly in the medical sciences, held an international symposium on ESP in May 1955. In December 1954 the American Philosophical Association (Eastern Section) held a symposium on ESP at its annual meeting; and in its annual meeting for 1955, the South African Association for the Advancement of Science scheduled invited papers on its program.

On the more important aspect of research progress, however, the last two years have not seen any clearly novel advances. It has seemed more like a period of fulfillment and adjustment. Haakon Forwald, a Swedish engineer who has been making efforts to estimate the energy expended in psychokinetic action on dice, has discovered that rough-surfaced cubes are more effectively influenced psychokinetically than are smooth ones. This could be a very important

finding. The long-pursued problem of precognition (ESP of future events) has also seen further progress. Not only have new contributors been brought to the support of the case for precognition, but new devices have been used to improve the tests so as to insure that the order of cards to be precognized be so made up that nothing but true precognition could give significant results. Outstanding in these contributions is the work of Dr. Karlis Osis and that of Dr. Gordon Mangan, both of the Parapsychology Laboratory at Duke University.

Paralleling these experimental studies is the exploratory search for new ideas about precognition which Dr. Louisa E. Rhine of that laboratory is making in the analysis of her collection of many thousand cases of psychic experiences apparently involving the future. She is concentrating particularly on the question of whether precognition necessarily implies the inevitability of the event precognized. Dr. Remi Cadoret of the Duke Parapsychology Laboratory is convinced he has a method now developed that can make even small traces of ESP ability reliably applicable to practical use. The method has two phases, one being used to evaluate the other and give it a measure of prediction value.

J. B. RHINE,
Parapsychology Laboratory, Duke University.

PARKS, National. See NATIONAL PARKS.

PATENTS AND TRADEMARKS. For the fiscal year ending June 30, 1955, the U.S. Patent Office granted 32,308 patents, including designs and reissues. Patent applications pending on June 30, 1955, approximated 222,000, excluding designs, of which about 140,000 were before the office examiners for consideration. The office received 84,233 new patent applications during the 1955 fiscal year, and applications for so-called "mechanical" patents, as distinguished from design patents, numbered 78,480, higher than in any year since 1931.

The Patent Office registered and renewed 20,697 trademarks (excluding republications), and applications for registration and renewal totaled 25,446. On June 30, 1955, approximately 26,234 applications for registration, renewal, and republication were pending, of which 12,527, slightly less than half, were awaiting action by the examiners.

Over 2,700,000 patents had been issued by June 30, 1955. Complete classified and numerical sets are available to the public in the Patent Office search room. Information concerning the patents issued each week is provided in condensed form in the *Official Gazette of the United States Patent Office*, which is available in about 340 government depository libraries. Copies of patents may be inspected in some 22 libraries, or may be purchased for 25 cents each; designs and trademarks cost 10 cents each. During the 1955 fiscal year the Patent Office distributed nearly 7,000,000 copies of United States patents and trademarks: more than 4,500,000 sold, 650,000 deposited in libraries, and over 1,100,000 shipped under exchange agreements to foreign countries.

The service previously afforded by the Register of Patents Available for Licensing or Sale, abolished June 30, 1954, was reinstated in a modified form on Oct. 29, 1954. Owners of patents under the substitute procedure may publicize the availability of their patented inventions on payment of a fee.

An Advisory Committee on the Application of Machines to Patent Office Operations, appointed

Oct. 22, 1954, and headed by Dr. Vannevar Bush, submitted its report on Dec. 22, 1954. Material progress has been made in carrying out its recommendations.

The Patent Office had 1,612 employees on June 30, 1955. Office operations during the 1954 and 1955 fiscal years were on a reduced budget, which, coupled with a high filing rate of applications, reduced the number of patents issued and the number of printed copies distributed, and raised the backlog of pending applications by 27,252 above the figure at the end of fiscal 1954. To rectify this condition, appropriations for the Patent Office in 1956 were increased and additional personnel were being recruited.

Net receipts for the fiscal year ended June 30, 1955, were \$5,860,833. Obligations incurred under all Patent Office appropriations amounted to \$11,629,328.

ROBERT C. WATSON,
Commissioner of Patents.

PEACHES. See FRUITS.

PEANUTS. See NUTS.

PEARS. See FRUITS.

PEARSON, Lester Bowles, Canadian secretary of state for external affairs: b. Toronto, Canada, April 23, 1897. A member of Canada's diplomatic corps since 1928, he served in a number of capacities before he was named secretary of state for external affairs on Sept. 10, 1948. These included posts as minister-counselor at the Canadian legation in Washington, D.C. (1942); Canadian ambassador to the United States (1945-46); and undersecretary of state for external affairs (1946-48). He was also senior adviser to the Canadian delegation at the San Francisco Conference in 1945, and since 1947 has headed the Canadian delegation to the U.N. General Assembly, serving also as assembly president in 1952-53. Since 1948 he has been a Liberal member of the Canadian Parliament.

In 1955, Lester Pearson's moderate voice in international affairs served as an ameliorant in



Lester B. Pearson

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areas where high tension had been generated between East and West. At the height of the Formosa crisis, after the United States had indicated its intention to defend the coastal islands against a threatened Communist Chinese invasion—if it should be determined that such an action was ultimately directed at Formosa—he told the Canadian Parliament on March 24 that although Canada was bound to aid the United States in a major war, he did not consider a conflict over the possession of the coastal islands to warrant such support. Later, with the situation unaltered, he insisted (April 13) that if the problems of the

Far East were to be settled, "either the Communist Chinese must come to the United Nations or the United Nations must go to them."

In October 1955, Pearson paid an official visit to the Soviet Union, the first of its kind made by a Western foreign minister since the commencement of the cold war. During his week's stay he discussed with Soviet leaders the possibilities of concluding a trade pact and of removing barriers to freer cultural, scientific, and technological contacts. After the failure of the Geneva Conference (q.v.) of foreign ministers in October–November, Pearson, dubious of the value of rigid Western diplomacy, declared that it behooved the West to re-examine its policies on German reunification.

Pearson's views on modern diplomacy and international affairs are expressed in his book *Democracy in World Politics*, which was published in October 1955.

PEAS. See **VEGETABLES**.

PEAT. Although used as a fuel in some countries, in the United States peat is put to various agricultural uses—chiefly as a soil conditioner, for which it is becoming increasingly popular. World production figures, compiled by the U.S. Bureau of Mines, are shown in the accompanying table.

WORLD PRODUCTION OF PEAT
(In thousands of metric tons)

	1951	1952	1953	1954
Canada.....	70	68	74	79
Denmark.....	2,014	1,626	574	544
Finland.....	207	200*	200*	205*
Germany, East*	500	500	500	500
Germany, West.....	1,426	1,151	1,340	1,379
Ireland.....	3,992	3,864	3,839	3,864
Korea.....	319	81	75	100*
Netherlands.....	642	695	453	450*
Norway.....	353	358	274	258
Sweden.....	347	352	340*	350*
USSR*.....	44,000	45,000	45,000	45,000
United States.....	176	191	185	221
Total*.....	54,000	54,000	53,000	53,000

* Estimated.

Peat production in the United States reached a new record of 243,257 short tons in 1954, as compared with 204,209 tons in 1953. Imports increased from 199,887 tons in 1953 to 240,940 tons in 1954. Peat production of domestic origin sold in 1954 included 202,280 short tons applied to soil improvement and 36,916 tons in mixed fertilizers, the balance being used for such purposes as stock bedding and as a packing material for plants, shrubbery, fruits, and vegetables.

PECANS. See **NUTS**.

PEDIATRICS. Pulmonary Hyaline Membranes.—A condition known as pulmonary hyaline membranes has engaged the attention of many investigators over the entire world because of the important role it plays as a cause of death in newborn infants. Pulmonary hyaline membranes consist of a pink-staining, homogeneous material which lines the air spaces of the lungs and presents a barrier to the passage of oxygen from the air into the blood vessels. It has been estimated that 25,000 infants die each year in the United States alone as a result of this condition.

During the past year, several reports in the medical literature lent further emphasis to the importance of this disease. At the University of Zurich it was found that 44 per cent of premature infants dying within a few days of birth had the condition. A University of Oslo study simi-

larly revealed that roughly half of all premature infants who died within the first three days of life had pulmonary hyaline membranes in the lungs. At Johns Hopkins University a group of investigators found pulmonary hyaline membranes in the lungs of one out of every four newborns who die. It is clearly evident that this disease is probably the most important cause of death in newborn infants at the present time.

Of interest is the fact that stillborn babies show no evidence of pulmonary hyaline membranes; an infant must breathe for at least one to two hours before succumbing in order that the membranes may be revealed microscopically. The condition is found most frequently in premature infants, infants delivered by Caesarean section, and infants of mothers with diabetes.

The clinical picture shown by the newborn infant with pulmonary hyaline membranes is a striking one. Usually the infant appears to be in good condition immediately after birth, but shortly afterward its respirations become more rapid and the soft tissues of the chest wall begin to pull inwardly with each breath. As the respirations become more labored and less efficient, the infant's color changes from its normal pink to a dusky blue. In the fatal cases the respirations become increasingly difficult and the infant finally dies of suffocation as the membranes extend to larger areas of lung and effectively bar the diffusion of oxygen into the blood vessels of the lungs.

Many theories have been advanced to explain the origin of the membranes. Several investigators have argued that they are formed from amniotic fluid by which the infant is surrounded during intrauterine life. It is thought that this fluid aspirated deeply into the infant's lung just before or during birth is the basis for the development of membranes. During the past year an important step forward in the study of the disease resulted when experimental work revealed that the membrane originates from fluid passing from the infant's blood vessels into his own lung spaces. Further studies to determine the cause of this disease are under way.

Rheumatic Fever.—A joint report on the treatment of rheumatic fever in children with ACTH, cortisone, and aspirin, representing a cooperative undertaking of 12 medical centers in the United States, Canada, and Great Britain, was published during the past year. (For details of the study, see **HEART DISEASE**.) Over the course of a year no significant differences in results were noted among the three groups. Treatment with hormones produced more prompt control of fever, joint pains, laboratory changes, etc., but the ultimate course of the disease was not altered. More recent studies, however, suggest that higher doses of hormones than those used in the joint investigation, given over a long period of time until all symptoms and laboratory determinations indicative of activity of the rheumatic process are no longer present, will affect the natural course of the disease and prevent heart damage. (See also **ARTHRITIS**.)

Phenylketonuria.—Phenylketonuria is a rare type of mental deficiency, and patients with the disease represent only a minute percentage of the total number of mentally retarded children. During the past year much progress has been made in the control of this disease.

In phenylketonuria the patients are typically blond and blue-eyed with mental retardation which is severely progressive. The disease has been diagnosed for many years by the finding in

the urine of phenylpyruvic acid. The recent studies suggest that the mental defect is due to an injury to the brain by an excess of phenylalanine, an amino acid which is a normal constituent of protein food. These children are unable to metabolize this amino acid apparently because of an inherited defect in the enzyme system involved in handling the amino acid. During the past year, British pediatricians and investigators in the United States have presented evidence that artificial diets freed from phenylalanine by passage through a charcoal filter result in improvement in the mental status of patients with phenylketonuria. It appears essential that such diets be started as soon as possible after birth, for the longer the infant is subjected to high levels of phenylalanine the more severely damaged his brain will be. (See also POLIOMYELITIS.)

SYDNEY S. GELLIS,
Assistant Professor of Pediatrics, Harvard
Medical School; Editor, "Year Book of
Pediatrics."

PENNSYLVANIA. Middle Atlantic state, United States; one of the original 13 states. The "Keystone State" ranks 32d in area and 3d in population (1955) among the 48 states.

Area and Population.—Area: 45,333 square miles (land, 45,045; inland water, 288), divided into 67 counties. Population: (1950) 10,498,012; (est., July 1, 1955) 11,132,000. Incorporated places with 1950 populations above 15,000 are as follows:

Aliquippa.....	26,132	Monessen.....	17,896
Allentown.....	106,756	Munhall.....	16,437
Altoona.....	77,177	Nanticoke.....	20,160
Ambridge.....	16,429	New Castle.....	48,834
Beaver Falls.....	17,375	New Kensington.....	25,146
Bethlehem.....	66,340	Norristown.....	38,126
Braddock.....	16,488	Oil City.....	19,581
Bradford.....	17,354	Philadelphia.....	2,071,605
Butler.....	23,482	Pittsburgh.....	676,806
Carbondale.....	16,296	Pittston.....	15,012
Carlisle.....	16,812	Pottstown.....	22,589
Chambersburg.....	17,212	Pottsville.....	23,640
Chester.....	66,039	Reading.....	109,320
Clairton.....	19,652	Scranton.....	125,536
Dunmore.....	20,305	Shamokin.....	16,879
Duquesne.....	17,620	Sharon.....	26,454
Easton.....	35,632	Shenandoah.....	15,704
Erie.....	130,803	State College.....	17,227
Greensburg.....	16,923	Sunbury.....	15,570
Harrisburg (capital).....	89,544	Swissvale.....	16,488
Hazleton.....	35,491	Uniontown.....	20,471
Jeannette.....	16,172	Washington.....	26,280
Johnstown.....	63,232	West Chester.....	15,168
Kingston.....	21,096	West Mifflin.....	17,985
Lancaster.....	63,774	Wilkes-Barre.....	76,826
Lebanon.....	28,156	Wilkinsburg.....	31,418
McKeesport.....	51,502	Williamsport.....	45,047
McKees Rocks.....	16,241	York.....	59,953
Meadville.....	18,972		

Executive.—Chief state officers for 1955:
Governor: George M. Leader (Democrat)
Lieutenant Governor: Roy E. Furman
Secretary of State: James A. Finnegan
Treasurer: Weldon B. Heyburn
Secretary of Internal Affairs: Genevieve Blatt
Attorney General: Herbert B. Cohen
Acting Superintendent of Public Instruction:
Ralph C. Swan

Constitution and Judiciary.—The present constitution went into effect in 1874. The Supreme Court comprises 7 justices; chief justice in 1955: Horace Stern.

Legislature.—The General Assembly (Senate, 50 members; House of Representatives, 210) meets in odd-numbered years commencing the first Tuesday in January.

At the 1955 meeting of the General Assembly, enactments included provision for the reorganization of agencies and functions of the state government by the governor, subject to the approval of the General Assembly; authorization of the sale of forest and game land for aircraft testing or manufacturing, for power plants, or for other scientific purposes primarily in the interest of national defense; authorization for an east-west turnpike through the northern part of the state and connection of the present Pennsylvania Turnpike with that of West Virginia; a multimillion dollar dam on the Delaware River at Wallpack Bend, Pike County; and a toll bridge by the Delaware River Port Authority over the Delaware River between Philadelphia and Palmyra, N.J. The statute governing legislative salaries was amended to

provide a \$3,000 annual instead of a biennial salary if annual legislative sessions are adopted. A new boxing and wrestling code was adopted, and penalty was provided for wilful obstruction of emergency telephone calls. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$2,334,270,202.21; expenditures, \$2,348,027,435.45; treasury balance, \$92,184,147.84, exclusive of \$59,393,461.41 invested in United States government short-term obligations; gross debt, \$380,950,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$681,452,248, including \$83,263,969 from a 1% general sales tax (expired Aug. 31, 1955) and selective sales and gross receipts taxes; \$89,393,337 from licensing; and \$97,696,791 from corporate income taxes. The state has no individual income or poll tax.

Banking.—As of June 30, 1955, the state's 536 national banks had \$8,130,249,000 in assets, \$4,974,231,000 in demand deposits, and \$2,272,039,000 in time deposits; the state's 310 other banks had \$7,013,885,181.28 in assets, \$3,406,090,395.11 in demand deposits, and \$2,878,626,491.37 in time deposits.

Education.—School attendance is compulsory for all between the ages of 8 and 17, inclusive. Operating expenditures of \$503,949,837 (\$268.42 per pupil) for public elementary and secondary education in the 1953-54 school year comprised \$281,911,510 from local school districts, \$218,538,327 from the state, and \$3,500,000 from the federal government. Expenditures for construction and improvements amounted to \$126,000,000. Teachers' salaries averaged \$4,262 (elementary school teachers, \$4,013; high school teachers, \$4,275).

PENNSYLVANIA SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-8).....	5,209	37,988	1,099,173
Public secondary (7-12).....	1,147	28,658	608,169
Private and parochial elementary and secondary.....	1,558	14,000 ¹	420,369
Vocational and special.....	248	1,362	26,795
Junior colleges.....	11	133	2,009 ²
State teachers colleges.....	14	808	12,127 ²
Colleges and universities.....	70	12,611	126,611 ²
Other higher institutions.....	28	306	4,596 ²

¹ Estimated. ² 1954-55 figures.

Pennsylvania State University, which celebrated its 100th anniversary on Feb. 22, 1955, completed construction of a \$300,000 nuclear research reactor which was in full operation before the end of the 1954-55 school year. Lafayette College received a grant of \$1,249,892.60 from the Olin Foundation for a new building dedicated to the sciences basic to engineering. Temple University laid the cornerstone of its new \$10 million medical center on October 6.

Social Welfare.—Public assistance expenditures from federal and state funds in the 1954-55 fiscal year (excluding operating costs) totaled

PENNSYLVANIA WELFARE INSTITUTIONS

Type of institution	No.	Pop. ¹
Hospitals for mentally deficient and epileptic.....	4	9,003
Hospitals for the mentally ill.....	17	40,920
Sanatoriums for the tubercular (Aug. 31, 1955).....	4	2,184
Medical and surgical hospitals.....	10	1,167
Hospitals for crippled children (Aug. 31, 1955).....	1	157
Schools for the deaf (Oct. 4, 1954).....	1	89
Schools for soldiers' orphans (Oct. 4, 1954).....	1	433
Trade schools (Oct. 4, 1955).....	1	333
Soldiers and sailors homes (Aug. 1, 1955).....	1	234
Homes for veterans' widows (June 1, 1955).....	3	147
Institutions for defective delinquents.....	1 ²	868
Training schools for delinquent boys and girls.....	1	277
Reformatories for males.....	1	1,433
Prisons.....	5	5,036

¹ As of May 31, 1955, unless otherwise indicated.

² Ground was broken on Jan. 13, 1955, for a \$10 million state institution for defective delinquents at Jackson Township, near Wilkes-Barre.

\$125,360,000, including \$30,484,000 for old-age assistance, \$34,669,000 for dependent children, and \$9,683,000 for the needy blind; a monthly

PENNSYLVANIA

average of 269,086 persons received public assistance. Operating expenditures for health and welfare institutions totaled \$72,090,215.56; for correctional and penal institutions, \$9,723,089.36.

Labor Force.—The labor force in July 1955 numbered 4,467,000, including 184,000 agricultural workers. Nonfarm employment was 3,987,000 and for the year ending July 1955 averaged 3,939,000. There were 296,000 unemployed workers in July 1955, and the state paid \$235,078,773 in unemployment compensation for the year ending June 1955.

Manufacturing.—Establishments numbering 20,491 in 1954 employed 1,635,000 persons, who received \$5,944,965,100 in salaries and wages. Value added by manufacture was \$9,549,463,000, and expenditures for new plant and equipment (1953) amounted to \$774,946,000. Earnings of production workers in manufacturing averaged \$70.10 for an average work week of 38.4 hours in 1954, and \$76.05 for 40 hours in the first six months of 1955.

MAJOR PENNSYLVANIA MANUFACTURES, 1954

Product or industry	No. of employ-ees ¹	Salaries and wages	Value added by mfr. ²
Metals and metal products.....	681,350	\$2,945,750,100	\$4,969,897,500
Textiles & textile products.....	286,895	662,906,900	998,195,600
Food and kindred products.....	115,815	360,619,100	734,397,700
Chemicals & allied products.....	60,007	265,251,200	729,909,500
Paper & printing.....	99,770	399,557,800	718,613,500
Clay, glass, stone products.....	61,071	234,446,500	417,864,700
Leather & rubber products.....	46,661	134,952,200	222,808,300
Lumber & its remanufacture.....	30,687	84,750,800	130,169,200
Tobacco & tobacco products.....	16,362	34,866,000	79,822,300

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. (Source: Bureau of Statistics, Pennsylvania Department of Internal Affairs.)

Mining.—Pennsylvania normally ranks first among the states in production of cement, anthracite coal, slate, and crushed stone, and second in clays, bituminous coal, and lime. In 1953 it stood second as a producer of graphite and cobalt, and third in tripoli; and was 3d in total value of its mineral products, with 7.80% of the United States total. There were 133,285 persons employed in the state's mineral industries in 1953.

PENNSYLVANIA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.).....	42,093,765	\$ 114,002,846
Clays.....	3,575,422	9,988,133
Coal, anthracite.....	30,949,152	299,139,687
Coal, bituminous.....	93,330,871	516,490,411
Cobalt (pounds).....	564,450	1,111,111 ¹
Coke ²	23,382,813	324,002,503
Ferrous alloys ²	661,271	163,484,955
Iron ore (long tons).....	1,020,826	1,039,285,525 ¹
Iron, pig ²	20,503,705	16,010,114
Lime.....	1,335,300	30,717,000
Natural gas (1,000 cu. ft.).....	105,558,000	45,680,000
Petroleum (bbl.).....	10,649,000	20,692,391
Sand and gravel.....	14,715,383	4,419,612
Slate.....	202,386	48,094,029
Stone ³	26,192,607	6,005,287
Sulfuric acid ²	335,562	16,345,191
Other minerals.....	...	\$1,121,579,414
Total.....	...	...

¹ Value included with "Other minerals." ² Value for processed materials are not included in the total. ³ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income in the first half of 1955 totaled \$362,209,000, and for the full year 1954 comprised \$579,010,000 from livestock and livestock products, \$181,036,000 from crops, and \$4,002,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$260,016,000; eggs, \$148,702,000; cattle, \$63,132,000; greenhouse and nursery products, \$49,835,000; hogs, \$37,609,000; and chickens, \$30,530,000.

The state's 128,876 farms (13,162,093 acres; harvested cropland, 5,433,491) averaged 102.1 acres and \$13,529 in value of land and buildings per farm in 1954. There were 88,674 farms with telephones and 124,244 with electricity. Livestock on farms on Jan. 1, 1955, included 1,954,000 cattle, 262,000 sheep, 604,000 hogs, and 27,782,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 270,975 family and hired workers were engaged in farming.

PENNSYLVANIA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	6,008	6,020	5,700
Barley (1,000 bu.).....	4,894	8,800	8,438
Buckwheat (1,000 bu.).....	1,577	693	494
Cherries (tons).....	8,240	10,600	12,100
Corn (1,000 bu.).....	59,537	63,204	61,072
Grapes (tons).....	17,250	26,600	25,000
Hay (1,000 tons).....	3,485	3,497	3,421
Maple sirup (1,000 gal.).....	92	137	117
Maple sugar (1,000 lb.).....	21	40	21
Oats (1,000 bu.).....	25,732	33,411	34,099
Peaches (1,000 bu.).....	2,189	2,550	2,250
Pears (1,000 bu.).....	225	185	180
Potatoes (1,000 bu.).....	18,568	14,500	13,630
Soybeans (1,000 bu.).....	401	306	323
Tobacco (1,000 lb.).....	49,472	47,516	43,665
Wheat (1,000 bu.).....	19,856	19,796	16,536

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds spent for highways in the 1953-54 fiscal year totaled \$138,570,000, and newly completed construction and reconstruction aggregated 8,463 miles.

Highways and roads totaled 101,000 miles in 1953 (67,871 surfaced). Registered *motor vehicles* numbered 3,557,000 on Dec. 30, 1954, including 3,036,000 passenger cars. There were 63 *railroads* (1955) operating (1953) 9,555 track miles, and (1955) 15 regularly scheduled *airlines* and 413 *airports and airfields* (195 commercial and municipal, 4 military, 203 private, and 11 others).

Communications media (1955) included 132 AM *radio stations* and 38 operating *television outlets* (the General Electric Company announced on Oct. 22, 1955, that it had contracted to build the world's most powerful television outlet at Scranton); 132 daily *newspapers* (circulation, 4,130,992) and 280 other newspapers; and (Jan. 1, 1955) 990,907 business and 2,808,788 residential *telephones*.

Principal Events, 1955.—During 1955 the people of Pennsylvania witnessed a year-long partisan struggle over a tax program essential to produce \$450,000,000, which the governor estimated would be necessary to balance his biennial budget of \$1.8 billion, the largest in the state's history. The deadlock on the tax program between Democratic Gov. George M. Leader and the Democratic House of Representatives on the one hand, and the Republican-controlled Senate on the other, stemmed from the governor's campaign pledge to end the state retail sales tax. In lieu of the sales tax, Governor Leader initially proposed a state income tax, with certain exemptions to favor low income groups. After this proposal was rejected by the Senate, he submitted a 3½ per cent manufacturers' excise tax, which was quickly passed by the Democratic House of

Representatives but which was turned down by the Senate on December 14.

There were no general elections of state officials in 1955, but the Democrats registered impressive gains in local elections throughout the state in November, especially in the city of Philadelphia (q.v.) and other large urban centers. In the one by-election to fill a vacancy in the state Senate, created by the death of a Democrat, the Republicans were victorious, increasing their Senate margin from 2 to 4.

After many years of frustration, proponents of Fair Employment Practices legislation in Pennsylvania managed to secure legislative approval of an FEP act early in the fall of 1955. The governor promptly signed the measure and it became effective in late November.

Pennsylvania experienced one of the most disastrous floods in its history as the aftermath of hurricane Diane on August 18-19. Eighty-eight persons lost their lives in the catastrophe—centered principally in the Pocono Mountains in the Stroudsburg area—and direct property losses were estimated close to \$100,000,000. The Pennsylvania General Assembly imposed an extra 1-cent tax on gasoline and another cent per package on cigarettes to provide funds for flood relief and emergency purposes.

One of the most bitter and dramatic group conflicts, involving the railroads and trucking interests, temporarily subsided with the enactment of the so-called Big Truck Bill. This act increased the gross weight limit of tractor and single axle semitrailers from 45,000 pounds to 60,000 pounds, but it retained the gross weight limit for a commercial motor vehicle and trailer combined at 62,000 pounds.

(See also BRIDGES; PHILADELPHIA; PITTSBURGH.)

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PENSIONS. See Index entry.

PEPPERS. See VEGETABLES.

PERIODICALS. See MAGAZINE PUBLISHING.

PERSIA. See IRAN.

PERU. Crossed by the Andes and bounded on the north by Ecuador and Colombia, on the east by Brazil and Bolivia, on the south by Chile, and on the west by the Pacific Ocean, this third largest South American republic has an area of 514,059 square miles and a population (U.N. est., July 1955) of 9,396,000. Lima, the capital, has a population (est. 1955) of more than one million. The population of Arequipa, the second largest city, is about 120,000. Other leading cities (with 1950 populations) are Callao (87,587), Cuzco (55,634), Trujillo (47,728), and Iquitos (42,018). Official estimates of racial distribution are: white and mestizo (mixed stock), 52.9%; Indian, 45.9%; Asian (mainly Japanese), 0.7%; and Negro, 0.5%. Although the official language is Spanish, it is estimated that about 51% of the people speak the Indian languages of Quechua and Aymara.

Government.—Peru is governed by a president (Gen. Manuel A. Odría) and two vice presidents, elected on July 2, 1950, for 6-year terms; a Chamber of Deputies (182 members), elected by direct suffrage for 6 years and renewed completely at the end of each term; and a functional Senate (52 members, 6-year tenure, renewed entirely). The judiciary is headed by a Supreme Court of 16 members, elected by Congress. Suffrage has been extended to literate males of 21 years of age (18, if married), and to women in municipal elections. The Aprista

Party, main opposition group to the administration, and the Communist Party have both been outlawed as international parties. President Odría declared in his annual message before the opening session of Congress (July 29, 1955) that he would relinquish power to the next chief of state when his term expires on July 28, 1956. He promised elections and stated that he would not consider *continuismo* (changing the constitution to permit him to continue in office).

Education and Religion.—In 1955, the budget allotted 466,050,919.28 soles (13.88% of the total) for public education. In 1953 there were 11,720 primary schools, with 26,942 teachers and about 1,200,000 students. More than 37,000 Indian children in rural areas were receiving instruction. There were also 144 kindergartens, 97 urban prevocational schools with 887 teachers, and 16 schools for the blind and physically handicapped. The National University of San Marcos (founded at Lima in 1551) was closed in May 1955 because of a student strike and was not reopened until June 22. Other universities are at Arequipa, Cuzco, and Trujillo, aside from a Catholic university at Lima. Although about 58% of the adult population is illiterate, free and compulsory elementary education for both sexes between the ages of 7 and 16 is reducing this figure.

The constitution declares that "the state protects the Apostolic Roman Catholic religion," but freedom of worship is legally guaranteed. In 1955 Peru had 816 parishes and 1,446 priests. The Roman Catholic Church operated 3,997 schools, with 97,998 students.

Finance.—The budget for 1955 was fixed at 3,358,738,000 soles, as compared with 3,011,518,000 soles in 1954. Indirect taxes provide about 36.4% of the revenue. The free exchange rate for the sol as of October 1955 was 19.69 to U.S.\$1. The net gold and foreign-exchange position of the Central Reserve Bank was \$30,564,797 on July 31, 1955. The total money supply as of June 1955, was 4,025,700,000 soles.

Foreign Trade.—In 1954 the value of Peruvian exports was \$247.6 million, and of imports, \$249.7 million. In the first seven months of 1955, exports were valued at \$137 million and imports at \$157 million, leaving a cumulative foreign trade deficit of \$20 million, in comparison with \$15,200,000 for the same period in 1954. After Peru extended most favored nation treatment to Japan, beginning Sept. 10, 1955, trade with that country accelerated. German trade has also increased. United States exports to Peru in the first half of 1955 totaled \$51.3 million, and imports from Peru, \$47 million.

Agriculture and Industry.—Cotton and sugar are Peru's chief export crops. Production of cotton for 1955 was estimated at 2,250,000 quintals, or 470,000 bales, in 1955, a decline of about 6% as compared with 1954. Sugar production was expected to show a slight increase over 1954 and probably would total about 600,000 metric tons. Rice production was expected to be below the 1954 level because of short water supplies during the transplanting season. Cottonseed oil production for 1955 was estimated at 25,000 short tons, about 6% less than in 1954. The Peruvian tobacco monopoly, established in 1904, was abolished on June 17, and free production, processing, and trade in tobacco was restored.

A contract was let for the construction of irrigation works in the Department of Ica, which the government will pay for with loans up to \$20 million. Plans were developed in 1955 to irrigate about 74,000 acres in the Chincha Valley south of Lima, using private Peruvian and Venezuelan capital of about 150 million soles. The \$28 million second phase of the Quiroz River irrigation project in the Piura Valley in the extreme north was begun; the project will make 125,000 acres of new land available for cultivation.

Copper and oil are Peru's most important minerals. Production of blister and refined copper through August 1955 totaled 1,809,000 metric tons. In 1955 the Cerro de Pasco Corporation, with the Phelps Dodge Corporation, the American Smelting and Refining Company, and the Newmont Mining Company, began an important

copper development in southern Peru, involving the expenditure of more than \$200 million, of which the Export-Import Bank of Washington is providing \$100 million. Crude oil production for 1954 was 17,161,394 barrels, as compared with 15,998,443 in 1953. Oil production for the first six months of 1955 was slightly over 8,500,000 barrels, almost identical with 1954 production for the same period. About 95% of Peru's oil production comes from the International Petroleum and Lobitos companies.

On the basis of the first six months' exports, more than 100,000 metric tons of lead and 125,000 tons of zinc will be shipped from Peru in 1955. The Marcona Mining Company is now exporting about 150,000 tons of iron ore per month to the United States. A loan of \$2,500,000 was made in April 1955, by the World Bank to help finance the construction at Pacasmayo in northern Peru of a portland cement plant, which is scheduled to start operations in 1957. A \$3 million tire and rubber company, an affiliate of the B. F. Goodrich Company, began a new factory, Peru's second tire plant, in 1955.

In a country where about 80% of the population is dependent on agriculture, textiles are the most important industry. Of 33,430 production workers in 1951, nearly 18,000 were employed in textile mills.

Transportation.—There are about 2,700 miles of railways, and over 22,000 miles of roads. In August 1955 the World Bank loaned Peru \$5 million for highway maintenance. The government also awarded a contract to R. G. LeTourneau, Inc., to build a penetration highway from Olmos to the Marañón River in the northern jungle region, at a cost of about \$19,650,000.

Principal Events, 1955.—The disagreement with the United States over offshore fishing continued. The United States recognizes the 3-mile limit, but on May 6, 1955, the Peruvian Congress ratified a 1954 agreement with Ecuador, Peru, and Chile, establishing as national law the extension of sovereignty as far as 200 miles offshore. Peru and the other two countries refused to submit the issue to the International Court at The Hague.

On July 1 Peru signed the standard agreement admitting the country to President Eisenhower's "atoms for peace" program. President Victor Paz Estenssoro of Bolivia visited Peru in July. A declaration of economic co-operation was signed, along with two agreements concerning the railway by-pass of Lake Titicaca and utilization of the waters of the lake for power and irrigation. A minor border dispute with Ecuador in September was quickly settled by negotiation.

Political disorders in December caused President Odría to appoint a new cabinet made up entirely of military men.

WILLIAM S. STOKES,

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PESCADORES. See FORMOSA.

PETERS, John Punnett, American medical scientist: b. Philadelphia, Pa., Dec. 4, 1887; d. New Haven, Conn., Dec. 29, 1955. An internationally famous pathologist and professor of internal medicine, he was the center of a widely publicized civil liberties case in which his dismissal by a government agency in 1953, for alleged disloyalty, was declared illegal by the U.S. Supreme Court in June 1955.

After graduation from Yale University in 1908, he studied medicine at the College of

Physicians and Surgeons of Columbia University (M.D., 1913). Following a period of overseas duty as a captain in the U.S. Army Medical Reserve Corps, he held posts as research fellow and instructor at Cornell Medical College (1917-20); adjutant attendant physician at Bellevue Hospital (1919-20); and associate professor of medicine at Vanderbilt University (1920-21). In 1921 he was appointed assistant professor of internal medicine at the Yale School of Medicine, and in 1927, John Slade Ely professor of medicine, a chair he held until his death.

He was the author of 150 books, monographs, and articles on medicine, including *Body Water* (1935) and *Quantitative Clinical Chemistry* (2 vols.; 1931 and 1946), each well known in the field.

In June 1953 the former Loyalty Review Board of the U.S. Civil Service Commission, charging that there was sufficient reason to suspect his loyalty, discharged Peters from the part-time position of consultant to the U.S. Public Health Service. Two years later, on June 6, 1955, the U.S. Supreme Court ruled in a 7-2 decision that his dismissal had been illegal, on the grounds that the board had exceeded its authority in discharging him when he had been previously cleared by two other security boards. (See also CIVIL LIBERTIES.)

PETROLEUM. The petroleum industry enjoyed a prosperous year in 1955, with world demand for oil products rising 8.75%, to 5,731 million barrels. Increases in consumption were general in both Eastern and Western hemispheres. In the East, domestic demand averaged 5,503,000 barrels daily, compared with 5,012,000 barrels in 1954, an increase of 9.8%. Western Hemisphere consumption was 8.2% higher, averaging 10,198,000 barrels daily, compared with 9,428,000 barrels in 1954.

After marking time in 1954, the United States petroleum industry increased its domestic sales 7.5% in 1955. Average daily usage was 8,334,000 barrels, compared with 7,752,000 barrels in 1954 and 7,604,000 barrels in 1953. Canadian demand was up 11%, to 600,000 barrels daily, and Latin America did even better, with demand rising 120,000 barrels daily, to an average of 1,032,000 barrels.

Production.—World output of crude petroleum in 1955 rose 10.9%, to 5,529 million barrels, and the recovery of liquid hydrocarbons from natural gas increased 6.2%, to 323 million barrels. The new supply of petroleum thus was 5,852 million barrels, an average of just over 16 million barrels daily. The indicated inventory accumulation was about 110 million barrels. Some 14 million barrels were added to aboveground stocks in the United States, and about 96 million barrels in other countries. United States storage and transit stocks at the end of the year represented 87 days' supply at the current rate of consumption. (Details on foreign inventories are not generally available.)

At the beginning of 1955, below-ground reserves of crude petroleum and natural gas liquids were estimated at 162,884 million barrels (this figure includes only oil blocked out by drilling and economically recoverable by current methods). United States reserves increased by 422 million barrels in 1954, and Canadian reserves were 372 million barrels higher.

Eastern Hemisphere.—An important influence in the supply of crude petroleum in 1955 was the return of Iranian oil to world commerce. When

a consortium of international companies began operations in Iran in October 1954, it did so under an agreement to restore Iranian oil to world markets gradually over a three-year period. Under the plan, 1955 production was about 320,000 barrels daily, and output was to be restored to the 1950 level of 635,000 barrels by 1957.

WORLD CRUDE OIL PRODUCTION

(Thousands of Barrels Daily)

	1953	1954	Fourth quarter 1955	Yearly 1955*
NORTH AMERICA:				
United States.....	6,465.7	6,346.0	6,789.0	6,752.0
Canada.....	221.6	262.7	390.5	347.5
Mexico.....	193.5	226.8	223.4	241.2
Total.....	6,885.8	6,835.5	7,402.9	7,340.7
SOUTH AMERICA:				
Venezuela.....	1,765.1	1,897.2	2,236.0	2,152.3
Colombia.....	110.4	109.5	109.0	107.6
Argentina.....	78.5	81.3	85.0	83.2
Trinidad.....	61.2	65.0	69.0	67.4
Peru.....	44.0	46.7	47.0	47.0
Ecuador.....	8.1	8.4	9.9	9.5
Chile.....	3.5	4.8	8.3	6.9
Brazil.....	2.5	2.6	6.4	5.8
Bolivia.....	1.6	4.5	8.6	7.7
Cuba.....	0.1	0.2	1.4	0.9
Total.....	2,075.0	2,220.2	2,580.6	2,488.3
Western Hemisphere.....	8,960.8	9,055.7	9,983.5	9,829.0
EUROPE AND AFRICA:				
Austria.....	60.0	62.0	68.0	65.0
Germany.....	42.3	51.8	66.0	61.4
Netherlands.....	15.6	17.8	19.5	19.5
France.....	7.0	9.8	19.0	15.5
Yugoslavia.....	3.0	4.2	3.0	3.0
French Morocco.....	2.1	2.4	2.2	2.2
Italy.....	1.8	1.5	7.0	4.3
Algeria.....	1.8	1.6	1.2	1.2
United Kingdom.....	1.1	1.2	1.2	1.2
Total (excluding USSR and Satellites).....	134.7	152.3	187.1	173.3
USSR.....	1,040.0	1,145.0	1,375.0	1,300.0
Rumania.....	140.0	150.0	150.0	150.0
Hungary.....	14.0	14.0	24.0	24.0
Poland.....	4.0	4.0	4.0	4.0
Albania.....	3.0	3.0	6.0	6.0
Czechoslovakia.....	2.5	2.5	2.5	2.5
Total.....	1,203.5	1,318.5	1,561.5	1,486.5
Total Europe and Africa.....	1,338.2	1,470.8	1,748.6	1,659.8
MIDDLE EAST:				
Kuwait.....	862.0	955.8	1,125.0	1,106.0
Saudi Arabia.....	844.6	952.6	1,016.8	964.1
Iraq.....	576.1	628.7	730.0	682.0
Iran.....	26.8	56.0	353.0	322.7
Qatar.....	85.2	104.9	120.0	114.2
Egypt.....	45.2	37.7	28.0	31.7
Bahrain.....	30.1	30.1	30.0	30.0
Neutral Zone.....	...	16.5	30.0	25.7
Turkey.....	0.5	1.1	6.4	3.2
Total.....	2,470.5	2,783.4	3,439.2	3,279.6
FAR EAST AND OCEANIA:				
Indonesia.....	206.0	218.1	246.5	239.5
British Borneo.....	101.0	98.8	110.0	106.5
Japan.....	4.8	5.9	6.3	6.1
India.....	5.4	6.8	7.5	6.9
New Guinea.....	5.8	10.8	8.0	9.6
Pakistan.....	4.8	5.0	5.4	5.6
Burma.....	3.3	3.4	3.7	4.0
China.....	2.0	2.0	2.5	2.5
Total.....	331.1	350.8	389.9	380.7
Eastern Hemisphere.....	4,141.8	4,605.0	5,577.7	5,320.1
World Total.....	13,102.6	13,660.7	15,561.2	15,149.1

* Preliminary. (Source: *World Petroleum*.)

The Agha Jari field is being called on to produce 75% of Iran's oil. Older fields will be restricted to assure maximum ultimate recovery, and new development work will be done in Agha Jari and in the Gach Saran field, which is being held in reserve. A force of 4,500 men was engaged in 1955 in reconditioning the world's largest refinery at Abadan. By October, one third of its operating capacity had been restored, and crude runs were up to 141,000 barrels daily. It

was planned to have 80% of the overhaul job completed by the end of 1956. (See also IRAN.)

Iranian crude absorbed about 60% of the growth in oil demand in the Eastern Hemisphere in 1955. To avoid a market glut, it was necessary to restrict the rate of increase enjoyed by other major producing nations in recent years. Saudi Arabian output rose by only 11,500 barrels daily, compared with an increase of 106,000 barrels in 1954, and Iraq's production was up by 53,000 barrels daily, compared with 58,000 in 1954. Kuwait was the only Persian Gulf state to continue expanding its growth at the previous explosive rate. Total Middle East production increased by 496,200 barrels daily, or 17.8%. Eastward shipments of oil from Latin America were reduced further as the Eastern Hemisphere neared a balance between supply and demand. (See also ARABIA; IRAQ; SAUDI ARABIA; YEMEN.)

PERCENTAGE DISTRIBUTION OF WORLD OIL PRODUCTION, BY MAJOR COUNTRIES

Country or region	1953	1954	1955
United States.....	49.5	46.5	44.6
Venezuela.....	13.5	13.8	14.2
USSR.....	8.1	8.4	8.6
Iran.....	0.2	0.4	2.1
Saudi Arabia.....	6.5	7.0	6.4
Kuwait.....	6.5	7.1	7.3
Iraq.....	4.4	4.7	4.5
Western Hemisphere.....	68.6	66.2	64.9
North America.....	52.6	50.0	48.5
South America.....	16.0	16.2	16.4
Eastern Hemisphere.....	31.4	33.8	35.1
Middle East.....	18.9	20.6	21.6
Oceania and Far East.....	2.5	2.6	2.5
Europe (including USSR).....	10.0	10.6	11.0

(Source: *World Petroleum*.)

Western Hemisphere.—In 1955, daily Western Hemisphere production increased by 773,300 barrels, to 9,829,000 barrels, or 64.9% of the world supply. The largest increases occurred in Venezuela, Canada, and the United States. As a result of greatly improved markets for heavy fuel oil in Europe and the United States and the excellent growth of Latin American markets, Venezuela (q.v.) was able to increase its output over 13%. Western Canadian fields increased their production nearly one third as two large new refineries in the State of Washington began importing oil through an international pipeline across the Canadian Rockies. United States fields produced a daily average of 6,752,000 barrels of crude in 1955, an increase of 406,000 barrels over 1954, but their percentage share of world production continued to decline, to 44.6%. (See also ALBERTA; BRITISH COLUMBIA; CANADA.)

An intensive search for oil has been undertaken in Cuba. Most of the favorable sedimentary area has been leased, and a \$35 million wildcatting program was under way in 1955. Guatemala also was being opened to exploration under a group of new concessions, but the overthrow of President Juan D. Perón in Argentina halted consideration by the Argentine Congress of two large proposed concessions to United States companies.

Refining.—Still capacity of the world's oil refineries has continued to expand at a rate approximating the growth in consumption. In mid-1955 capacity stood at 17,185,800 barrels daily, an increase of 1,100,300 barrels over the same date in 1954. United States capacity rose by 177,000 barrels during the period, to 8,420,000 barrels. Near the close of 1955, stills in the United States were being operated at 93% of capacity, compared with about 84% a year earlier.



SHELL OIL COMPANY

Oil drilling rigs in Lake Texoma, between Texas and Oklahoma, are built on islands dredged from the lake bottom.

Construction of facilities has centered on special process units for the production of higher-octane motor fuels and petrochemicals. Octane requirements of some new automobiles have tended to wipe out the 2-octane cushion maintained by the industry, and some companies have raised their standard to 98-octane. To provide fuel of this quality, some refiners are resorting to alkylation as a supplement to catalytic reforming of naphthas. As much as 15% alkylate may be required to produce a 98-octane premium fuel—a product almost equal to aviation standards of a few years before.

U.S. CRUDE OIL PRODUCTION, BY STATES (Thousands of barrels)

	Year 1954	January–September 1955	1954
Alabama.....	1,584	1,008	1,202
Arkansas.....	29,206	21,424	22,048
California.....	355,779	265,231	267,573
Colorado.....	41,052	37,073	29,942
Florida.....	548	364	416
Illinois.....	66,998	60,753	48,753
Indiana.....	11,204	8,204	8,434
Kansas.....	119,317	90,997	89,376
Kentucky.....	13,791	11,225	10,179
Louisiana.....	246,093	107,079	186,663
Michigan.....	12,027	8,519	9,056
Mississippi.....	33,591	27,129	25,136
Montana.....	13,687	11,660	9,965
Nebraska.....	7,423	6,868	5,414
Nevada.....	33	49	20
New Mexico.....	75,200	60,639	55,494
New York.....	3,257	2,211	2,467
North Dakota.....	5,979	8,155	3,931
Ohio.....	3,829	3,183	2,836
Oklahoma.....	186,349	149,816	141,317
Pennsylvania.....	9,107	6,359	7,024
Texas.....	981,722	784,312	736,554
Utah.....	1,873	1,579	1,413
Virginia.....	10	9	7
West Virginia.....	2,902	1,761	2,221
Wyoming.....	93,633	74,846	70,006
Others.....	129 ¹	88 ¹	98 ¹
Total, United States ²	2,316,323	1,840,541	1,737,545

¹ Includes Missouri, Tennessee, and South Dakota.

² Includes some field condensate. (Source: U.S. Bureau of Mines.)

Research.—Atomic radiation is employed by both refining and producing branches of the oil industry in an intensive research program. While radioactive tracers have been used for several years by refiners to study the mechanism of cracking, the new approach lies in the use of radioactivity in the processing of hydrocarbons. The theory is that the radioactive materials can be employed not to supply the total energy required, but as reaction promoters. Cobalt-60 obtained from the Atomic Energy Commission is being used in experimental work by some researchers,

and several companies have purchased Van de Graaff particle accelerators. In the producing fields, gamma rays have been used in formation logging for many years. More recently, radioactive tracers have been employed to obtain additional information about subsurface conditions as a guide to optimum recovery methods. (See also BACTERIOLOGY.)

Two new drilling methods were unveiled by researchers in 1955. Both use hydraulic energy: in one case the drilling bit is driven by a turbine, and in the other metal spheres propelled by drilling fluid bombard the face of the rock at the base of the bore hole. Research has confirmed Russian reports that drilling can be radically accelerated by adding certain chemicals to the drilling fluid. Bit studies have shown the importance of removing rock chips promptly from the bore hole by proper jet design. (See also CHEMISTRY; MINING.)

Transportation.—A shortage of coal in Great Britain and the European continent increased intercontinental fuel oil shipments late in 1955, with an attendant rise in tanker charter rates. Large numbers of T-2 tankers have been made obsolete by new high-speed supertankers in the 30,000-ton class, and shipyards were busy in 1955 producing tankers of up to 45,000 dead-weight tons for long ocean hauls.

The construction of products pipelines was active during the year. A notable project was the laying of 842 miles of pipe from El Paso, Texas, to Los Angeles, Calif., by the Southern Pacific Company, marking the first entry of a railroad into the pipeline business. The line, which will deliver Texas products to California, is of importance in national defense. Other defense pipeline projects include a 625-mile line to Alaska and a series of products lines in various European countries designed, in case of war, to supply inland military establishments without resorting to surface transportation.

U.S. PETROLEUM SUPPLY AND DEMAND (Daily averages in thousands of barrels)

	1953	1954	1955*
SUPPLY:			
Crude production.....	6,458	6,346	6,774
Natural gasoline and other sources.....	655	683	709
Imports, all oil.....	1,034	1,050	1,243
Total supply.....	8,147	8,079	8,726
DEMAND:			
Domestic demand.....	7,604	7,752	8,334
Exports, all oil.....	401	356	363
Total demand.....	8,005	8,108	8,697
Refinery crude runs.....	7,000	6,950	7,466
Total stocks.....	725,507	714,933	728,000

* Preliminary, subject to revision. (Source: U.S. Bureau of Mines.)

Natural Gas.—Consumption of natural gas in the United States increased 8.5% in 1955, to 9.3 trillion cubic feet. At the end of the year, 15.2 million homes were being heated by gas, an increase of 1.3 million during the year. Homes heated with distillate fuel oil increased by 700,000 in 1955, to 8,272,000.

The oil industry has been losing customers to gas at an increased rate, and the loss of domestic fuel oil consumers was about 75,000 in 1955, compared with 50,000 in 1954. Cooperative advertising campaigns have been undertaken in a number of communities to minimize gas competition. Meanwhile, gas pipelines are being extended to new areas. In the 12 months ended June 30, 1955, the Federal Power Commission (FPC) authorized 4,900 miles of new transmis-

sion lines to increase gas delivery capacity by 1.75 billion cubic feet. The new construction was to cost \$465 million.

In Canada natural gas expansion is about to get under way. A 30-inch line from western Canada to Ontario and Quebec seems assured for construction in 1957. In British Columbia work has begun on a line from the Peace River fields to the United States border, where 300 million cubic feet per day will be exported to the United States under FPC approval. Natural gas markets also are being expanded through the construction of new lines in Pakistan and Mexico. (See also CHEMISTRY; GAS; MINING; PUBLIC UTILITIES.)

J. C. CHATFIELD,
Editor, "World Petroleum."

PEURIFOY, John Emil, American diplomat: b. Walterboro, S.C., Aug. 9, 1907; d. near Hua Hin, Thailand, Aug. 12, 1955. A career diplomat in the U.S. Department of State, he gained international prominence for his role in the overthrow in 1954 of the Communist-led regime in Guatemala.

Peurifoy attended the U.S. Military Academy from 1926 to 1928 before resigning because of ill health. After working in Kansas City and New York, he went to Washington in 1934 to seek a position in the State Department. In 1938, following employment in the Treasury and Labor departments, he finally joined the State Department in a division that handled export licenses under the Neutrality Act. By 1942 he had been promoted several grades to that of senior divisional assistant. In the meantime he attended evening classes in business administration at American University (1935) and in international law at George Washington University (1939-40).

During World War II, Peurifoy served as State Department representative on a number of important committees of the Board of Economic Warfare (1942-43) and the War Production Board (1942-44). He was also executive officer of the State Department's Office of Public Information (1944-45), and special assistant in the Office of Public Affairs and acting deputy director of the Office of International Information and Cultural Affairs (1945-46). One of his most important assignments during this period was that of making arrangements for the United Nations Conference on International Organization held in San Francisco in 1945.

In March 1946, Peurifoy was named special assistant to the then undersecretary of state, Dean Acheson. In January 1947, after George C. Marshall had become secretary of state, he was appointed deputy assistant secretary of state for administration, and on March 17 took office as assistant secretary of state for administration. In that capacity he reorganized the administrative establishment of the department under what was known as the Peurifoy Plan. On May 26, 1949, he was named deputy undersecretary of state for administration.

Peurifoy was the State Department's trouble shooter in countries where Communist activity was widespread. From July 1950 to August 1953 he served as ambassador to Greece, helping to consolidate the loyalist victory over the Communists, and from October 1953 to September 1954 he was ambassador to Guatemala, where he was influential in bringing about the overthrow of the pro-Communist regime of Jacobo Arbenz Guzmán and in resolving disputes among its successors. On Sept. 15, 1954, he was appointed ambassador to Thailand, where he was killed with



PHOTO BY LUEDECKE STUDIOS

The 3 Penn Center Plaza building is the first to be erected in Philadelphia's new Penn Center development.

his younger son, Daniel Byrd, in an automobile accident about 150 miles south of Bangkok.

PHILADELPHIA. Third most populous city in the United States, Philadelphia, Pa., had a population of 2,071,605 in 1950, and covers an area of 127.2 square miles.

Completing its first four years under a new home-rule charter in 1955, Philadelphia is governed by a mayor, a managing director appointed by and responsible to the mayor, and a City Council of 17 members. Budgetary estimates for 1956 totaled \$206,622,939, largest in the city's history. City tax rates for 1955 were: realty, \$1.70 per \$100 of assessed valuation; wage and profits, 1¼%; mercantile tax, 3 mills; personal property, 4 mills; and real estate transfers, 1%. The net long-term debt in 1955 was \$528,776,502. Public school enrollment (Oct. 31, 1955) was 227,375. The tentative school budget for 1956 was \$76,308,465. School taxes for 1955 were: realty, \$1.325 per \$100 of assessed valuation; personal property, 4 mills; gross receipts (general business), 1%.

In 1954, for the first time in more than a century, Philadelphia handled more import tons (approximately 30 million) than any other American port. Chief commodities imported were petroleum and iron ore.

In addition to output of metals and metal products and of petroleum products, major industries in Philadelphia in 1955 included: textiles, chemical products, paper and printing, and food products. While Philadelphia's more than 5,200 industrial establishments furnished employment to over 360,000 workers, approximately 7.5% of the city's labor force was unemployed, in contrast with the national average of 3.7%.

On Oct. 31, 1955, the city and the Philadelphia Transportation Company opened for formal use a tunnel under the Schuylkill River which had remained idle since its initial construction 22 years earlier. PTC trains now operate underground from Front Street (at the Delaware River) to 40th Street. Plans have already been made for the removal of 16 blocks of overhead railway structure between the Schuylkill River and 46th Street and for redevelopment of this area. Other developments in 1955 included the dedications of the new four-story, two-block-long plant of the *Evening and Sunday Bulletin* (June 1); of the \$10 million Gimbels-Cheltenham store, with parking facilities for 8,000 cars (August 29); and of a new \$6 million, 13-story Mall Building (November 10). Ground was broken on July 8 for a \$20 million, 18-story transportation building at Penn Center.

Politically the most important news from Philadelphia was the triumph of the Democratic Party in the municipal election of Nov. 8, 1955. Former District Attorney Richardson Dilworth was elected mayor over the Republican opposition of W. Thacher Longstreth, by a plurality of 132,000 votes. This exceeded the margin of 126,000 which Joseph S. Clark, Jr., attained in 1951 in becoming the city's first Democratic mayor in 67 years. The Democrats also elected the district attorney, sheriff, clerk of the courts, two of the three city commissioners (election board), 14 of 17 councilmen, and 4 of 7 magistrates. More than 700,000 voters, about 70% of those registered, participated in the election, which in the main was devoid of dramatic issues. The margin of Democratic victory, in a city where Republican registrants outnumber the Democrats by more than 3 to 2, was attributed in large measure to the excellent record of the Democratic administration under Mayor Joseph S. Clark, Jr. While fewer than 25% of the voters took the trouble to decide on the two loan proposals on the ballot, five out of every six who did vote favored the authorization of loans (endorsed by both parties) for \$42,470,000 to help finance civic improvements. (See also BRIDGES.)

J. CASS PHILLIPS,
Professor of Political Science, University of Pennsylvania.

PHILANTHROPY. American philanthropy, according to available indices, apparently reached new highs in 1954, exceeding \$5.5 billion in gifts and bequests. A study of publicly announced gifts and bequests in ten major cities, which provide a fair sampling of national philanthropy, indicated that in 1955 American givers had increased their 1954 generosity by at least 17%.

Government statistics on 1952 income tax returns show that of the 56,500,000 Americans filing returns for that year, only 11,900,000 claimed deductions for philanthropic contributions totaling \$3,116,483,000. It is estimated that the remaining 44,600,000 taxpayers made charitable gifts totaling from \$1 billion to \$1¼ billion.

Corporations reported contributions of \$343,039,000 for 1952, an all-time high; and it was expected that gifts from this source in 1955 would total more than \$650,000,000. An increasing number of large corporations are announcing expanded aid to institutions of higher education, while they continue to support generously their local civic, health, and welfare activities.

Churches and other religious organizations received about 55% of the \$5.5 billion total, or \$3,025,000,000. In 1955, gifts to religious organizations were responsible for \$700,000,000 in new religious building construction—an all-time high.

American social welfare agencies receive the next greatest share, about 16.5%; hospitals and health, about 10.2%; higher education, 7.5%; and other educational institutions, 2.8%. The remaining 8% is distributed among foundations, foreign relief organizations, and other causes.

JOHN PRICE JONES,
Chairman of the Board, John Price Jones Company, Inc.

PHILATELY. For United States stamp collectors the outstanding event in 1955 was the Post Office Department's several departures from precedent in issuing new stamps. On several occasions Postmaster General Arthur E. Summerfield reiterated his conviction that philately plays an important part in giving the world information about America's history and heritage. This point

of view he translated into action by selecting pertinent themes as subjects of commemorative postal adhesives—notably President Eisenhower's "Atoms for Peace" program, the opening of the Great Lakes to navigation, and the establishment of land grant colleges.

The release of the "atoms for peace" stamp on July 28, 1955, was marked by a special ceremony on the White House grounds, at which President Eisenhower spoke. A 3-cent blue, the stamp shows the two hemispheres bound together by a symbol of atomic power. Framing the design is a quotation from an address before the United Nations by the president in 1953, which reads: "... to find the way by which the ... inventiveness of man shall ... be ... consecrated to his life."

In 1955 Postmaster General Summerfield began carrying out a recommendation, made to the president in 1953 by the Commission of Fine Arts, that the Post Office consider measures to increase "the prestige and authority of the art factor in the design of stamps." In preparing the design of the Fort Ticonderoga bicentennial stamp issued on September 18, the Post Office Department, instead of having a government artist make a design, followed a new course by using one of several designs submitted by Enrico Arno, a New York artist.

During 1955 the Post Office Department issued several commemorative stamps. These, with places of first-day sale, were as follows:

- Jan. 15: Pennsylvania Academy of Fine Arts sesquicentennial, 3-cent rose-brown (Philadelphia).
- Feb. 12: The founding of the land grant colleges centennial, 3-cent green (East Lansing, Mich.).
- Feb. 23: International Rotary semicentennial, 8-cent deep blue (Chicago).
- May 21: Armed Forces Reserve, 3-cent purple (Washington, D.C.).
- June 21: Old Man of the Mountains sesquicentennial, 3-cent green (Franconia, N.H.).
- June 28: Great Lakes navigation centennial, 3-cent blue (Sault Ste. Marie, Mich.).
- Sept. 18: Fort Ticonderoga bicentennial, 3-cent sepia (Fort Ticonderoga, N.Y.).
- Dec. 20: Andrew W. Mellon birth centennial, 3-cent maroon (Washington, D.C.).

In addition, six of what Mr. Summerfield called "warm portrait" stamps of the new definitive series inaugurated in 1954 appeared:

- Aug. 25: Susan B. Anthony, 50-cent purple (Louisville, Ky.).
- Sept. 21: Robert E. Lee, 30-cent gray (Norfolk, Va.).
- Sept. 24: John Marshall, 40-cent brown (Richmond, Va.).
- Oct. 7: Patrick Henry, \$1 purple (Joplin, Mo.).
- Oct. 20: Benjamin Franklin, ½-cent orange (Washington, D.C.).
- Nov. 18: Theodore Roosevelt, 6-cent carmine (New York, N.Y.).

For the first-day sale of the Theodore Roosevelt 6-cent stamp, Mr. Summerfield designated Nov. 18, 1955, the opening day of the three-day National Postage Stamp Show in New York, sponsored by the American Stamp Dealers' Association. At this exhibition, the government displayed more than \$1 million worth of stamps and autographed die proofs of stamps from the federal archives in Washington.

Besides the commemorative and regular issues, Mr. Summerfield released at Washington on June 6 a 15-cent red certified mail stamp, which was wholly new to philately.

The government's Philatelic Agency sold to collectors and dealers during the fiscal year ending June 30, 1955, nearly \$2 million worth of mint stamps. This amount raised to some \$43,700,000 the total income from such sales since the bureau was established late in 1921. The



U.S. POST OFFICE DEPARTMENT

Postmaster General Summerfield (in light suit) presents President Eisenhower with "Atoms for Peace" postage stamps in the presence of Secretary of State Dulles and Atomic Energy Commission Chairman Strauss (both at left).

Post Office Department has estimated that the agency and all post offices sell about \$25 million worth of unused stamps annually to philatelists.

Throughout the world more than 150 governments issued approximately 27,000 varieties of stamps in 1955. Many of these adhesives, particularly in the Iron Curtain countries, were printed not primarily to meet postage needs but for export to English-speaking countries in order to raise money to help meet governmental expenses.

KENT B. STILES,

Stamp Editor, "The New York Times."

PHILIPPINES, Republic of the. The Republic of the Philippines comprises about 7,100 islands lying just off southeastern Asia, north of the Republic of Indonesia. Total area of the republic is 115,707 square miles (land area, 114,830). Four of the largest islands—Luzon (40,420 square miles), Mindanao (36,537), Samar (5,050), and Palawan (4,550)—account for over 70% of the total area.

Population.—The estimated official population of the Philippines in mid-1954 was 21,440,000, an increase of 48% in 20 years. Manila, the capital, had a population of 1,200,000 in 1953. The most heavily populated provinces (1948 census) are Cebu (1,123,107), Negros Occidental (1,038,758), Leyte (1,006,891), Pangasinan (920,491), and Iloilo (816, 382). Of foreign residents in the country, there were (1948 census) 150,585 Chinese; 6,147 Americans; 2,820 Spaniards; 1,661 Dutch; 1,217 East Indians; and 857 British.

Government.—The chief executive of the Republic of the Philippines, established July 4, 1946, is Ramon Magsaysay, who was inaugurated as president on Dec. 30, 1953, for a four-year term. Assisting him is a cabinet composed of the secretaries of departments and the vice president, Carlos P. Garcia, who holds concurrently the secretaryship of foreign affairs. The Congress of the Philippines consists of a Senate of 24 members elected for overlapping 6-year terms, and a 102-member House of Representatives chosen for a 4-year term.

Education.—In the school year 1953-54 there were 25,197 government schools with an enrollment of 3,580,741 pupils. Private schools numbered 1,798, with an enrollment of 697,235. The state-supported University of the Philippines enrolled 12,028 students in the first semester of the 1953-54 school year. Educational expenditures for 1952-53 were 150,733,890 pesos (U.S.\$1 = 2.004 pesos).

Language. English is the medium of instruction, and Tagalog, the national language, is taught in all the schools. The National Board of Education, with the secretary of education as chairman, formulates general educational objectives and policies, and coordinates the functions of all educational institutions in the country.

Religion.—The constitution guarantees religious freedom and permits religious instruction in the schools. About 93% of the population is Christian, 83% being Roman Catholic, and the remaining 10% being members of the Philippine Independent Church, which denies Roman

papal authority. Other religious groups include 791,817 Moslems, 444,491 Protestants, and 42,751 Buddhists. Pagan groups number 353,842 adherents.

Finance.—The 1954 revenue of the Philippine government from all sources was 670.89 million pesos. Total expenditures amounted to 787.45 million pesos. The public debt as of Dec. 31, 1954, stood at 1,168.96 million pesos, of which 848 million was incurred by the national government, 253 million by government corporations, and 67 million by provincial, city, and municipal governments. The 1954 public debt was 65.31 million pesos over that of 1953, owing to the expansion of the government's economic development activities.

Production.—In 1954 agricultural production, engaging about 70% of the gainfully employed (including agricultural crops, livestock, forestry, and fishing) was 9.3% above that of 1953. The production of rice (3,226 metric tons), root crops (1,354), and corn (957), along with beans and other vegetables and fruits and nuts exceeded normal consumption requirements.

The 1954 value of industrial production was 748,824,860 pesos, 12.3% over that of 1953. The government policy of granting tax exemptions for new needed industries furnished a stimulus to the establishment of new businesses by local and foreign industries. The total number of new manufacturing establishments registered during the 1950-54 period was 158.5% above that of the 1945-49 level.

Base metal production in 1954 was 4.5% higher than in 1953. Increased production was marked particularly in iron (1,217,868 metric tons) and copper (12,720 metric tons). Gold production in 1954 (276,500 fine ounces) decreased, however, by 16% below the 1953 level (327,952 fine ounces), due primarily to the high costs of operation.

The gross national product rose from 7,925 million pesos in 1952 to 8,454 million in 1954, and the index of the peso's purchasing power increased from 0.2946 in 1952 to 0.3196 in 1954 (1941 = 1.00).

Foreign Trade.—Total trade in 1954, based on f.o.b. values, amounted to 1,775.6 million pesos, 8.3% higher than in 1953. The value of exports was 793.212 million pesos; imports, 965.284 million.

LEADING EXPORTS AND IMPORTS, 1954

Export items	Value (1,000 pesos)	Import items	Value (1,000 pesos)
Cocoon products . . .	328,220	Textiles	171,702
Sugar	220,252	Mineral fuels	108,286
Lumber	71,180	Machinery	88,524
Minerals	70,911	Base metals	60,438
Fibers	58,794	Cereals	51,712
Cotton fabrics . . .	12,326	Transport equipment	50,701
Fruits	9,916	Dairy products . . .	47,970
Tobacco products . .	8,617	Metal manufactures .	35,839

In 1953 the value of exports to the United States was \$260,331,000 (68% of total exports), and to Japan, \$48,000,000 (12%). The value of imports from the United States was \$324,342,000 (75% of total imports), and from Japan, \$20,400,000 (5%).

Transportation and Communications.—As of June 30, 1954, the republic had 18,504 miles of highways, of which 9,889.6 miles were first-class roads and 5,491 miles, second-class roads. The number of motor vehicles registered in 1954 was 110,000. Total railroad mileage in 1954 was 711.5, including the government-operated Manila Railroad Company, which carried a total of 7,259,682 passengers, 7.7% more than in 1953. The Philippine Air Lines, Inc., maintains domestic and international service.

Of the 41,807 telephones in the Philippines

in 1954, 29,827 were in Manila. Post offices in that year numbered 1,206, and telegraph offices, 464.

Principal Events, 1955.—In the second year of President Ramón Magsaysay's administration, the government continued to give much of its attention to problems affecting the national economy. An important step toward the solution of economic problems was taken with the reorganization of the National Economic Council so that it might serve as an effective agency to plan and put into effect the government's economic development program. Alfredo Montelibano, formerly economic coordinator, was made chairman of the council.

In a special session of Congress, convened July 7, 1955, approval was given to President Magsaysay's request for a law authorizing the purchase or expropriation of large estates to be resold on easy terms to their occupants and to landless workers. The reform was designed to accelerate the administration's rural development program.

The election campaign in 1955 saw the defection from their respective parties of two outstanding political figures, both incumbents. Senator Carlo M. Recto, an outspoken critic of the administration's pro-American foreign policies, having been excluded from the Nacionalista lineup of senatorial candidates, joined the Liberals as a "guest candidate." Senator Quintin Paredes, who in the Liberal Party convention had been nominated by a large majority, resigned from the Liberal Party in protest against Recto's admission, and subsequently accepted the Nacionalista invitation to join its senatorial ticket. The November 9 election resulted in a decisive Nacionalista victory, with its candidates winning 8 of the 9 senatorial seats and a majority of the gubernatorial contests.

In the field of foreign relations, the outstanding event of the year was the signing at Washington on Sept. 6, 1955, of the Laurel-Langley agreement concluded in December 1954. The agreement revises the commercial arrangements established by the Bell Trade Act in 1946, with a view to helping the Philippines strengthen its economy and enabling it "to contribute more effectively to the peace and prosperity of the free world."

The pending reparations issue with Japan remained to be settled. A new formula for the settlement of the issue was worked out by a special Philippine-Japanese mission and accepted by President Magsaysay on June 14, 1955. It fixed the amount of the reparations at \$800 million, of which \$500 million was to be in capital goods, \$250 million in loans, and \$50 million in cash and services. Formal acceptance by the Japanese government of the new formula was being awaited in the Philippines.

Other important developments in the foreign affairs of the republic in 1955 were Philippine participation in the Asian-African Conference (q.v.) held at Bandung, Indonesia, April 18-24; recognition of the government of South Vietnam in July; and the conference, held in Camp Murphy, Quezon City, P.I., September 12-17, of representatives of the signatory nations of the Southeast Asia Collective Defense Treaty of Sept. 8, 1954, to formulate plans against Communist subversion and infiltration in the treaty area.

Several serious disasters visited the southern Philippines during 1955. On January 10, 63 persons were killed in a storm in the area. On April

1, 16 persons perished in an earthquake near Lake Lanao on Mindanao Island; and the next day, earthquakes in the same area brought the toll to about 442.

NICOLÁS ZAFRA,

Department of History, University of the Philippines.

PHILOLOGY. See LINGUISTICS.

PHILOSOPHY. In a year not especially notable for original American works in philosophy, it may be that the two most important developments were in publishing practices rather than in books printed. The first of these was the making available in inexpensive paperback editions of many volumes long out of print, by such authors as William James, Josiah Royce, and George Santayana. In this field, Dover Publications, Inc., Noonday Press, and the new firm of George Braziller, Inc., were particularly active. The second development was the greatly increased use, because of the price differential, of foreign printing facilities in the Netherlands and Belgium for the publication of both philosophical books and periodicals.

The year 1955 was marked by three notable anthologies of departed "greats." Alfred N. Whitehead's writings were presented in selections by F. S. C. Northrop and Mason Gross; John Dewey's, by the late Irwin Edman; and Edman's, by Charles Frankel, under the title *The Uses of Philosophy*. In addition, Daniel Cory edited *The Letters of George Santayana*. Studies were made of two recent British philosophers: of Samuel Alexander's conception of the deity, by Alfred P. Stiernotte, published in late 1954, and of F. C. S. Schiller's pragmatism, by Reuben Abel. Published late in 1954 were *Royce: On the Human Self*, by J. Harry Cotton, and Paul E. Pfuertze's *The Social Self*, the latter comparing the theories of George H. Mead and Martin Buber.

By far the most impressive biography of a philosopher to appear was Ernest C. Mossner's full-dress *Life of David Hume*. Parallels between Leibniz and modern analysts were explored by Robert M. Yost in *Leibniz and Philosophical Analysis* (1954). Morton White of Harvard undertook to sum up this century as *The Age of Analysis*, by means of selections and comments in a widely circulated Mentor book.

Among nonhistorical works, C. I. Lewis presented his Woodbridge Lectures in *The Ground and Nature of the Right*; Ernest Nagel collected 16 of his articles in *Sovereign Reason* (1954); and Nelson Goodman assembled several of his lectures and articles as *Fact, Fiction, and Forecast*. In ethics, the emotive theory was restated by Paul Edwards in *The Logic of Moral Discourse*; Abraham Edel wrote on *Ethical Judgment: The Use of Science in Ethics*; and Maurice Mandelbaum produced *The Phenomenology of Moral Experience*.

In social and political philosophy, much energy was expended in attempts to state "our side" in the world contest with communism, as in Marten ten Hoor's *Freedom Limited*, John H. Hallowell's *The Moral Foundation of Democracy*; and, in popular language, by Russell W. Davenport's *The Dignity of Man*. An anthology of *The Social Philosophy of Jacques Maritain* was edited by Joseph W. Evans and Leo R. Ward; and Herbert A. Deane made a critical examination of *The Political Ideas of Harold J. Laski*. American political philosophy was illuminated by a pair of works by political scientists:

Clinton Rossiter's *Conservatism in America* and Louis Hartz's *The Liberal Tradition in America*. Special studies of American thinkers continued to multiply: Harvey C. Townsend wrote on the philosophy of Jonathan Edwards from the latter's private notebooks; Alvan S. Ryan edited *The Brownson Reader* from the works of Orestes A. Brownson; and Charles A. Barker and David P. Edgell produced works on Henry George and W. E. Channing, respectively.

In aesthetics, Stephen C. Pepper published *The Work of Art*. Willard Arnett wrote *Santayana and the Sense of Beauty*, and Philip Wheelwright published *The Burning Fountain: A Study in the Language of Symbolism* (1954). There were the usual number of textbooks on logic, but relatively few advanced contributions. This situation was also true of books dealing with the philosophy of religion. There was a notable falling off of interest in Existentialism, although John Wild sought to expand that philosophy "positively" in his *The Challenge of Existentialism*.

John H. Melzer compiled the answers of about 300 teachers of philosophy to a questionnaire in his *Philosophy in the Classroom*; and Albert G. A. Balz saved for historical purposes the academic records and bibliographies of about 150 *Southern Teachers of Philosophy*. A new periodical named *Ideas* was launched as a quarterly by Yale University graduate students to serve as a medium for articles by undergraduates and graduates.

The palm for stylistic excellence should go to Brand Blanshard of Yale for one of the shortest books of the year: *On Philosophical Style*. Not only is it one of the first books on the subject by a noted thinker, but it also exemplifies the very qualities of lucidity, rhythm, and readableness which it recommends to others.

HAROLD A. LARRABEE,

Ichabod Spencer Professor of Philosophy, Union College; and Director of Editorial Center, U.S.A. of "Bibliography of Philosophy."

PHOSPHATES. See Index entry.

PHOSPHORUS. See Index entry.

PHOTOGRAPHY. It may be said that "there is nothing new under the sun" and that the photographic procedures used today are fundamentally the same as those used during the latter part of the 19th century. Nevertheless, the many new and exciting developments of recent years continue to multiply in equipment design and versatility, in the innumerable and varied applications of the photographic process.

Camera operation is becoming more simplified and automatic, enlargers are more versatile, projectors throw more light on the screen, film speeds continue to climb with little or no increase in graininess, the photographic image is sharper, and processing is more rapid with an ever-growing interest and participation by amateurs, professionals, and commercial establishments in the processing of color film and print materials.

A perusal of the statistics on domestic and foreign sales of photographic materials and of the reports on such trade shows as the Atlantic City Trade Show and the Biennale Photo Ciné held in Paris confirms the availability of new equipment, materials, and processes. In the United States alone the total sales of photographic products has increased at least four times since 1940, and it has been estimated that retail photo equip-

ment sales alone in 1954 exceeded \$1 billion. During 1955 imports of cameras, lenses, film, and paper increased markedly; but at the same time exports exceeded the imports and advanced considerably over the exports for 1954, especially of still cameras, slide projectors, lenses, and photocopy equipment. It is also interesting in this connection that the Bureau of Labor Statistics stated that there are 172 plants in the United States manufacturing photographic equipment and supplies, and employing more than 38,000 persons classified as production workers. Some price reductions have been announced in some lines.

No progress report for the year 1955 would be complete without mention of the international significance of the tremendous "Family of Man" exhibit at the Museum of Modern Art in New York, organized by Edward Steichen. The more than 400 prints submitted by 280 photographers from 68 countries were selected from 10,000 pictures sent by more than 900 photographers. The show was planned as an exhibition of photography portraying the universal elements and emotions and the oneness of human beings throughout the world.

Another historic occasion was The First Festival of Film Artists held at the Eastman Theater on November 19 in Rochester, N.Y. Mr. Jesse Lasky presented "George" awards to the 20 outstanding actors, actresses, directors, and cameramen who made motion picture history from 1915 to 1925.

Still Photography.—Although improved and new models of box- and roll-film cameras were introduced in considerable numbers in 1955, the miniature or 35-mm. camera continued to enjoy the greatest boom in its history. New cameras and lenses set mechanical and optical standards exceeding the highest previously considered possible, but other technological advances helped to provide image quality approaching that of larger negatives, and contributed to the rapidly growing use and versatility of miniature cameras. New high-speed emulsions, super-fine-grain films, high-energy fine-grain developers, and new color products were significant.

In 1954 the single-lens reflex camera became very popular with features such as the five-sided roof prism for viewing an erect full-frame-size image through the taking lens; the split-image rangefinder; preset and automatic diaphragms; and exchangeable lenses. The ability to utilize any focal length lens for composition, focusing, and picture taking without additional accessories, while avoiding parallax, in an almost automatic operation was intriguing. The trend has continued in 1955 as evidenced by the improved models, even with the addition of some of these miniature camera features to larger cameras.

There was evidence that Germany was favoring the more extensive use of light-value-scale shutters like those introduced on the Retina and Rolleiflex cameras in 1954. The shutter speeds are arranged in arithmetical order, each twice as great as the preceding one, rather than in the nonlinear scale commonly used. The light-value scale takes into account the film speed and the brightness of illumination.

Carl Zeiss Inc. built in an ASA-calibrated photoelectric exposure meter on the Contaflex II 35-mm. camera with the scales in plain view from the normal operating position. Two accessories for this camera included a new right-angle viewfinder to permit use of the camera at right angles to the normal position, and a six-element

"Teleskop 1.7x" optical attachment to obtain 70 per cent larger negative images. This is one method to provide a variety of image magnifications with a Compur-type shutter. The Voigtlander Vitessa Automatic makes possible 36 exposures in less than a minute, while the Corbina single-lens reflex camera has a built-in optical viewfinder allowing study of the subject to the instant of exposure. By means of an interchangeable 60-foot film cassette, 480 exposures can be made without reloading.

The redesigned Japanese Nikon S-2 35-mm. camera reached a new high in precision to make it faster and easier to operate because of the first available viewfinder to give a 1:1 finder image, a rangefinder to form a more contrasty image, and 1/1,000 second exposure. The Robot Royal 400 Shot camera was unique in the miniature field because it was the first 35-mm. camera since 1940 equipped with an oversize film magazine to allow 400 1-by-1-inch negatives.

The Graphic 35 camera introduced in the United States was the first camera with push-button focusing, a system called "Spectramatic" to do away with guide numbers and arithmetic in the exposure of Kodachrome, Kodachrome Type A, and AnscoColor films. The camera is equipped with a distance dial marked in different colors for different distances and an aperture dial marked in colors for each of the products. By means of push buttons the camera is focused and the aperture scale arrow placed on the color corresponding to the focus-distance scale color.

Of the more than 40 available models of twin-lens reflex cameras, the Japanese Tele-Koniflex camera was the first to be equipped with interchangeable lenses permitting changes in focal length from 85-mm. to 135-mm. by means of replaceable front elements—a principle similar to that used on the Retina IIIc 35-mm. camera.

Generally, the improvements in camera and lens design have provided the ability to make exposures at higher shutter speeds and smaller lens apertures, resulting in new action-stopping power, optical quality, and depth of field. However, the combination of improved camera design and the new higher-speed emulsions, with or without special processing, has extended the so-called "available light" technique and also provided quality improvement in the work of experienced photographers. The introduction in 1954 of Ilford HPS fast film, DuPont Superior press film, and Kodak's Royal Pan and Tri-X films provided a new class of materials with respect to speed and exposure latitude. In 1955 Kodak Super-XX film was discontinued and replaced by an improved Plus-X film rated at an ASA daylight exposure index of 80 and tungsten index of 64—a medium-speed, high-quality panchromatic type. Ansco All-Weather Pan film, having an ASA daylight exposure index of 64 and tungsten index of 50, was introduced as the first pansensitized amateur roll film in this speed range. The Polaroid Corporation introduced three new panchromatic films with ASA daylight exposure indexes of 200 and 400, including Professional Pan film on an acetate support. It is expected that these films will expand the frontiers of 60-second photography to a considerable degree.

By taking advantage of the improved exposure and development latitude of such films as the Kodak Royal Pan and Tri-X, and special developers, shorter exposures than recommended can be used and good image quality obtained. The new Ilford Microphen developer gives an

excellent combination of fine grain and high speed with a two-times increase in emulsion speed claimed, compared with Kodak D-76 developer, and little or no change in graininess and sensitometric characteristics (*Popular Photography*, 37:100-108, No. 1, July 1955).

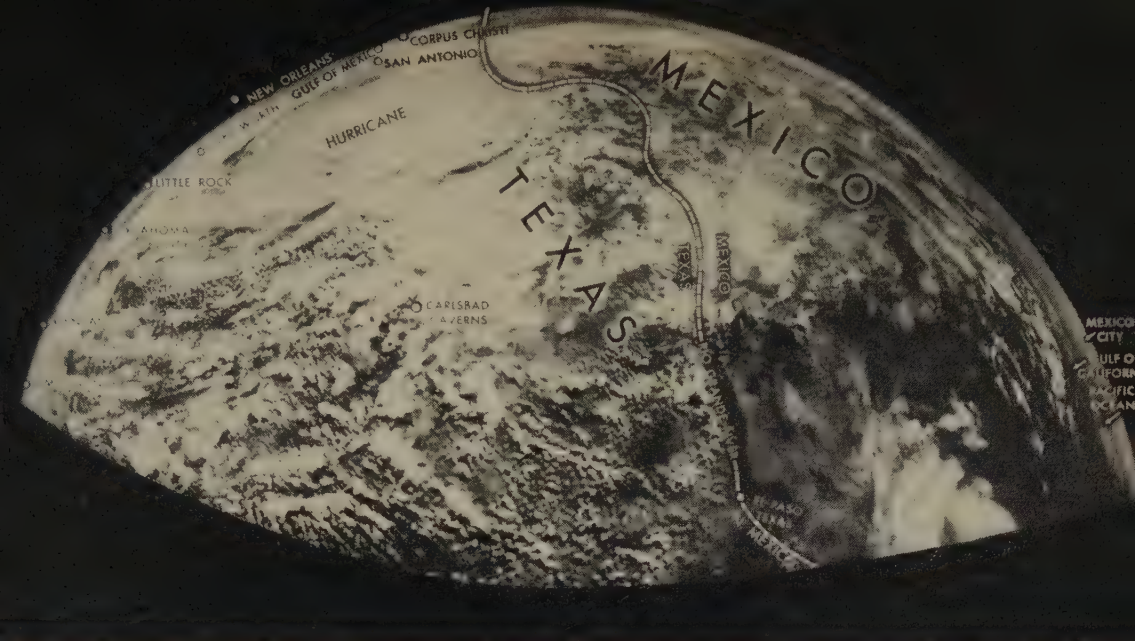
The 25th anniversary of the flashlamp was recognized in 1955. The use of the General Electric M-2 tiny flashbulbs with a pinless miniature base increased markedly during the past year as indicated by the announcement in April that over 10 million had been placed on the market in only eight months. Several new lamps in this general class were introduced in Germany and England. The Philips PF-1 flashbulb and the Osram XM-1 flashbulb have no metal base and are used with a special adapter permanently placed in the conventional flashbulb holder. The light output is 6,500 lumen-seconds, and the contacts are made directly through the wires leading into the bulb. The Mazda No. 1 and the G.E.C. No. 1 lamps were announced in England by the British Thomson-Houston Company and the General Electric Company, Ltd. respectively.

In the electronic flash field the trend toward lightweight dry battery units continued. However, a serious problem is the degradation of the battery when the switch is left on during the standby time between shots. The General Electric Company described a new 75-watt-second flash tube powered by an Eveready No. 491 battery which is claimed to overcome this deficiency in dry-battery units. The Dormitzer Synctron 208-B speedlight, which operates on either alternating current or with rechargeable storage batteries, contains a hermetically sealed power unit claimed to last indefinitely without maintenance. The speedlight is said to provide low cost per flash, consistent light output, and unvarying recharge time without the maintenance problems of wet-cell units.

There was also a trend toward the design of precision enlargers as revealed at the Atlantic City Trade Show. Of particular interest was the distortion control device shown by Simmon Bros. The Durst line of enlargers introduced by the Italian industry incorporated many ingenious features, conversion facilities, and accessories, particularly the Micromat-color enlarger for 35-mm. negatives.

Amateur Stereo Photography.—A significant advance in this field was the publication of the *Stereo Realist Manual* by Morgan and Lester with printed color stereo pictures and a plastic stereo viewer developed by the authors and the American Optical Company. The manufacturers of the Linex stereo camera and viewer, which uses 16-mm. double-frame pictures, announced subsequently the availability of full color prints from any Linex stereo slides. A box-type stereo camera was introduced by Sears, Roebuck and Co. and consists of two box cameras on a mounting bar with lenses spaced to human interocular distance. Graflex Inc. made its entry in the amateur stereo field with the Stereo Graphic camera, while the new Realist-45 stereo camera was the first stereo product of the Revere Company to sell at less than \$100. The Miniature Camera Stereo is a rotational beam-splitting attachment for miniature cameras with controls for convergence, focal length, and lens aperture. A two-piece subattachment with variable and interaxial spacing converts the beam splitter into a viewer (*Brit. J. Phot.*, 102:103-6, March 4, 1955).

Amateur Motion Picture Photography.—Greater



U.S. NAVY

This composite photograph, made at a height of 100 miles from a rocket fired at White Sands Proving Ground, N. Mex., on Oct. 5, 1955, shows about two fifths of the land area of the continental United States, or approximately 1.25 million square miles. Included is what is believed to be the first complete photograph of a hurricane (upper left).

brilliance has been needed in 16-mm. projection to permit the use of larger screen sizes required today, but faster lenses and lamps of greater capacity have only provided a partial solution to the problem. The new automatic-shifting Super-40 shutter featured in the new Kodascope Pageant projectors has provided the first all-purpose 16-mm. projectors and represents one of the greatest advances ever achieved in 16-mm. sound projection. The new shutter presents three blades and flicker-free 48 light interruptions per second at 16 frames silent speed, but only two blades at sound speed because of the additional centrifugal force; and it transmits, at sound speed, over 40 per cent additional illumination, maintaining the 48 flicker-free ratio.

The Keystone Camera Company introduced the K-25 Capri 8-mm. roll-film camera with f/2.5 lens and three new 8-mm. projectors featuring "magna-scope" images that practically fill a 30-by 40-inch screen at 12 feet. The Cinemax-8 camera with f/1.9 Nikkor lens was the first 8-mm. cine camera produced in Japan. Besides the new pocket-size 8-mm. Cine-Kodak Medalion camera, an 8-mm. three-lens turret version of the Brownie movie camera was introduced.

Possibly the Vistascope lens may have a great effect on the future trends in amateur motion pictures because it provides an anamorphic lens for use on 8-, 16-, or 35-mm. cameras and projectors. The final screen image has the exact proportions of the CinemaScope projection. The early history of amateur motion picture film from 1898 to the present was ably reviewed (*Jour. Soc. Mot. Pict. and Tel. Eng.*, 64:105-116, March 1955).

Kodak Tri-X emulsion, introduced in 1954 for sheet and roll film, was made available on 16-mm. reversal film and is known as Cine-Kodak Tri-X C-P reversal film. The ASA exposure indexes are daylight 200 and tungsten 160, which are the same as given for the earlier Tri-X. A neutral density filter, the Kodak ND-3 filter, was announced as a means to make it possible to take pictures in bright sunlight on Tri-X film with the

lens and shutter adjustments on most fixed-shutter-speed, home movie cameras.

Professional Motion Picture Photography.—An interesting trend has been evident in Hollywood during the past two years. Regardless of the particular processes involved, there has been emphasis on quality rather than quantity in motion pictures, which could well be the reason for a definite upturn in theater business across the country. At the end of 1954 it was estimated that the total box office increased 18.2 per cent over the previous year. (See also *MOTION PICTURES*.)

The experimentation with wide-screen processes appears to have subsided somewhat with the major production interest being in the CinemaScope and VistaVision systems. The Todd-AO process used in the production of *Oklahoma!* is unique in wide-screen processes because it utilizes 70-mm. film for both photography and projection and is said to be a superior picture process from the optical viewpoint, providing crisp definition in color and ideal picture proportions (*Projectionist*, 30:11-13, No. 2, February 1955). The technical success of the Todd-AO system has rekindled interest in other studios in the use of wider and larger area negatives.

Cinerama has continued to retain public interest in those areas where it is being shown, despite objections to the technical aspects of the process. A new system called "Cine-Miracle" was demonstrated (*Motion Picture Herald*, 200:13, 16, July 2, 1955) which achieves the essential vignetting of the panels in the photography, rather than exclusively in the projection stage. The system provides a 145-degree picture projected onto a curved screen 23 feet high by 63 feet wide and 53 feet from edge to edge.

Television.—Up to 65 per cent of television presentation "air time" employs motion pictures, and this percentage is expected to increase materially in the next few years. In fact the production of films for television has already grown to such proportions that much new studio space and more efficient production methods are required. Republic Pictures Corporation has con-

sidered making only films for television (*Business Week*, April 9, 1955, p. 34).

Television engineers and photographic film manufacturers have been working closely together with the object of improving definition and overall picture quality from films on TV. The subject lighting contrast should be controlled at 2:1 in order to limit the luminescence range on the motion picture film for good reproduction by color television (*Amer. Cinemat.*, 36:378, July 1955).

Motion pictures taken from the face of a picture tube in the TV studio are not adequate for rebroadcasting by small local stations. Consequently the television networks have been trying to design a practical unit for televising a live show as it is being put on, and for recording the same show on movie film. The new video-film cameras introduced by McCadden Products and Allen B. DuMont Laboratories use a single lens to feed the picture to both cameras. Both images are identical in field, which has actually made possible an electronic viewfinder, eliminating parallax (*Amer. Cinemat.*, 36:140-141, March 1955). In a third camera system made by Camera Vision Productions, Inc., a motion picture camera is joined with and calibrated to a TV camera and supplied with a system of parallel controls that enable the two cameras to move, focus, and "see" almost as one (*ibid.*, 36:340-1, 364, June 1955).

The new Eastman 16-mm. Continuous Projector, Model 300, is designed to improve the quality of color television programs by providing a continuous, uniformly illuminated image. A flying spot television tube is used as the light source, and a 3-inch f/1.6 objective lens employed.

A new system for kinescope recording of color television programs was demonstrated by the Eastman Kodak Company. This involves recording the image on the color receiver on a special black-and-white lenticular film through suitable light filters or other optical equipment. The images on the black-and-white film effectively control the color signals in the color television transmitter during retelecasting. The special film has a great number of tiny cylindrical lenticles embossed in the film base and can be processed in about one hour ready for retelecasting.

Color Photography.—Three major events occurred in color photography during 1955: the introduction of higher-speed color films by Ansco and Kodak; the introduction of new color print papers; and the availability of all Kodak amateur color products without a processing charge included in the sale price. This elimination of processing charges means that the processing of color products can be done either by commercial service laboratories or by the Eastman Kodak Company, which will continue to process Kodachrome film. On the other hand, Pathé-Color, Inc., a new division of Pathé Laboratories, Inc., in New York City, has announced that a plant is being established for processing 35-mm. Kodachrome film and other color products.

Coincident with the above change, new Kodachrome film, Type F, in 35-mm. and 828 sizes, was announced as color balanced for clear, wire-filled flashlamps without the use of a filter to replace the Type A film. This change in color balance was made to simplify amateur color flash photography with clear flashlamps such as the No. 5 and 25 (or Class M) which are now the most popular sources of artificial light.

Both new daylight and Type F Kodak Ektachrome films were introduced in E135, E828, 160, and 620 roll-film sizes. The new films have improved definition and are rated at approximately three times the speed of Kodachrome film. The ASA daylight and tungsten exposure indexes are 32 and 16, respectively, for the two films, with the Type F being balanced for use with clear flashbulbs. However, the latter can be used with photographic floodlamps at an ASA exposure index of 16 with a Kodak Wratten filter, No. 82A.

A new and faster color film called Anscochrome, in daylight type only, with an ASA exposure index of 32, was introduced by Ansco. This product is said to differ from AnscoColor film in speed, development latitude, color fidelity, and resolving power, and to represent a major departure from conventional methods of producing reversal color film emulsions. Reciprocity failure was claimed to be less serious than with AnscoColor film, with little change in film speed or color balance through the range of exposures encountered in practice (*Modern Photography*, 19:71, No. 7, July 1955).

New color print papers were shown by Kodak at the Chicago convention of the Photographers' Association of America, including Kodak Color Print Material, Type C, for prints from Ektacolor and Kodacolor negatives, and Kodak Color Print Material, Type R, for prints from Ektachrome and Kodachrome transparencies. The introduction of these color print materials represents a major advance in color photography because they are the first color print emulsions coated on a paper support that can be readily processed by the user.

The Photographic Process.—Significant contributions have been made in the scientific literature relative to the theory of the photographic process, particularly in regard to latent image formation and the mechanism of development. This phase of scientific research in photography has occupied the attention of scientists throughout the world and good progress has been accomplished. Similarly very extensive investigations are being conducted in the study of the structure of the developed photographic image, particularly with respect to the effects of the optics used in exposure and the processing techniques employed.

Some attention has been given during 1955 to photographic processing in regard to equipment for stabilization processing and the efficiency of washing motion picture film. The Oscar Fisher Co., Inc. introduced a new "Process-All" processor claimed to be capable of processing paper or film up to 12 inches in width at speeds up to 15 feet per minute without plumbing or special installation. DuPont also announced a stabilization procedure for processing oscillograph records on its Lino-Writ paper. This method of processing involves two essential steps: development, and then conversion of the unexposed silver halides to a relatively stable colorless or white compound.

As a result of investigating water flow rates and methods of hypo removal, it has been stated that the maximum efficiency of washing motion picture film by immersion can be obtained by using a long, narrow tube as a special type of cascade system. Flow rates with a minimum waste of water can be calculated (*Jour. Soc. Mot. Pict. and Tel. Eng.*, 64:248-53, May 1955).

Documentary and Industrial Photography.—The applications of the photographic process in business, industry, and science are multiplying so rapidly that only a few can be cited here.

The recording of printed, written, or drawn information on film is part of three significant systems, all of which differ from conventional microfilming, at least with regard to the method of use of the film record. The Lawyers Co-operative Publishing Company in Rochester, N.Y., using a process developed by Microlex Corporation, condenses 400 lawbook pages on a single card smaller than an ordinary business letterhead. Each microprinted page is enlarged in a desktop viewer to larger than original size. With this process, for example, all U.S. Supreme Court decisions since 1790, which are in 341 printed volumes, can be stored in four small book-size containers.

The Kodak Minicard System combines the storage capabilities of microfilming and the mechanical handling facility of punched cards. Documents up to $8\frac{1}{2}$ by 14 inches are copied at 60X reduction onto special 16-mm. film, which is cut into Minicards after processing. Each Minicard is 16 by 32 mm. in size and can take up to 12 pages of graphic information along with digital data. The Minicards have a perforation at each end to permit loading onto sticks that hold 2,000 cards each. These sticks are placed in sorting equipment, and the Minicards are sorted according to the code pattern selected by the operator. The system is essentially a low-contrast copying procedure suitable for either line-copy or continuous-tone work.

The announcement of the new Kodak Listomatic camera, Model 1, provides a high degree of automation to the mechanical preparation of type listings for directories and similar material. The unit will rapidly photograph one, two, or three lines of type from IBM or similar punched cards at high speeds and in column form. The resulting film negative can be quickly and easily reproduced by photolithography or photoengraving.

Low-cost offset printing plates for office-type duplicators can be produced in one minute using the Polychrome V-Kote Plate and V-Kote Etch in conjunction with the Kodak Verifax Copier. The exposed and processed Verifax Matrix image is transferred to the Polychrome Plate under room-light-handling conditions.

The uses of cameras in industry and business are almost limitless. A few selected applications described in the literature of 1955 include: the Land camera used in the Sears Posture-Matic tailoring system; the Robot installation camera equipped with a Tele-Xenar $f/3.8$, 75-mm. lens and remote-control shutter release for checking the structural condition of sewers; the Foto-Patrol 35-mm. camera with stroboscopic flash for recording the license number of speeding motorists; the Debie 35-mm. camera used by the Markel Service, Inc., to check on truck drivers insured by the company and to record unsafe practices; the Watson-Holmes fingerprint camera for taking pictures of fingerprints, coins, stamps, etc. on $2\frac{1}{4}$ -by- $3\frac{1}{4}$ -inch film; and individual or sequence pictures of activities at the New York State Thruway booths as protection against fraud, made by remote-control cameras.

Scientific Photography.—In the study of the structure of matter—nuclear physics—a new “event” was recorded in a little stack of photographic film flown in a Skylook balloon from Goodfellow Air Force Base, Texas, over 19 miles up. The event was the first case of an extraordinary “pure proton shower” in cosmic rays at 100,000 feet altitude, assumed to be the result of an annihilation process of an antiproton (nega-

tive) from outer space with the incredibly high energy of more than 10 million billion electron volts (*Science News Letter*, July 17, 1954).

A microautoradiographic technique for use with aluminum alloys is capable of producing a resolution of at least 9 microns with X-radiation and supplying quantitative information as to the distribution of the radioactive material in metallurgical structure (*Rev. Sci. Inst.*, 26:489, No. 5, May 1955).

A new color microscope-television camera that can transmit microscopic studies over a closed circuit between laboratories has been developed by General Motors Laboratories, Bausch and Lomb, and Thompson Products Corporation. A further development of this system is the cytoanalyzer or electronic cancer spotter which can spot abnormal cells in about one minute (*Life*, 38: April 1955).

The Kenyon Instrument Company announced its Rapromatic Model 4000 rapid-processing camera-projector which holds 200-foot rolls of 35-mm. film, sufficient for 3,200 pictures. Single-frame exposures are taken and processed within a few seconds, using packaged chemicals (*Rev. Sci. Inst.*, 26:640–1, June 1955).

The Navy Bureau of Aeronautics described a new gun camera device that tilts a system of mirrors downward in proportion to the pull of gravity so that a rocket is under the camera's scrutiny for the full run of the target. Gordon Enterprises has designed a night recording camera that may be used for tracing missile trajectories on 9-by-9-inch film exposed through an Aero Ektar $f/2.5$ lens with a 12-inch focal length.

Some rotating drum cameras were described in the literature, including a new series introduced by the Allegany Instrument Company, having 6-inch- and 12-inch-diameter drums. With the film speed of 2,400 inches per second, multi-channel recording from a string galvanometer or Bourdon tube is possible. In friction tests at fairly high speed, the signals from wire-strain gauges are fed to a cathode-ray tube whose 5-inch screen was photographed on 27-inch lengths of 35-mm. film placed on 15-inch-diameter drum cameras (*Ind. Phot.*, 40–47, Jan.–Feb. 1955).

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PHYSICS. The year 1955 will be remembered by physicists as the year in which the existence of the anti-proton (negative proton) was experimentally verified.

Verification of the Anti-Proton.—The anti-proton is a nuclear particle having the mass of a proton, but negatively charged. The magnitude of the charges on the proton and anti-proton are exactly equal. Like the proton, the anti-proton is not radioactive, but on contact with any atom of which the earth is composed it is destroyed, together with part or all of the atom contacted; and in this process, energy is produced, as required by the Einstein mass-energy equivalence relation. For each anti-proton this energy amounts to approximately ten times that liberated in the fission of a uranium atom.

Since publication of the theoretical researches of P. M. A. Dirac in 1928, there has been speculation that a type of matter not found on earth, identical with ordinary matter except that the sign of all electrical quantities is reversed, might exist or be made in the laboratory. An example would be an anti-hydrogen atom made up of a negative proton and a positive electron. Contact

between the two kinds of matter would result in instant destruction of both and the production of nothing but energy; conversely, under certain conditions, energy would disappear with the production of the two kinds of matter in equal amounts.

This was little more than an interesting speculation until the identification of a positron, or positive electron (anti-electron), by Dr. Carl Anderson in 1932, and shortly thereafter the discovery that positive electrons could be produced by annihilation of gamma rays of one million volts or more energy, and were produced in some types of decay of artificially produced radioactive atoms; and further, that these positive electrons were destroyed on contact with matter, with production of a pair of gamma rays of exactly the expected energy.

The next logical step was to produce the anti-proton, since it, together with the available anti-electron, could combine to form anti-hydrogen, the simplest of the anti-elements. Theoretical calculations showed that to produce it, atoms, electrons, or photons of approximately 6 billion volts energy would be required. This was far beyond the reach of apparatus available in the late 1930's.

The military atomic energy program then opened the way to far more powerful machines, and one of the first acts of the postwar Atomic Energy Commission was to begin the construction, at the Radiation Laboratory of the University of California, of the bevatron, designed to accelerate ordinary protons to energies of 6.25 billion electron volts. In 1955 this machine, which cost \$10 million, was brought to full power.

In the experiment which produced the anti-proton, a beam of 6.2 Bev. protons was focused on a block of copper. The reaction was not clear-cut. Many particles, mostly mesons, were produced by various nuclear reactions of the high-speed protons with copper atoms. Only one in 50,000 of these was an anti-proton, and the task of identification was correspondingly difficult. It was accomplished by devising a maze of electrostatic and magnetic fields which could be threaded only by particles having very nearly the same mass and very nearly the opposite charge of the proton. Neither the particle tracks nor their effects were photographed; recording was done with counters.

This verification is primarily of long-term significance. There is no obvious way in which anti-matter can be used in weapons or atomic power plants. Rather, detailed studies of the reactions of anti-matter on ordinary matter—the types and energies of particles and photons produced by mutual annihilation, as dependent on the speed of the impinging anti-protons and the choice of target material—will lead to a broader and more detailed understanding of all nuclear processes, which in turn will lead to nuclear devices different, and presumably more powerful and versatile, than those known today.

The next step will be production of anti-protons as relatively pure beams and in much larger amounts than are possible in the bevatron. On theoretical grounds it is to be expected that both the yield and the purity of the product will increase rapidly as the voltage of the machine rises above the threshold of anti-proton production. The Atomic Energy Commission now has under construction at the Brookhaven National Laboratory a machine expected to accelerate protons to 25 billion electron volts.

Upper Atmosphere.—The National Academy of Sciences and the Department of Defense have jointly announced an undertaking to launch one or more earth satellites within the next few years, as part of the United States contribution to the International Geophysical Year, 1957–58. The USSR has announced its intention to do the same. In both programs the satellite will be unmanned and, according to preliminary reports, approximately 30 inches in diameter. It will carry instruments but will not be recoverable, and any data from it will have to be transmitted to the earth by radio. (See also *SPACE FLIGHT*.)

If there were no collisions between the satellites and atoms of the atmosphere, the satellite would continue on its course indefinitely, as does the moon. Individual collisions which the satellite suffers may either speed it up or slow it down, but the cumulative effect of many collisions will be to retard it. By tracking the satellite through astronomical telescopes from the ground, both its height and its speed can be recorded as functions of time. From the change of speed with time and altitude, a numerical relationship between the average number of collisions and the average speed and weight of the participating atoms can be deduced. This information, taken together with data from reflection of radio waves, from balloon observations at lesser altitudes, and from meteor tracks, may make it possible to separate out and identify these speeds, weights, and numbers, which are needed for the design of space ships. The ultimate effect of retardation of the satellites will be to bring them into the lower atmosphere where they will burn up completely as meteorites.

The satellites may also provide the answer to another problem of space flight. It is known that the penetrating component of the cosmic rays of outer space is not intense enough to have physiological significance in space flight, but it is suspected that there is also a soft component, undetectable at the surface of the earth, but possibly sufficiently intense to be fatal to humans after a few hours' exposure. If the small satellites currently contemplated can be designed to carry equipment for measuring this radiation and transmitting the information to the earth, this question may be answered.

In this connection it is interesting to note that the U.S. Air Force has succeeded in 1955 in getting plastic balloons up to a height of 20 miles. At this elevation only one-half of 1% of the weight of the atmosphere shields the observation platform from outer space. This shielding is equivalent to that of two inches of water or one-fourth inch of steel. Thus, if the cosmic radiation at this height is tolerable to unshielded humans, that of outer space will be tolerable to humans inside any practical space ship. The U.S. Air Force has attempted to expose and recover animals at this height, but up to late 1955 it had been balked by technical failures. It may be anticipated that the answer to the problem of soft radiation in outer space will be solved more quickly and definitely by balloon techniques than by satellites.

In 1955 the Department of Defense made an interesting attempt to tap the latent energy of the upper atmosphere for night illumination of large areas. It is known that during the day individual atoms of the upper atmosphere trap solar energy and hold it for as long as a matter of hours. It was surmised that when atoms containing this trapped energy came in contact with sodium atoms the energy would be transferred to

the sodium and promptly emitted as visible light. (This is the principle of the familiar yellow sodium electric lamps used to illuminate highways.) Two pounds of sodium was vaporized into the upper atmosphere from a rocket. The expected light was observed, but in less than the predicted intensity. The phenomenon was visible as a faint glow which lasted through the night of the observation.

Nuclear Science.—As usual, most of the effort in pure physics in 1955 went into nuclear science, mostly of a routine mopping-up character.

Much of the present information about nuclear particles has been obtained from cloud chambers, in which droplets of liquids from supersaturated vapors condense on the track of the particles and can be visually observed and photographed. Heretofore the utility of this method has been limited by the low density of the vapors, with correspondingly small probability of a nuclear collision in the field of view. Donald A. Glaser of the University of Michigan turned the technique inside out, photographing the formation of gas bubbles in a superheated liquid along a nuclear track, thus increasing the density of his working medium and the probability of nuclear events in it by five hundredfold.

A similar approach is being used at the Radiation Laboratory of the University of California, where liquid hydrogen is being used as the working medium, in the study of meson tracks. This chamber is as sensitive as an ordinary cloud chamber would be if it were operated at 700 atmospheres, and has the further advantage that only protons and electrons are present in it, thus simplifying the interpretation of the observed nuclear collisions. (See also *ATOMIC ENERGY*.)

Low-Temperature Research.—Like the earth, many nuclear particles have permanent magnetic poles. At ordinary temperatures atoms are so jostled about by thermal agitation that these magnetic poles are randomly oriented and there is no bulk effect. It was anticipated theoretically that at very low temperatures these nuclear magnets would line up to produce a net effect, just as magnetic domains do in permanent magnets made of steel. This effect has been observed at the Oak Ridge National Laboratory. Metallic indium was cooled to less than one degree absolute between the poles of a powerful electromagnet. Under these conditions the small nuclear magnets lined up with the magnetic field, and this was verified by observing the scattering effect of the lattice produced on a beam of polarized neutrons.

Besides tidying up a point of theory, this effect may have important applications. The lowest temperatures now attainable are reached by lining up molecules having permanent magnetic poles at liquid helium temperatures in a strong external magnetic field. The solid constituted by these aligned molecules is then thermally isolated from its surroundings and the external magnetic field is turned off. Released from the magnetic force, the magnets constituted by the molecules again assume random orientation and the matter which they comprise is thus cooled by a factor of approximately 10 on the absolute scale. Temperatures below one-tenth degree absolute have been reached in this way. It is anticipated that by using atomic rather than molecular magnets it may be possible, in a similar way, to reach temperatures as low as one-thousandth degree absolute.

Applied Physics.—In the field of applied physics, 1955 may well be remembered as the year in

which the physics of the solid state came into its own.

The gaseous and liquid states of matter were first explored by physicists primarily because they present easier experimental problems than solids. Paradoxically, the completely chaotic conditions prevailing in liquids and gases simplified the mathematical theory, which was able to keep pace with the experiments. The result on the theoretical side included brilliant achievements in thermodynamics and the kinetic theory of gases; and on the practical side, in the steam turbine and internal combustion engines.

Progress in the study of solids was much slower. The principal tool was X-ray diffraction, but the mathematical background of this was dull and difficult. It was soon found that quantum mechanical effects, negligible in gases and liquids except near absolute zero, were important in solids even at room temperatures, and this further complicated the mathematics. On the experimental side it was found that minute amounts of impurities, which would have had a negligible effect on the properties of gases or liquids, had profound effects on the properties of solids.

In spite of all these difficulties there has been steady progress for more than 50 years in understanding the solid state of matter. On the applications side, the first products to appear were marginally competitive devices, such as the copper oxide rectifier and the transistor. Now, however, devices are appearing which open whole new fields. Small and very efficient germanium rectifiers are permitting types of electrolocomotive construction otherwise totally impractical. Solid photosensitive materials, including cadmium sulfide, combined in circuits with transistors and magnetic amplifiers, are being used to great advantage in the industrial control field. Bell Laboratories has developed power photocells with efficiencies as high as 10%. When it is remembered that the efficiency of photosynthesis is at best 4%, the significance of these devices in the utilization of solar energy can be appreciated.

(See also other articles in the physical sciences: *ASTRONOMY*; *ATOMIC ENERGY*; *ELECTRICAL DEVELOPMENTS*; *ELECTRONICS*; etc.)

EDWARD S. GILFILLAN, JR.,

Consultant to the National Research Council and Other Government Agencies.

PINAY, Antoine, French foreign minister: b. Saint-Symphorien-sur-Coise, Rhône Department, France, Dec. 30, 1891. A moderate conservative in politics and a strong advocate of Western military unity, he was appointed minister of foreign affairs in the cabinet of Edgar Faure on Feb. 19, 1955.

After graduating from the Marist Fathers' school at Saint-Chamond, Loire Department, Antoine Pinay entered a tannery business in the community and soon became prominent in organizations related to the industry. During World War I, serving as a noncommissioned artillery officer in the French Army, he won the Croix de Guerre and Médaille Militaire.

His political career began in 1932, when he was elected mayor of Saint-Chamond. In 1936 Pinay was elected to the Chamber of Deputies as a member of the moderate Independent Radical group, and his election to the Senate followed in 1938. Throughout World War II, as mayor of Saint-Chamond, Pinay strongly resisted Nazi pressures.

Returning to national politics in 1946, he was

elected to the 2d Constituent Assembly as a member of the moderately conservative Independent Republican Party; later in the same year he was elected to the first National Assembly of the Fourth Republic. From September 1948 to October 1949, he served as secretary of state for economic affairs in the first cabinet of Henri Queuille, and on July 12, 1950, he was appointed minister of public works, transportation, and tourism in the René Plevin ministry, a post he held through successive cabinets.

Pinay became premier of France on March 6, 1952. Supported by the right and center parties, he initiated a broad fiscal program in a partially successful attempt to stabilize the tottering French economy. Despite the results, he was forced to resign the premiership on Dec. 23, 1952, when an adverse vote of confidence on his economic measures became imminent.

Shortly after taking office in 1955 as foreign minister, he negotiated a settlement of the Saar question with its premier, Johannes Hoffmann, and West German Chancellor Konrad Adenauer (concluded May 3, 1955); represented France in the ministerial meetings of the North Atlantic Council; served as chief French delegate to the Vienna conference at which the Austrian State Treaty was signed (May 15); and attended the meetings of the Big Four foreign ministers in San Francisco (June 20) prior to the Geneva Conference (q.v.).

As chief delegate, Pinay led the walkout of the French delegation on September 30 from the U.N. General Assembly after the assembly had voted to place the Algerian nationalist question on the agenda. Pinay was scheduled to attend the Big Four foreign ministers conference at Geneva in October 1955. (See also FRANCE.)

PINEAPPLES. See FRUITS.

PITCAIRN ISLAND. Lying equidistant between Tahiti and Easter Island in the South Pacific, this volcanic island (area, 2 square miles; pop., 143 in December 1953) constitutes a British colony, settled in 1790 by mutineers from the *Bounty* and women from Otaheite, who were the forebears of the present inhabitants. From 1898 the Pitcairn group, including the uninhabited islands of Ducie, Henderson, and Oeno, was administered by the High Commissioner for the Western Pacific until April 1952; thereafter, by the governor of Fiji (q.v.). An Island Council of 4 members is headed by a chief magistrate (John Christian), elected triennially. A government school, with one teacher, had 20 pupils in 1953. The resident nurse is assisted in emergencies by doctors from passing ships. Oranges and pineapples are exported to New Zealand; some further revenue is gained from the sale of curios and "Pitcairn Islands" postage stamps.

PITTSBURGH. Twelfth most populous city in the United States, Pittsburgh, Pa. (54.2 square miles in area) is the center of a 3,053 square mile four-county metropolitan area (Allegheny, Beaver, Washington, and Westmoreland) which ranks eighth in population. Latest census estimates (1953) show 678,000 for the city and 2,253,000 for the metropolitan area.

The city is governed by a mayor (David E. Lawrence, Democrat, serving a third term in 1955) and a nine-member City Council. Budget (1955): \$48,320,473; real estate tax, 3.2% of assessed land valuation (\$411,613,575) and 1.6% of assessed buildings (\$701,224,268). The city also levies an income tax on residents and on nonresidents deriving wages and income from sources within the city limits. Value of city bonds retired in 1955: \$5,116,100; value of new bonds issued: \$3,000,000 for

public improvements, of which \$1,566,600 is for improvement of the water system. In addition the Water Department budget included \$850,000 for rehabilitation of the system.

Public school enrollment (1955-56 term): 77,364 (elementary and kindergarten, 45,001; junior-senior high school, 23,235; vocational high school, 2,815; shut-ins, 417; and part-time pupils, 5,896).

Tonnage handled in river port (1955 est.): 45.5 million. Freight loadings through Pittsburgh: 170 million tons. Air freight (mail and express): 31 million pounds. Air travel: 170,000 flights carrying 1.5 million passengers.

Total employment average for metropolitan area: 840,000, including 374,000 in manufacturing, 113,000 in retail trade, and 38,000 in wholesale trade. Retail sales (1954): \$1.7 billion; wholesale sales: \$2.6 billion. Retail sales in 1954 were 2.5% less than in 1953, but January-August 1955 statistics show a 1.3% increase over 1953. In 1954 there were 6,330 individual homes built in Allegheny County, at an approximate cost of \$96 million. It is expected by the Home Builders Association that construction in 1955 will prove greater.

During 1955 numerous strikes occurred in local plants of the Westinghouse Electric Corporation. The huge East Pittsburgh works had 17 work stoppages and two full-scale strikes. The first strike lasted five weeks during August and September; the second began on October 16. An estimated 61,000 workers were involved.

In August 1955 the city's first heliport was established on top of a parking garage in downtown Pittsburgh, cutting to six minutes the length of time required to get to the airport. Formerly the trip took 45 minutes by limousine.

Dr. Edward H. Litchfield was named on July 18, 1955, as chancellor of the University of Pittsburgh, succeeding Dr. Rufus H. Fitzgerald, who retired on June 30 after 10 years in that post. The university dedicated a new seven-story Engineering Hall during the year. Pennsylvania College for Women (founded in 1869), the fourth oldest college for women in the nation, changed its name to Chatham College.

A War Memorial fountain, costing \$275,000, was dedicated at the Greater Pittsburgh airport. The Mellon family gave to the city the completed \$8 million Mellon Square Park, in memory of R. B. and A. W. Mellon. It covers a city block in the heart of the downtown area.

LOIS MULKEARN,
*Librarian, Darlington Memorial Library,
University of Pittsburgh.*

PIUS XII (EUGENIO PACELLI), pope: b. Rome, Italy, March 2, 1876. Gravely ill in 1954, he recovered his health in 1955 and was able to resume his full duties as supreme pontiff of the Roman Catholic Church.

A member of a family long associated with the papal court, Eugenio Pacelli began a distinguished career in the legal and diplomatic branches of the papal government after his ordination in 1899. He was papal nuncio to Bavaria from 1917 to 1920, and from then until 1929 to the German Republic. Created a cardinal on Dec. 16, 1929, he was appointed papal secretary of state on Feb. 11, 1930. A trip to Buenos Aires in 1934, followed by an 8,000-mile tour of the United States in 1936, made him the first pope (he was then a cardinal) to visit the New World. On March 2, 1939, three weeks after the death of Pius XI, Cardinal Pacelli was elected to succeed him.

During World War II, Pius XII worked tirelessly to restore peace by means of crusades of prayer, appeals to the heads of the warring nations, speeches broadcast throughout the world, and the usual methods of diplomacy. In the years immediately after the war his principal concern was the struggle against communism. His influence is thought to have been decisive in the vic-

tory of the Christian Democrats over the Communists in the crucial Italian elections of 1948.

Pius XII has issued a large number of encyclicals on a variety of subjects. These include many aspects of the social order, the nature of the state, world peace, the family, some phases of the relation between science and religion, and matters of theological doctrine. Moreover, in numerous letters and addresses he has expounded his views on a wide range of contemporary issues, especially social questions, frequently urging that the working and living conditions of the poor be improved.

On November 1 in the Holy Year of 1950, he proclaimed as a dogma of the Roman Catholic Church the corporal assumption into heaven of the Virgin Mary. This was the first definition of a dogma by a pope since the dogma of papal infallibility was decreed at the Vatican Council of 1870. On Nov. 21, 1955, it was officially confirmed by the Vatican that the pope had seen a vision of Christ on Dec. 2, 1954, during the crisis of his illness.

In his annual Christmas message, broadcast on Dec. 24, 1955, the pontiff urged that experimentation with nuclear weapons be abandoned, the use of atomic weapons be prohibited by international agreement, and armaments in general be controlled. (See also RELIGION—*Catholicism*.)

PLANT RESEARCH. See Index entry.

PLASTICS. Activities in the field of plastics continued at a prosperous level throughout 1955, as measured by increased sales and continued high-level production of basic materials. Significant to the industry was the acquisition by private industry of numerous basic monomer and synthetic rubber plants owned by the federal government, thus making available additional facilities for the preparation of basic raw materials required by plastics.

Although production of basic plastics materials continued to rise, increasing attention was given to newer materials. For example, polyethylene, which will probably become the first plastic to reach production of a billion pounds per year, received impetus by new discoveries in Germany and the United States during 1955 of a low-pressure, catalytic polymerization process. This also made available a much stiffer polyethylene with heat resistance of up to 240°F. Companies such as Phillips Petroleum announced their entry into this phase of the industry. Irradiated high-temperature polyethylene, which had won earlier interest, may have been made obsolete by these discoveries.

Polyisocyanates and their polymers (polyurethanes) were beginning to expand rapidly through activities of such companies as, du Pont, National Aniline, and Mobay Chemical. The polyisocyanates, originally a German development, offer innumerable rigid and flexible adhesives, coatings, and foams. The latter, adaptable to stiffening sheet metal structures, were in 1955 beginning to find their way into many consumer goods, such as sponges and cushions.

Epoxy resin manufacture was on the increase in 1955, with additional chemical companies entering this promising field. Structural laminates, prototype tooling, protective coatings, and potting compounds for electronic components were a few of the more important commercial uses which were being established from the highly versatile epoxy resins. It was likely that in the near future the molding industry would become active in the field of epoxy molding compounds.

Vinyl resins continued to grow and expand in several categories. Not only were new plants placed into operation in 1955 for producing basic vinyl chloride monomer, but also a substantial price break of several cents per pound in the polymer created a more competitive but larger market for the resins. Unsupported, decorative films and sheets became standard materials in re-

U.S. PRODUCTION OF PLASTICS, 1954

Material	Pounds
<i>Cellulose ester plastics:</i>	
Sheets and tubes	35,832,000
Molding compounds	76,562,000
<i>Phenolics and other tar acid resins:</i>	
Laminating	62,203,000
Adhesives	53,428,000
Molding (including casting)	177,564,000
Coating	23,622,000
<i>Urea and melamine resins:</i>	
Adhesives and laminating	102,671,000
Textile and paper-treating	35,880,000
Protective coatings	27,950,000
<i>Styrene resins:</i>	
Molding	325,105,000
Protective coatings	85,519,000
Miscellaneous	90,335,000
<i>Vinyl resins (based on resin content):</i>	
Sheeting and film	126,530,000
Adhesives	26,609,000
Textile and paper-treating	49,545,000
Molding and extrusion	147,284,000
Protective coatings	23,672,000
Miscellaneous	99,237,000
<i>Miscellaneous resins:</i>	
Coumarone-indenes	203,146,000
Molding (acrylic, nylon, and polyethylene)	173,846,000

(Source: U.S. Tariff Commission.)

tail dry goods stores, and rigid polyvinyl chloride (PVC) continued to find more and more application as corrosion-resistant pipes and fittings in chemical plants.

Polyesters, in combination with isocyanates, form tough rubber-like compounds which are of use in foams and long-wearing rubber goods. Research efforts were being directed to make them independently more flame-resistant. Special compounds such as Mylar, serving as remarkable heat and electrical insulating films, were available in 1955 for many industrial requirements. (See also CHEMISTRY.)

JOHN DELMONTE,

Consulting Engineer and General Manager,
Furane Plastics, Inc.

PLATINUM GROUP METALS. Recovery of new platinum group metals by refiners declined from 60,267 troy ounces in 1953 to 56,771 ounces in 1954, of which 24,596 ounces were from domestic sources and 32,175 ounces were from imported crude metals. Total recovery included 47,408 ounces of platinum, 4,605 ounces of palladium, and smaller quantities of iridium, osmium, rhodium, and ruthenium. Secondary recovery increased from 64,857 ounces in 1953 to 65,267 ounces in 1954, including 31,010 ounces of platinum and 31,124 ounces of palladium. Imports declined from 635,524 ounces in 1953 to 601,601 ounces in 1954, including 53,276 ounces of crude metals and 548,325 ounces of refined metals. Of the 1954 imports, 339,490 ounces consisted of platinum and 188,839 ounces of palladium. Canada, supplying 31% of the total, is the chief foreign source for the United States.

Total sales increased from 533,298 ounces in 1953 to 581,946 ounces in 1954. Sales of platinum to domestic consumers amounted to 320,215 ounces, equivalent to 55% of the total sales of platinum group minerals. The substantial gain from the 276,580 ounces of platinum sold in 1953 was due largely to increased use in the chemical

and jewelry industries. Of the 1954 total sales of platinum group metals, the chemical industry used 240,772 ounces; the electrical industry, 209,447 ounces; the jewelry industry, 70,846 ounces; and the dental and medical professions, 40,793 ounces. (See MINERAL PRODUCTION for table showing output of major producing countries.)

OLIVER BOWLES,
Former Chief, Nonmetals Division, U.S. Bureau of Mines; and

BERENICE B. MITCHELL,
Foreign Minerals Staff, U.S. Bureau of Mines.

PLUMS. See FRUITS.

PNEUMONIA AND INFLUENZA. See Index entry.

POETRY. See the Index entry, *Literature*.

POINT FOUR PROGRAM. See Index entry.

POLAND. A republic in east-central Europe, Poland came under the domination of the Soviet Union on July 22, 1944, after five years of German occupation. With the constitution of July 22, 1952, the nation became a full-fledged Communist people's republic.

Area and Population.—Poland's postwar area, after the loss of territory in the east to the Soviet Union and the gain of territory in the west from Germany, is 120,359 square miles, as opposed to a prewar area of 150,433 square miles. Its population in 1955 was estimated at 28,000,000 (census of Dec. 3, 1950: 24,976,926), whereas its prewar population (Jan. 1, 1937) was estimated at 34,221,000. The rapid postwar increase in population of one-half million annually is particularly great in the northern Baltic Sea provinces, which include the important ports of Danzig (Gdańsk) and Stettin (Szczecin). These cities, with estimated populations (1955) of 226,000 and 209,000, respectively, are approaching their prewar populations, and Gdynia, another principal port, with an estimated 1955 population of 120,000, has exceeded it. Population estimates (1955) of other important cities are: Warsaw, the capital, 965,000; Łódź, 670,000; and Cracow (Kraków), including its new industrial center, Nowa Huta, 400,000.

Government in Exile.—The exiled Polish government in London is headed by a president, August Zaleski, and a premier, Antoni Pajak, and is represented by diplomatic missions, the most important of which is to the Vatican. The activities of the coalition, composed of the Pilsudski Party, the National Democratic and Socialist parties, and the Peasant and Democrat parties, are directed by a "Council of Three," organized on Aug. 3, 1954, with the following members: Gen. Wladyslaw Anders, Tomasz Arciszewski (who died on Nov. 29, 1955, and by the end of the year had not been replaced), and Edward Raczyński.

In 1955 the Warsaw government invited the *émigrés* to return home, but the only major defection was that of Premier Hugo Hanke in September, who was replaced by Premier Pajak on September 12. In November the Soviet government announced that Gen. Leopold Okulicki, the last commander in chief of the Polish Home Army (the wartime underground forces), who had been sentenced to ten years' imprisonment in 1945, had died in prison on Dec. 24, 1946.

Warsaw Government.—The Sejm (Parliament) and the Council of State (with Alexander Zawadzki as president) are the chief representative bodies of state authority. The Council of Ministers (cabinet), with J. Cyrankiewicz as premier, is the chief executive and administrative body. The Council of State, among other functions, supervises the work of the people's councils, which are elected for three years as local organs of state authority. Supreme *de facto* power is held by the Politburo of the United Polish Workers' (Communist) Party (PZPR).

On April 17, 1955, Franciszek Jozwiak-Witold became one of nine vice premiers, and was replaced as minister of state by Roman Zambrowski. On April 5 the Sejm elected three new members to the Council of State, including Prof. Oskar Lange, a former ambassador to Washington and now rector of the School of Planning and Statistics.

Among the eight secretaries of the Central Committee of the PZPR, Boleslaw Bierut, first secretary, is considered to be the leader. There seems to be some disagreement, however, between him and Secretary Edward Ochab, a representative of the party's left wing. Although Ochab was under attack at the January plenary session of the Central Committee, his influence appears to be growing.

Finance.—Revenues for 1955 were estimated at 122 billion zlotys (4 zlotys = U.S. \$1), and expenditures, 114.9 billion zlotys—an increase over the 1954 budget (115.5 billion zlotys for revenues and 103.4 billion zlotys for expenditures). The 1955 budget included 11.9 billion zlotys for defense (10.6 billion in 1954) and 60.8 billion for the national economy, which includes various items for military purposes. Expenditures for social and cultural services were raised from 25.3 billion zlotys in 1954 to 28.9 billion in 1955.

Religion and Education.—The principal religion in Poland is Roman Catholicism. The church, however, is becoming increasingly state-controlled. Despite rumors of his impending liberation, the cardinal primate of Poland, Archbishop Stefan Wyszyński, arrested in September 1953, continued to be held in strict custody in 1955. Particularly dangerous for the church are the diversionist activities of the "Progressive Catholics," who, under the leadership of Boleslaw Piasecki, have come to control, since July 1955, most religious organizations and publications, the latter having been condemned by the Vatican on June 28, 1955. Although the group claims that complete religious freedom exists in Poland, religious faculties in Polish universities have been disbanded and replaced by "academies" under the control of the Communist authorities.

Education in Poland is free and compulsory up to 14 years of age. In 1952–53 there were 22,977 elementary schools, with 3,300,000 pupils; 768 secondary schools, with 340,000 pupils; and 72 institutions of higher learning (including 8 universities). The teaching of the Russian language is compulsory in all schools and universities. Research is now directed by the Academy of Science, established on Oct. 30, 1951, with headquarters in the new 750-foot skyscraper, the Palace of Science and Culture, completed in July 1955 and erected as a gift from the Soviet Union.

Production.—The goals of the Six-Year Plan, ending in 1955, were fulfilled, according to Boleslaw Bierut, by 102% in 1954 and by 103% in the first half of 1955. Although the progress in heavy industry (see accompanying table) is particularly satisfactory, the production of consumer goods remained below assignments. The crisis in agricultural production, the only item on the agenda of the July 1955 meeting of the Central Committee of the PZPR, necessitated substantial imports of corn. This crisis, revealing the difficulty of promoting increased agricultural production and farm collectivization, is a result of the low output of collective farms and the fear of noncollectivized farmers of losing their lands.

POLAND'S OUTPUT OF SELECTED PRODUCTS, 1954

(Figures in millions)

Product and Unit of Production	Amount
Coal, metric tons.....	91.3
Iron ore, metric tons.....	1,614.0
Pig iron, metric tons.....	2.7
Crude steel, metric tons.....	4.0
Electric power, kw.-hr.....	15,400.0
Bread grains, tons.....	8.7*
Potatoes, tons.....	33.8*
Sugar beets, tons.....	7.7*

* Provisional.

Without changing the principle of fighting the Kulaks (peasant "capitalists"), more cautious methods of collectivization will be applied, although Bierut, who is preparing the next Six-Year Plan, considers the development of the collective farms the main problem. (Instead of the planned 3,000 new such farms in 1954, only 1,848 were established.) At the end of 1954

there were 9,712 collective farms (kolkhozes), and in 1955 the number was estimated at over 10,000 (about 8.5% of total farm area).

Foreign Trade.—Approximately 70% of Poland's foreign trade is with countries of the Communist bloc, and 38% is with the Soviet Union alone. Yearly imports from the West, about 150 million tons, remain almost stationary. Exports to the West, however, are decreasing (231 million tons in 1953; 193 million in 1954), due to increased domestic coal consumption (66.6 million tons in 1954). In 1950 the value of total Polish imports equaled \$527 million, and exports equaled \$447 million.

On Feb. 25, 1955, a trade agreement with the Soviet Union was signed in Moscow, which regulated Polish-Soviet trade for the year. A special effort was being made on Poland's part to develop export trade with Asian and Latin American countries and trade agreements were signed during the year with Egypt, India, and Syria. Many Asian countries were represented at the international fair held at Poznań in July, and Poland participated strongly in the international fair at New Delhi in the fall.

Principal Events, 1955. Domestic Affairs.—The reorganization of the public security system following the removal of Gen. Stanislaw Radkiewicz and his ministry (announced Dec. 8, 1954) brought little reduction in police power. A new series of political trials began in 1955, and on March 14, six alleged American and British spies were sentenced to death or to long prison terms. On June 29, A. Jaroszewicz, a former vice minister who had been arrested as early as 1948, was condemned to 12 years' imprisonment.

The annual session of the Sejm, which ended on April 5, was attended by a large delegation of Soviet parliamentarians. The second congress of the Polish (Communist) Youth Organization, held in Warsaw from Jan. 28 to Feb. 1, 1955, was attended by 1,113 Polish delegates and many foreign guests. Although this organization has more than 2 million members, it constitutes only 37% of Poland's youth. On September 3 it was announced that Poland's armed forces, estimated in 1955 at 277,000 men, would be reduced by 47,000.

Foreign Affairs.—On Feb. 18, 1955, the Polish government ended the state of war with Germany, and on July 6 the Polish and East German governments issued a joint statement, fixing the Oder-Neisse line as "definitely and irrevocably" the frontier between the two countries.

Premier Josef Cyrankiewicz attended in Moscow the tenth anniversary of the signing of the Polish-Soviet pact on April 21, 1945, and called for a single command of East European forces under the leadership of Soviet Marshal Ivan Konev. Such a command was established with the signing on May 14, 1955, in Warsaw of a treaty of mutual assistance by the 8-nation East European Communist bloc. From June 23 to 25, Indian Premier Jawaharlal Nehru visited Warsaw and signed, with Premier Cyrankiewicz, a declaration of nonaggression, nonintervention, and mutual respect of national integrity and sovereignty between the two nations.

Although the British and Polish navies exchanged visits at Gdynia, Poland, in July, and at Portsmouth, England, in September, and despite the reduction in Poland's armed forces and the general relaxation of East-West tensions, there seemed to be little improvement in Poland's relations with the West in 1955. Because of Po-

land's obvious adherence to Soviet policy, the United States successfully opposed her election to the U.N. Security Council.

OSCAR HALECKI,
President of the Polish Institute of Arts and Sciences in America; Professor of Eastern European History, Fordham University.

POLAR EXPLORATION. See ANTARCTICA; ARCTIC EXPLORATION; GEOGRAPHY AND EXPLORATION.

POLICE. Indicative of growing efforts by police to combat juvenile delinquency were new steps being taken in 1955 by the Chicago Police Department. The department's juvenile division was enlarged by 40 persons (new total, 141) and by six two-man squad cars. Recruits for the division received a one-week training course in police procedure for the handling of juvenile delinquents. Officers are required to make complete records of violations of the curfew. Juveniles who repeat violations, together with their parents, are referred to the Family Court.

The chief of the division has started a file of juvenile gang members. Recent vandalism, it is believed, could have been averted had knowledge of gang personnel been available. Police have heretofore often learned of undesirable gangs only after their members had become involved in criminal acts.

Many officers believe that urban delinquency is attributable, in large measure, to motorization of patrolmen. Swift movement makes it impossible for them to maintain personal touch with actual and potential delinquents on their beats. With this in mind, the mayor of Chicago anticipates reinforcement of the foot patrolmen from among 2,000 prospective police recruits.

New Tools for Crime Detection.—A research program announced at the University of California aims at finding a relatively quick and simple method of identifying substances which are most commonly associated with certain types of criminal action. They include blood, ink, metals, barbiturates, and poisons. Methods have already been developed to identify particular types of soil, ashes, textiles, and glass fragments.

The work calls for use of two laboratory procedures. The first is paper chromatography, which consists of dissolving a substance and allowing drops of the mixture to seep down over vertically suspended filter paper. Because the individual substances which compose the test material have different degrees of solubility, they separate at different levels as the liquid seeps downward. A given type of ink or poison will produce a characteristic blot on the sheet. From this procedure a trained person can compare the test materials with that of known materials for identification.

The second method, called paper electrophoresis, works similarly except that the substances in the dissolved test material are made to move across the paper under the influence of electricity. The pattern formed is somewhat unlike that produced by chromatography. Thus a test substance can be double-checked for identification.

Illegal Search.—A significant case of illegal search developed from the fact that a federal narcotics agent "led a police officer to believe" that another person was transporting narcotics across the Mexican border. The officer took this individual without either arrest or search warrant and found several packages of marihuana in his car. The person was convicted of obtaining the

narcotics without paying the transfer tax. He appealed, alleging illegal search, and held that the evidence was, therefore, invalid. The Court of Appeals held that the search was illegal because the officer had not obtained a search warrant, but it ruled that the evidence was admissible because there was no evidence that the narcotics agent had deliberately used the policeman for the purpose of obtaining evidence, even though illegally. (The decision was later reversed, but on other grounds.)

Police Training.—The Foreign Operations Administration and the International Association of Chiefs of Police have made an agreement whereby 225 foreign police administrators and technicians will be trained in the United States. The police association will arrange with universities and police agencies for the training program, for technical literature, and for supervision. (See also **CRIME; FEDERAL BUREAU OF INVESTIGATION.**)

ROBERT H. GAULT,

Editor, "Journal of Criminal Law, Criminology, and Political Science."

POLIOMYELITIS. In the spring of 1954 the field test of the Salk vaccine against poliomyelitis was begun; this was the largest field test of a vaccine ever undertaken in the history of medicine.¹ In the year which followed, ensuing events made newspaper headlines for many weeks. In order to properly evaluate these events, it is necessary to recapitulate the history of the vaccine.

In 1951, Dr. John F. Enders and his co-workers announced the discovery of a technic whereby poliomyelitis virus could be successfully grown in tissue culture. This important discovery made possible the development of a vaccine against this disease, and in the forefront of investigators developing such a vaccine was Dr. Jonas E. Salk (q.v.) of the University of Pittsburgh, who had had previous experience in the preparation of a vaccine against influenza. Dr. Salk's vaccine contained the three known strains of poliomyelitis virus, which had been grown in tissue culture and then had been inactivated with a formalin solution. As a result of initial reports of success with this vaccine in animal experiments and later in a small group of children, the National Foundation for Infantile Paralysis embarked on a plan to test the vaccine on children throughout the country.

Children of Baltimore County, Md., are given Salk polio vaccine during nationwide inoculations in 1955.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS



On Nov. 11, 1953, the foundation decided to offer several manufacturers the opportunity to supply vaccine for the field trials which were scheduled for 1954. Of ten companies with whom the plan was discussed, five accepted—Parke Davis, Eli Lilly, Pitman-Moore, Cutter Laboratories, and Wyeth Laboratories. The foundation agreed to underwrite the costs of production of vaccine to be used in the trials. The technics used in the production of the vaccine were those recommended by Dr. Salk. To prevent the use of vaccine containing live virus, every batch of vaccine for the 1954 trial was to be tested by the manufacturer, by the U.S. Public Health Service, and by Dr. Salk. The presence of live virus would be detected by test inoculations into monkeys which would develop paralysis. The companies which chose to produce vaccine for the foundation would be free, once their obligation to the foundation was ended, to continue to produce vaccine for the commercial markets when the field tests had been concluded and the companies were licensed for commercial production.

All five companies ran into technical difficulties with production, for the inactivation of the live virus by formalin did not proceed uniformly, and testing by the manufacturers revealed batches of vaccine containing live virus, which were rejected.

The field trials began on April 26, 1954, in Fairfax County, Virginia, and by July 10, 1954, when the field trials ended, had involved 1,800,000 children, of whom approximately 440,000 in 44 states received vaccine. Responsibility for the evaluation of the vaccine was placed in the hands of Dr. Thomas Francis, Jr., as head of the Poliomyelitis Vaccine Evaluation Center established at the University of Michigan.

In October 1954 the National Foundation for Infantile Paralysis released an announcement that it was ordering enough vaccine to immunize 9,000,000 children, despite the fact that the results of the field trials were not yet known.

The date set by Dr. Francis for the announcement of the results of the field trials—April 12, 1955, was significant because it marked the 10th anniversary of the death of Franklin Delano Roosevelt, one of the most famous victims of poliomyelitis. Dr. Francis subsequently stated that the date had been chosen purely by chance.

Accordingly on April 12, 1955, in Ann Arbor, Michigan, Dr. Francis reported on the findings. In essence the field study revealed that few reactions had resulted from the vaccine, and that these had been mild; also that the vaccine could be considered to be between 60 and 90 per cent effective against paralytic poliomyelitis, and possibly even more effective against the bulbar type.

Later that day licenses for the manufacture of the vaccine were issued by Oveta Culp Hobby, secretary of health, education, and welfare, and within two days the national vaccination program was under way. On April 14, Secretary Hobby was directed by President Eisenhower to organize a national distribution system for the vaccine, on a voluntary basis. In accordance with the plan of the National Foundation for Infantile Paralysis, first and second graders began receiving vaccine. Two injections were recommended for each child, to be given in the spring, with a third injection to be given seven months later. The demand for vaccine and the shortage of the material gave rise to stories of black markets in vac-

¹ See *THE AMERICANA ANNUAL*, 1955, p. 575.

cine, and led to the introduction in Congress of bills controlling distribution.²

The demand by the public for vaccine continued unabated until April 26, 1955, when paralytic poliomyelitis was reported in six children (five in California, one in Chicago) who had received vaccine prepared by the Cutter Laboratories. Dr. Leonard A. Scheele, surgeon general of the United States, called a halt on April 27 to further use of Cutter vaccine, but with additional cases reported from the use of vaccine prepared by other companies, uncertainty and fear attacked not only the public but also local health boards, many of which ordered inoculations discontinued.

On May 7, 1955, the surgeon general ordered the entire program to be temporarily halted pending an investigation of methods of manufacture and testing of the vaccine. Dr. Louis B. Gebhardt of the University of Utah announced (unofficially) on June 4 that he had induced poliomyelitis in monkeys given the Cutter vaccine which had been under suspicion. Later investigations by the U.S. Public Health Service indicated that the field trials had been conducted without incident as a result of stringent testing for live virus, but that testing of subsequent vaccine had been somewhat relaxed, owing to the tremendous quantities produced.

On May 25, the surgeon general named a standing Poliomyelitis Vaccine Clearance Panel to advise on the release and testing of vaccine, and to foster further research. Two days later, on May 27, new safety standards were accepted by the six licensed manufacturers, and the program was renewed.³ On October 1, Marion B. Folsom, who had succeeded Mrs. Hobby on August 1 as secretary of health, education, and welfare, revealed that sufficient vaccine had already been released to permit second injections for three fourths of the 15,903,000 children in the 5-9 age group, and that the rate of poliomyelitis incidence among children already inoculated (most of them with one injection) was 25 to 50 per cent below that of children in the same age group who had not received the vaccine.

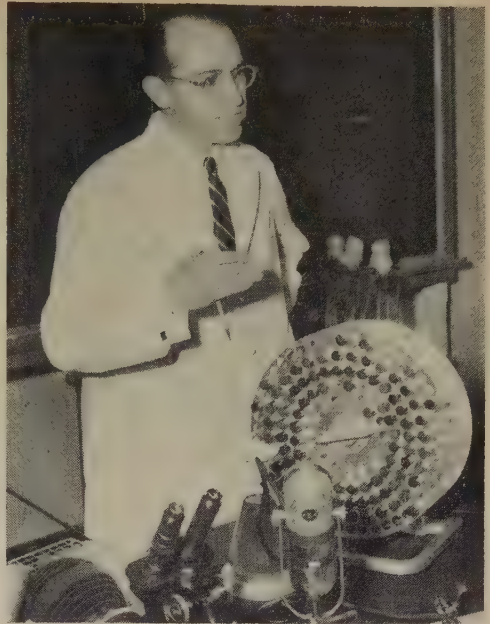
During the entire vaccine controversy, several scientists argued against the type of vaccine produced, maintaining that the vaccine should be prepared from a living but weak virus instead of attempting to attenuate a virulent strain of virus. Late in 1955, studies along these lines were being conducted both in the United States and abroad. It is obvious that present methods of producing a killed vaccine are not foolproof, and careful testing of the final product must be employed to detect batches containing live virus. That the large-scale use of such a vaccine is nonetheless feasible is evidenced by the experience in Canada, where inoculations were safely performed, careful safety testing having eliminated unsatisfactory batches. (See also BACTERIOLOGY; MEDICINE.)

SYDNEY S. GELLIS,

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² A plan giving the states full control over allocation of the vaccine was announced on July 31. Each state's supply was to be based on the number of its children aged 5 through 9 years.

³ Among the changes required of the manufacturing companies were the following: larger samples from each lot of vaccine were to be tested for live virus; treatment with formalin was to be prolonged, and two (instead of one) negative tests for live virus were required; and the final bottled product was also to be tested again for live virus.



UNITED PRESS

Dr. Jonas E. Salk, who developed the Salk vaccine, demonstrates drum containing test tubes in which poliomyelitis virus is grown in monkey kidney tissue cultures.

POLITICAL PARTIES. See DEMOCRATIC PARTY; ELECTIONS, U.S.; REPUBLICAN PARTY.

POLITICAL SCIENCE. In 1955 the American Political Science Association, with a membership of over 5,500, acquired a building in Washington, D.C., which will be known as the Political Science Building and which will be shared as a headquarters with the association's affiliate, the Governmental Affairs Institute.

The association held its 51st annual meeting at Boulder, Colo., Sept. 7-9, 1955. Harold D. Lasswell of Yale University had been chosen in 1954 to succeed to the association presidency, and at the annual meeting in 1955, E. E. Schattschneider of Wesleyan University was chosen president-elect. Conferences were held in the fields of comparative government, international law and relations, national government,

Scientists draw Salk vaccine from tank in which three poliomyelitis strains are pooled. Vaccine is then stored until the safety and potency of each lot are determined.

PARKE, DAVIS AND COMPANY



political parties, political theory, and public law and administration. Special panels were also organized on the relation between political science and political analysis and on the international exchange of political scientists.

A list of over 1,200 doctoral theses in preparation or just completed indicated that the field of international relations, including international organization, international politics, and international law, attracted the most attention, accounting for nearly a third of all of the theses. The fields of foreign and comparative government and of public administration in the United States were next most popular.

Empirical studies and studies looking beyond the national frontiers have been increasingly attractive to political scientists in the United States. A similar emphasis in political science studies throughout the world was noted in a publication by UNESCO, entitled *The University Teaching of Social Sciences: Political Science* (Paris 1954).

At the annual meeting of the American Political Science Association, arrangements were made for establishing the annual Birkhead Award of \$500 for the best doctoral dissertation in the field of democratic government. The annual Woodrow Wilson Award for the best book in the field of government and democracy was given to *Prejudice, War, and the Constitution* (1954), by Jacobus Ten Broek, E. N. Barnhart, and F. W. Matson. Honorable mention was given to Leonard D. White's *The Jacksonians: A Study in Administrative History, 1829-1861* (1954) and Don K. Price's *Government and Science, Their Dynamic Relation in American Democracy* (1954).

The association continued its congressional internship program, which enables young political scientists and journalists to gain the practical experience of working as staff members of congressional committees in the offices of members of the House of Representatives and the Senate in Washington. Ten such internships were given in 1955, five to graduate students in political science and five to journalists and teachers of journalism.

The research program of the association in 1955 included studies of metropolitan areas, of national security and civil liberties, and of resources and personnel in the field of political science in the United States.

Perhaps the most important political science investigation of the year was the report to the president of the Commission on Intergovernmental Relations under the chairmanship of Meyer Kestnbaum. The report embraces the entire field of relations between the federal government and the states.

The International Political Science Association held its triennial congress from August 21 to 27, 1955, in the Swedish Parliament buildings at Stockholm. Representatives of 36 nations were present. The retiring president, William A. Robson, of the London School of Economics and Political Science, was succeeded by James K. Pollock of the University of Michigan. Jean Meynaud, who had served as general secretary since the organization of the association in 1949, was succeeded by John Goormaghtigh of Belgium. The offices of the association, which had been in Paris, were transferred to Geneva, Switzerland.

Among the topics discussed at the congress were the government of great cities, political parties and public opinion, political implications of economic development programs, and the position of small and large states in international

organization. Research topics on the agenda included the participation of women in politics, comparative public administration, the teaching of political science, and comparative government.

During 1955, national political science associations in Australia, the Netherlands, and Ceylon became members of the international association, increasing to 21 the number of such collective members. In addition, 21 scientific institutes and universities were associate members and there were 250 individual members. The association continued the publication of international political science abstracts and was preparing a political science bibliography.

QUINCY WRIGHT,
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POLO. See SPORTS, GAMES, AND SHOWS.

POPULATION STUDIES. See CENSUS DATA, U.S.; POPULATION TRENDS; and Index entry, *Population Studies*.

POPULATION TRENDS, World. The population of the world in mid-1954 was estimated at 2,526 million, an increase of about 39% since 1920* (see Table 1). This growth in general derives from the steady decline in death rates (particularly in infant mortality) brought about by improved health conditions and medical advances over the past few decades.

TABLE 1—WORLD POPULATION ESTIMATES
(Estimates are as of midyear of dates shown.)

Region	1920	1940	1954	% increase 1920-54
	(in millions)			
World.....	1,813	2,213	2,526	39.3
Africa.....	140	172	214	52.9
North America.....	147	187	233	58.5
South America.....	61	90	121.1	98.5
Asia ¹	970	1,176	1,323	36.4
Europe ²	328	380	406.5	23.9
Oceania.....	8.8	11.3	14.2	61.4
USSR.....	147 ³	...	214.5	45.9

¹ Exclusive of USSR but inclusive of European Turkey.

² Exclusive of USSR and European Turkey. ³ 1926. (Based on sources from the Statistical Office of the United Nations.)

In recent years the region with the highest rate of population growth has been South America, where birth rates (for selected countries) in 1953 averaged 37.4, as compared with 28.6 for North America, and 18.2 for Europe. The industrialized nations of western Europe and northern America have comparatively low birth, death, and infant mortality rates, and high life expectancy. In most other areas, death rates are higher than in the industrialized countries; however, the higher birth rates in the nonindustrialized and semi-industrialized countries result in significantly higher rates of natural increase (see Table 2 on page 603).

PORTS AND HARBORS. As construction began in earnest on the St. Lawrence Seaway in early 1955, many major Great Lakes port centers were in the process of developing economic and engineering studies, which would predict the expansion necessary for ocean shipping. Among ports retaining independent consultants experienced in the seaboard port field were Buffalo, N.Y., Detroit, Mich., and Cleveland and Toledo, Ohio. Some lake port construction, preparatory to com-

* Population totals, compiled by the United Nations Statistical Office, are in the nature of estimates, since accurate enumerations have never been taken in some areas inhabited by large sections of the world's population.

TABLE 2—VITAL STATISTICS FOR SELECTED COUNTRIES
(Unless otherwise indicated, data are for 1954. Figures in italics are provisional.)

Country	Quality of data	Birth rate	Death rate	Rate of natural increase	Infant mortality rate	Life Expectancy		Population per sq. km. 1953
						male	female	
Africa								
Algeria.....	I	38.7 ¹	12.7 ¹	26.0	85.3 ¹	...	...	4
Egypt.....	...	45.2 ²	17.8 ²	27.4	127.1 ²	35.7	41.5 (1936-38)	22 ²
Union of South Africa (Europeans).....	C	25.5	8.6	16.9	34.2	63.8	68.3 (1945-47)	11 ⁴
Asia								
Ceylon.....	C	36.2	10.4	25.8	72.0	57.6	55.5 (1952)	124
Formosa.....	C	44.5	8.1	36.4	30.1	41.1	45.7 (1936-40)	230
India.....	I	24.8 ²	13.6 ²	11.2	116.3 ²	32.5	31.7 (1941-50)	113
Israel.....	I	29.2	6.8	22.4	38.8	68.0	70.5 (1953)	80
Japan.....	C	20.1	8.2	11.9	48.9 ¹	61.9	65.7 (1953)	235
Malaya, Federation of.....	C	43.8	12.2	31.6	83.1	...	...	43
Philippines.....	I	20.7 ¹	8.8 ¹	11.9	108.7 ¹	...	...	70
Thailand.....	...	29.1 ²	9.7 ²	19.4	63.3 ²	48.7	51.9 (1947-48)	38
North America								
Canada.....	C	28.5	8.2	20.3	35.4 ¹	66.3	70.8 (1950-52)	1
Dominican Republic.....	I	43.9	8.8	35.1	74.2 ¹	...	...	47
El Salvador.....	I	48.0	15.0	33.0	81.5	49.9	52.4 (1949-51)	98
Mexico.....	C	44.6 ¹	15.6 ¹	29.0	94.5 ¹	37.9	39.8 (1940)	14
Puerto Rico.....	I	55.1	7.6	27.5	57.3	...	...	251
United States.....	C	24.9	9.2	15.7	26.6	66.6 ⁵	72.6 ⁵ (1951)	20
South America								
Argentina.....	C	24.1	8.5	15.6	62.1	56.9	61.4 (1947)	7
Chile.....	C	34.3	13.1	21.2	123.8	37.9	39.8 (1940)	8
Colombia.....	I	38.9 ¹	13.5 ¹	25.4	111.0 ¹	...	...	11
Peru.....	I	30.0	9.1	20.9	114.3 ¹	...	...	7
Venezuela.....	C	46.8	10.1	36.7	68.0	...	...	6
Europe								
Austria.....	C	14.7	12.1	2.6	48.2	61.9	67.0 (1949-51)	83
Belgium.....	C	16.7	11.9	4.8	49.1	62.0	67.3 (1946-49)	288
Czechoslovakia.....	C	20.5	10.4	10.1	37.0	...	...	...
Denmark.....	C	17.4	9.1	8.3	27.2 ¹	67.8	70.1 (1946-50)	102
Finland.....	C	21.3	9.1	12.2	30.7	58.6	65.9 (1946-50)	12
France.....	C	18.8	12.0	6.8	36.4	63.6	69.3 (1950-51)	78
Germany (West).....	C	16.7	10.4	5.3	42.8	64.6	68.5 (1949-51)	200
Hungary.....	C	23.0	11.0	12.0	60.7	54.9	58.2 (1941)	103
Ireland, Republic of.....	C	21.1	12.1	9.0	39.4 ¹	60.5	62.4 (1945-47)	42
Italy.....	C	17.9	9.2	8.7	52.8	56.0	57.5 (1935-37)	159
Netherlands.....	C	21.6	7.5	14.1	21.1	70.6	72.9 (1950-52)	324
Norway.....	C	18.6	8.4	10.2	22.0 ¹	69.3	72.7 (1946-50)	10
Poland.....	C	30.5 ⁸	11.6 ⁸	18.9	107.8 ⁸	55.6	62.5 (1948)	85
Portugal.....	C	22.7	10.9	11.8	85.5	55.5	60.5 (1949-52)	94
Spain.....	C	20.0	9.1	10.9	54.2	47.1	53.2 (1940)	57
Sweden.....	C	14.6	9.6	5.0	18.5	69.0	71.6 (1946-50)	16
Switzerland.....	C	17.0	10.0	7.0	27.2	62.7	67.0 (1939-44)	118
United Kingdom.....	C	15.6	11.4	4.2	26.3	67.1 ⁷	72.4 ⁷ (1952)	208
Yugoslavia.....	C	28.4	10.8	17.6	101.8	...	...	66
Oceania								
Australia.....	C	22.5	9.1	13.4	22.5	66.1	70.6 (1946-48)	1
Hawaii.....	C	30.4	5.5	24.9	22.6	...	...	31
New Zealand.....	C	25.8	9.0	16.8	24.1	68.3	72.4 (1950-52)	8

NOTE—Symbol "C" indicates data is complete or virtually complete, "I" indicates incomplete or subject to considerable irregularity of registration, and "..." indicates quality is unknown. *Birth Rate*—crude rate (number of births per 1,000 persons). *Death Rate*—crude rate (number of deaths, exclusive of stillbirths, per 1,000 persons). *Rate of Natural Increase*—excess of birth rate over death rate (shown in preceding columns). *Infant Mortality Rate*—deaths of infants under one year of age per 1,000 live births, excluding stillbirths. *Life Expectancy*—average expectation of length of life (in years) at birth, based on mortality conditions of period indicated. *Population Per Sq. Km.*—total area, including inland water (1 sq. km. = 0.3861 sq. mi.)

¹ 1953. ² 1952. ³ 630 in inhabited and cultivated territory. ⁴ Total population. ⁵ Whites only; figures for nonwhites were: male, 59.4; female, 63.7. ⁶ 1950. ⁷ England and Wales. (Sources: *Statistical Yearbook 1954*; *Population and Vital Statistics Reports*, October 1955, Statistical Office of the United Nations.)

pletion of the seaway, was already under way in 1955.

Ground was broken for the Calumet Harbor development of the Chicago Regional Port District; and the Port of Toronto completed a deep-water terminal, especially designed to meet the needs of lakes-ocean shipping. At Toledo, meanwhile, the first full use of the port authority system on the Great Lakes took place when the Ohio State legislature passed a bill permitting the state to have autonomous port authorities, endowed with the powers of taxation, eminent domain, and bond issuance with approval of the voters. (See also CANALS.)

Not dismayed by the competitive aspects of the seaway, seaboard ports continued and even accelerated development and modernization programs in 1955. In June the Port of New York Authority purchased the 2-mile-long Brooklyn waterfront properties of the New York Dock Company for \$13,750,000, and announced overall modernization of the area at a total cost of \$85 million, under a 10-year redevelopment plan, which will provide 25 ultramodern ship berths.

Also, the Port of New York Authority announced that on Feb. 1, 1956, construction of a \$9,300,000 4-berth marine terminal would begin at Port Newark. Also announced was the development of a 400-acre tract of privately owned unused tideland and of a mile-long, 750-foot-wide channel to establish a new Port Elizabeth near Port Newark in New Jersey.

These developments followed closely on the heels of the formal opening of Pier 57 in New York Harbor on Dec. 28, 1954. The new pier is a \$9 million 4-berth project of the Department of Marine and Aviation, City of New York. In addition, the Port of New York Authority completed and placed in operation the \$6,300,000 Pier C at Hoboken, N.J., on March 1, 1955.

Other seaboard areas which will be in competition with the seaway were proportionately vigorous in their continued development plans. The Port of Brownsville, Texas, embarked on a \$3 million wharf construction project; the Port of Lake Charles, La., completed a modern phosphate rock and barite ore grinding plant; and the Port of Corpus Christi, Texas, announced a \$57

million port improvement, bridge building, and construction program. Western Maryland Railway at Port Covington, Baltimore Harbor, launched a \$4,250,000 improvement program for general cargo piers and a \$1,300,000 grain elevator expansion. The Port of Baton Rouge, La., completed a \$4 million grain elevator facility as the initial phase of a \$12.5 million Port of Greater Baton Rouge expansion program; new iron ore handling facilities were completed by the Tennessee Coal and Iron division of the United States Steel Corporation at the Port of Mobile, Ala. At Galveston, Texas, a rail-highway bridge, begun in 1955, will make available new waterfront land on Pelican Island, directly opposite the Galveston wharves on the main channel.

Developments Abroad.—Notable among port development efforts on a worldwide basis during 1955 was the continued expansion of the port at Genoa, Italy, in a westward direction along the Basino di Sampierdana area, in an effort to recapture the port's status as a trans-shipment center for the Mediterranean. At Tyneside, England, completion at Tyne Dock of one of the most modern iron ore discharging plants in the world aimed at boosting iron ore imports to well over a million tons a year. At Kobe, Japan, the Kobe International House—a cooperative venture of the Kobe Municipality, Hyogo Prefectural Government, Kobe Chamber of Commerce and Industry, and Kobe Foreign Trade Association—was opened to stimulate the port area's trade and traffic.

A chemical fertilizer terminal, 1,470 feet long, with a 35-foot water depth alongside, was completed in Alexandria, Egypt. Announced in 1955 were plans for new construction at Alexandria, encompassing a heavy cargo terminal, three general cargo warehouses, a new drydock, a modern grain elevator, several new passenger terminals, and the installation of five radio beacon stations at Egyptian ports and a harbor-controlled radar system.

In Hawaii in 1955 the \$5.5 million Diamond Head Terminal for ocean shipping was completed at Honolulu by the Territorial Board of Harbor Commissioners. In Puerto Rico, the Puerto Rico Transportation Authority dedicated in May 1955 its \$15 million International Airport near San Juan, in connection with a combined seaport-airport development program for the island.

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PORTUGAL. A republic on the west coast of the Iberian Peninsula of southwestern Europe. Area (including the Azores and Madeira Islands, qq.v.), 35,579 square miles; pop. (est. Aug. 1, 1955), 8,771,000. Chief cities and populations (1950): Lisbon, the capital, 790,434; Oporto, 284,842; Setúbal, 44,034; and Coimbra, 42,640.

Government.—The constitution of 1933 established a corporate state in Portugal. The electorate is limited by voting qualifications and plays a minor role. The president, whose functions are chiefly titular, is elected for 7 years. Gen. Francisco Higinio Craveiro Lopes took office as president on Aug. 9, 1951. Parliament consists of a National Assembly of 120 members elected for 4 years, and a Corporative Chamber of appointed representatives of the corporative associations. The cabinet is not responsible to Parliament. Premier António de Oliveira Salazar has exercised personal control of the government since 1933. Salazar heads the National Union, an association of pro-government forces. In the elections to the National Assembly on Nov. 8, 1953, all 120 members elected were National Union candidates.

Education and Religion.—In 1950, 40.4% of the population over 7 years of age was illiterate. In 1952-53 there were 13,355 primary schools with 726,498 pupils, with an additional 32,682 pupils attending private schools. On the secondary level, 44 liceus had 24,909 pupils, and 23,185 attended private schools. Professional and technical instruction was given in 74 state schools (32,125 pupils) and vocational training in 8 schools (2,736 pupils). The universities at Lisbon, Coimbra, and Oporto had a total of 10,818 students in 1952-53; and the Technical University at Lisbon, 2,591; and special colleges for music and art, 2,214. Roman Catholicism is predominant. There is separation of church and state, and freedom of worship exists.

Finance.—On ordinary and extraordinary accounts, revenue in 1955 was estimated at 7,335 million escudos (7,075.9 million in 1954); expenditure, 7,335 million (7,061.3 million in 1954). The escudo equals 3.478 cents in United States currency.

Production.—Per capita annual income averages less than \$200, among the lowest in western Europe. Agriculture, which engages over half the population, is featured by primitive techniques, large estates, and impoverished farm workers. Industrial growth has been hampered by insufficient venture capital and power shortages. The 6-year development plan (1953-58) is aimed at expanding industry (chiefly electric power), transport and communications, agriculture, and technical education. Gross national product totaled 49.5 billion escudos in 1954, a rise of 3.1% over 1953.

Manufacturing and Mining.—Chief manufactures are textiles, leather, building materials, chemicals, glass, wood and paper products, tobacco products, household goods, soap, and other light items. Production of cotton yarn in 1954 (40,200 metric tons) and woven cotton fabrics (32,760) were at record levels. Cement output totaled 784,800 metric tons, a rise of 7% over 1953; electricity, 1,639.2 million kw.-hr., a rise of 19% (1954 output was over twice that of 1948). Chief minerals and 1953 outputs in metric tons (metal content) were: manganese ore, 5,300; copper ore, 2,600; lead ore, 1,640; tin concentrates, 1,544; tungsten ore, 2,939; pyrites, 651,000. Coal production in 1954 totaled 432,000 metric tons, a decline of 10% from 1953.

Agriculture.—Chief crops and 1954 yields in thousands of bushels were: wheat, 27,470; rye, 7,480; corn, 15,200; barley, 5,580; and oats, 8,700. Production of rough rice in 1954-55 (prelim.) was 318.1 million pounds; potatoes (1954 prelim.), 1,003,009 metric tons. Output of olive oil in 1954 (prelim.) was 53,500 short tons (134,400 in 1953); and wine (1954 prelim.), 11,249,000 hectoliters.

Forestry and Fisheries.—Portugal is the world's leading producer of cork, output totaling 136,726 metric tons in 1953. Portugal is also a major producer of naval stores. Resin exports in 1953 amounted to 39,875 metric tons; turpentine, 7,030. Fish landings in 1953 (prelim.) totaled 392,400 metric tons, of which the important sardine catch was 96,848.

Foreign Trade.—Exports in 1954 totaled 7,297 million escudos; imports, 10,084 million. Cork exports were valued at 1,440 million escudos; fish, 801 million; and wine, 642 million. Imports are mainly machinery and vehicles, fuels, steel mill products, raw cotton, and wheat. Continental European Payments Union (EPU) countries and their dependencies took 53% of Portugal's 1954 exports and provided 61% of imports.

Transportation and Communications.—Portugal's railways aggregated 2,236 miles (route length) in 1954; roads (1953), 17,897 miles (of which about 3,508 were first-class). Portugal's merchant marine in January 1954 included 322 vessels totaling 518,616 tons. Transportes Aereos Portu-

gueses (TAP) provides air service; some 15 foreign lines operate regular services to Lisbon. Passenger cars numbered 89,766 in 1955; trucks, 37,792; telephones, 231,373; radio receiver licenses, 378,000 (1953). In 1952 there were 32 daily newspapers with a total circulation of 549,000.

Principal Events, 1955.—A report submitted to the National Assembly in April revealed that wages in the lower-paid brackets of Portuguese workers were insufficient to maintain a family. The average daily wage for men was said to range between the equivalent of \$0.66 and \$1.05, and legislators called for action to improve living conditions. In November it was revealed that the government planned to increase investments in the remaining years of the 6-year development plan (1953-58) by 2.24 billion escudos over the original goals, the increases to be concentrated chiefly in industry, communications, and transport. The plan as a whole was said to be behind schedule in 1955, due largely to the scarcity of technical skill.

Among the internal political developments of the year was the sentencing in Oporto of Prof. Ruy Luis Gomes to 18 months in prison on June 30. The professor, an allegedly Communist-backed opponent of the Salazar regime who had been ruled ineligible as a presidential candidate in 1951, was charged with "subversive propaganda and attempts against the security of the state." Premier Salazar reorganized the cabinet on July 6, appointing five new ministers, including Dr. Pinto Barbosa as minister of finance.

The National Assembly on January 25 unanimously approved the 1954 Paris agreements on West German rearmament. On August 8 the Portuguese legation in New Delhi was closed and direct diplomatic ties between Portugal and India were severed as a result of the Portuguese-Indian dispute concerning Portuguese India (see PORTUGUESE TERRITORIES). During a two-week visit to the United States and Canada, November 28-December 13, Portuguese Foreign Minister Dr. Paulo Cunha conferred with U.S. Secretary of State John Foster Dulles in Washington. A joint communiqué issued on December 2 stated that the discussion had concerned statements by Soviet leaders visiting India regarding "the Portuguese provinces in the Far East." India subsequently protested to the United States against the use of the term "provinces," but the United States declared that the reference indicated no stand on the dispute.

On Dec. 14, 1955, Portugal, along with 15 other nations, was elected to membership in the United Nations.

PORTUGUESE TERRITORIES. Portugal's overseas possessions have a total area of 803,835 square miles and a population of about 12,357,000. Politically the territories are overseas provinces of Portugal. Each province is under a governor or governor general appointed in Lisbon, and in certain instances has a limited degree of financial and administrative autonomy. Native participation in government is slight or nonexistent. In Africa the Portuguese policy of racial assimilation officially aims at full citizenship for natives. Thus far, however, only a few thousand natives in Angola and Mozambique have been accorded "civilized" status. Forced labor of natives has been reported in Mozambique, where about 250,000 native contractees depart annually for work in the mines of South Africa and the Rhodesias. Over 95% of the native population in the two

major African territories is illiterate. Education is mainly in the hands of Roman Catholic missions. In Mozambique there is a substantial Moslem minority. In the Asian provinces there are small groups of Catholic converts.

The territories of Angola and Mozambique are rich in resources but are largely undeveloped. These territories supply Portugal with cotton, sugar, coffee, and oils, and provide foreign exchange from sales to foreign countries. Under Portugal's six-year development plan (1953-58) there has been some expansion of hydroelectric power, agriculture, transport and communications, and public health facilities.

PORTUGAL'S OVERSEAS PROVINCES

Province	Area (sq. mi.)	Pop. (est. 1954 '000)	Trade (('000,000 escudos ¹)		
			Im- ports	Ex- ports	Year
Africa					
Cape Verde Islands	1,557	168	271.8	292.6	1953
Portuguese Guinea.	13,948	541 ²	162.1	143.6	1951
São Tomé and Príncipe.....	372	53	117.5	246.5	1953
Angola (Port. West Africa).....	481,351	4,243	2,754	2,957	1954
Mozambique (Port. East Africa)....	297,731	6,040 ²	2,460	1,584	1954
Asia					
Portuguese India..	1,538	643	520.5	151.7	1951
Macao.....	6	200	.. ³	.. ³	..
Portuguese Timor..	7,332	469	51.3	47.9	1952

¹ The Portuguese escudo is equal to 3.478 cents in U.S. currency. ² 1955. ³ Imports, 1952, 191 million patacas (about \$40 million); exports, 99 million patacas (\$21 million). Trade is largely transit.

Territories in Africa: Cape Verde Islands.—A group of 9 inhabited and several barren islands in the Atlantic, about 370 miles west of Dakar. Europeans numbered 3,034 in 1950. Praia (9,880) on São Thiago is the capital. Revenue in 1953 totaled 37,524,000 escudos; expenditure, 35,452,000. In 1953 the island of São Vicente had 119 primary schools (6,167 pupils) and a secondary school (637). Sal Island Airport handles transatlantic traffic. São Vicente is a fueling station for ships. Chief products are canned fish, coffee, mustard, salt, oranges, and brandy.

Portuguese Guinea.—A tropical territory on Africa's west coast about 175 miles south of Dakar. Europeans numbered 2,263 in 1950. Bissau (5,700) is the capital. In 1950 there were 60 elementary schools (3,295 pupils), a secondary school (46), and 4 technical schools (67). Chief exports are groundnuts, palm kernels, hides, wax, rice, and timber. Roads total about 1,800 miles.

São Tomé and Príncipe.—Two islands 125 miles off the African coast in the Gulf of Guinea. Europeans number 1,152 (1950). São Tomé (7,817) is the capital. Revenue in 1952 totaled 50,532,000 escudos; expenditure, 52,394,000. In 1952 there were 17 elementary schools (2,546 pupils), a secondary school (40), and a technical school (68). Chief exports are cacao (10,900 metric tons in 1953), palm kernels, palm oil, copra, coffee, and cinchona. Roads total about 104 miles.

Angola.—A territory on Africa's west coast, south of the Belgian Congo. Europeans number 78,826 (1950). Luanda (137,139) is the capital; Lobito (23,897), an important port. In 1953, revenue totaled 1,184,792,000 escudos; expenditure, 1,078,862,050. Elementary schools in 1953 numbered 1,030 (51,407 pupils); secondary schools, 21 (2,582); professional schools, 164 (4,276). Chief products are coffee (exports, 1954; 45,953 tons), diamonds (exports, 1953; 724,195 carats), manganese ore (output, 1953; 31,600 metric tons, Mn content), sisal fiber, sugar, cotton, corn, rice, wax, palm kernels, and coconuts. Fish landings in 1953 totaled 222,400 metric tons. Manufactures include palm, whale, and fish oils, preserved meats, footwear, paper products, tobacco products, and vegetable fiber. Angola has 1,472 miles of railways (1950); 20,378 motor vehicles (1955); and 2,518 telephones (1955). In 1955 the equivalent of \$39.79 million was earmarked for hydroelectric and irrigation projects, and construction of railways, roads, port facilities, native housing, and other works.

Mozambique.—A territory extending some 1,500 miles along Africa's east coast. Lourenço Marques (93,303) is the capital and chief port; Beira (42,539) is also an important port. The estimated 1955 budget totaled 2,479.1 million escudos, 4% above the 1954 budget. In 1953 there were 1,574 primary schools (198,609 pupils), 6 secondary schools (956), 67 technical

and professional schools (5,925), and 12 normal and theological schools (466). Cash crops comprise the bulk of exports. Chief crops are cotton (103,000 metric tons in 1954), sugar (91,730), copra (38,624 in 1953), cashew nuts, tea, sisal, palm oil, palm kernels, sesame seed, and castor beans. Manufactures are chiefly cement, leather, textiles, footwear, beer, rope, soap, tobacco products, refined sugar, and ginned cotton. Coal (161,673 metric tons in 1953), bauxite (3,107), salt, and chrome are mined. Railways totaled 2,324 miles in 1952; main roads, 2,551 (1953). Motor vehicles numbered 18,629 in 1954; telephones, 7,331 (1955). Regular air services operate out of Lourenço Marques. On Aug. 1, 1955, the new 200-mile Limpopo Railway was inaugurated, linking Lourenço Marques with the railway system of Southern Rhodesia. In 1955 the equivalent of \$31.88 million was allocated for work on a hydroelectric project, railroads, roads, airfields, and other projects.

Territories in Asia: Portuguese India.—Three settlements along India's west coast: Goa, the largest (1,301 sq. mi.), near the southern end of Bombay Province; Damão (Daman), an island some 100 miles north of Bombay; and Diu, an island across the Gulf of Cambay, opposite Damão. The capital is Pangim (14,213), in Goa. In 1953 the budget totaled 148,996,012 escudos. There were 162 elementary schools (not including 177 mission schools) in 1952 with 12,453 pupils; 4 secondary schools (895 pupils); a technical school (30); a medical school (195); and a teacher-training school (31). Minerals include iron ore (944,000 metric tons of crude ore produced in 1953), manganese ore (63,000 metric tons Mn content), and salt. Japan and the United States are the chief purchasers of ore exports. Other products are coconuts, fish, spices, cashew nuts, and copra. Since India became an independent nation, the New Delhi government has sought the incorporation of the Portuguese settlements within India. The Lisbon government, refusing to consider the territories' cession. Demonstrations and other activities by Indian nationalists in 1955 culminated in the attempted entry into the territories of some 3,000 nonviolent demonstrators on August 15. Portuguese police halted the incursions by force, killing over 20 Indians. A new statute providing for the election of some members of the Legislative Council for the Portuguese settlements came into effect on August 1, and elections took place on August 22. Only about 50,000 persons entered their names on the electoral register. (See also INDIA, REPUBLIC OF; PORTUGAL.)

Macao.—An island opposite Hong Kong, and 3 smaller offshore islands. Europeans number 2,719 (1950). An entrepôt port for commerce with China, Macao is noted as a pleasure and gambling resort and as a center for smuggling. The 1953 budget totaled 122,302,621 escudos. In 1950 there were 64 primary schools (15,281 pupils), 21 secondary schools (3,572), and 17 technical schools (1,290). On Oct. 25, 1955, a Peking radio broadcast declared that Macao was Chinese and that the Chinese people had not given up their claims to the territory.

Portuguese Timor.—This province lies between the Celebes and Australia and comprises the eastern part of the island of Timor, the territory of Oe-Cusse (Ambeno), and 2 small islands in the Lesser Sundas. Dili (1,795) is the capital and chief port. Revenue in 1953 totaled 63,266,000 escudos; expenditures, 64,164,000. In 1953 there were 99 primary schools (6,014 pupils) and 3 secondary schools (107). Chief products are coffee, rice, sugar, sandalwood, wax, and copra. Roads total about 1,320 miles.

POST OFFICE DEPARTMENT. Operations of the Post Office Department during the fiscal year 1954 set new records in mail volume and revenue. Revenue for the year increased \$184,890,023, or 8.82%, over the previous fiscal year, to reach a record \$2,277,767,124. Expenses totaled \$2,676,913,890, representing a decrease of \$83,097,071, or 3.01%, from 1953.

The volume of mail handled during the fiscal year 1954 increased in terms of originating mail to reach 52,213,170,387 pieces. Special service transactions (money orders, postal savings, registry, insured, collect on delivery, and special delivery) numbered 823,249,650.

With 507,000 employees at the end of the 1954 fiscal year, the Post Office Department had more employees than any other nonmilitary department of the federal government. Included were 39,405 postmasters, 4,009 assistant postmasters, 121,761 city delivery carriers, 49,935 rural delivery carriers, and 37,265 postal transportation employees.

On June 30, 1954, there were 39,405 post offices, including 248 in Alaska, 101 in Hawaii, 107 in Puerto Rico, 5 in the Virgin Islands, and 10 on Pacific islands other than Hawaii.

Rural delivery routes as of June 30, 1954, numbered 32,370 and covered 1,527,289 miles. Railway post offices traveled 163,380,962 miles; there were 57 domestic airmail routes; and foreign air service involved 28,187,271 ton-miles flown by United States international carriers during the 1954 fiscal year.

Postage collected on all mail matter in the 1954 fiscal year totaled \$2,052,172,000 (90.1% of all postal revenue). The sale of postage stamps and stamped paper yielded \$998,965,000; of documentary internal revenue stamps, \$21,465,212.78; and of migratory bird hunting stamps, \$4,542,860. Revenue from money orders totaled \$67,476,762 for 361,338,020 orders issued.

The Postal Savings System had 2,934,795 depositors on June 30, 1954, to whom were credited \$2,251,419,237 in outstanding principal in active accounts. (See also PHILATELY.)

L. ROHE WALTER,

Special Assistant to the Postmaster General.

POTASH. See MINERAL PRODUCTION.

POTATOES. See VEGETABLES.

POULTRY. See Index entry.

POWER, Electric. See ELECTRICAL DEVELOPMENTS.

PRECIOUS STONES. See GEM STONES.

PRESBYTERIAN CHURCHES.* At the meetings in May 1955 of the general assemblies of the Presbyterian Church in the United States of America, the Presbyterian Church in the United States (commonly called Southern), and the United Presbyterian Church of North America, it was reported that the Plan of Union, which had been transmitted to their respective presbyteries for a vote of approval or disapproval, had been defeated because of the overwhelming rejection of the plan in the Southern Presbyterian Church.

PRESBYTERIAN CHURCH STATISTICS

Church	Ministers	No. of churches	No. of members
Presbyterian Ch. in the U.S.A.	9,966	8,574	2,658,903
Presbyterian Ch. in the U.S.	3,197	3,806	780,853
United Pres. Ch. of N.A.	1,301	1,157	316,013
Reformed Ch. in America	975	807	199,381
Evangelical and Reformed Ch.	2,568	2,735	761,842
Ref. Pres. Ch. Gen. Synod	12	11	1,279
Reformed Pres. Ch. Synod	94	75	6,475
Christian Reformed Ch.	278	429	186,526
Asso. Ref. Pres. Ch. Gen. Synod	141	198	27,116
Asso. Reformed Pres. Synod	5	5	400
Cumberland Pres. Ch.	917	1,004	83,476
Cumberland Pres. Ch. (Colored)	430	136	13,077

The 167th General Assembly of the Presbyterian Church in the U.S.A. elected Dr. Paul S. Wright, pastor of the First Presbyterian Church of Portland, Oreg., as moderator.

The church's Building Funds Commission reported that the churches had subscribed \$11,742,942, as of March 31, 1955, toward the \$12,000,000 goal, and had paid in over \$9,000,000 in cash. The funds will be used to build new

* Distinctively Presbyterian churches in the United States include the Presbyterian Church in the United States of America; Presbyterian Church in the United States (commonly called the Southern Presbyterian Church); United Presbyterian Church of North America; Reformed Presbyterian Church Synod; Associate Reformed Presbyterian Church General Synod; Cumberland Presbyterian Church; Cumberland Presbyterian Church (Colored); Orthodox Presbyterian Church; and Bible Presbyterian Church.

churches and construct needed seminary buildings.

The reconstituted special committee on deacons and trustees presented its report, and three proposals were made providing for: (1) clarification and delineation of the authority and responsibility of the session in the local congregation; (2) strengthening the work of deacons in the local congregations; and (3) the mandatory rotary system in the election of church officers, with the creation of representative nominating committees in churches. The functions of trustees are also to be greatly clarified.

A special committee on licensure and ordination presented proposals seeking to: (1) control more effectively the ordination and licensure of candidates for the ministry; and (2) in synods where the presbyteries desire it, to create a synod committee on the examination of the intellectual competence of all candidates for ordination.

The 168th General Assembly of the Presbyterian Church in the United States of America is scheduled to meet in Philadelphia, Pa., on May 24, 1956, and will celebrate the 250th anniversary of the organization of the first presbytery in the United States. During 1954, a net gain of 77,225 members was recorded, and contributions totaled \$158,775,755.

HENRY BARRACLOUGH,
*Assistant Stated Clerk, General Assembly,
Presbyterian Church in the U.S.A.*

PRESS, Freedom of the. See Index entry, *Freedom of Information, Press, and Speech.*

PRIBILOF, or FUR SEAL ISLANDS. Four islands (St. Paul, St. George, and the uninhabited Otter and Walrus) and several islets, situated in the Bering Sea, politically part of the Territory of Alaska. Area, about 180 square miles; pop. (1950), 546, mainly Aleuts. The islands are the breeding grounds of a major part of the world's fur seal population. In 1955 the herd yielded 65,638 skins which were sold at public auction for an average price of \$94.14 each. The fur seal industry, which includes production of oil and meal as byproducts, is operated by the Fish and Wildlife Service of the U.S. Department of the Interior.

PRICE SUPPORTS. See Index entry, *Subsidies.*

PRICES. See COST OF LIVING and the Index entry, *Prices.*

PRINCE EDWARD ISLAND. Located in the Gulf of Saint Lawrence north of Nova Scotia and northeast of New Brunswick, and separated from the two provinces by Northumberland Strait, Prince Edward Island is the smallest of the Canadian provinces. The area is 2,184 square miles, and the population in 1951 was 98,429 (official est., June 1954, 105,000). Charlottetown, the capital, has a population of 15,689. Other urban centers are Summerside, 6,547; Souris East, 1,183; and Montague, 1,068.

Government.—The province is governed by a lieutenant governor (T. William L. Prowse, commissioned on Oct. 4, 1950); an Executive Council (premier and president of the council, Hon. Alexander W. Matheson); and a Legislative Assembly of 30 members (15 councillors elected by property owners, and 15 assemblymen elected by universal suffrage). The province sends 4 representatives to the Canadian House of Commons and 4 to the Senate in Ottawa.

Education.—In the 1953-54 school year there were 19,933 pupils and 766 teachers. Expendi-

tures for schools amounted to \$2,126,974. The province's two colleges, Prince of Wales College and St. Dunstan's University, are in Charlottetown.

Religion.—The percentages of the population belonging to the different denominations in 1951 were as follows: Roman Catholic, 45; United Church, 25; Presbyterian, 15.5; Anglican, 6; Baptist, 5.7; and others, or not stated, 2.5.

Finance.—On Jan. 1, 1955, there were 24 branches of chartered banks in operation in the province. The gross funded debt was \$18,600,000, less sinking funds. There were outstanding liabilities of \$17,833,720 for the year ending March 31, 1955.

Production.—The economy of the province is based in large part on agriculture; in 1953 field crops totaled about \$25,600,000. The landed value of the island's fisheries in 1953 was \$3,832,686. Income from the tourist industry is estimated at about \$5 million annually. The production of pulpwood and sawn lumber amounts to about \$2 million a year. There are a number of industrial establishments.

Communications.—On March 31, 1955, there were 12,551 passenger cars and 3,180 miles of provincial roads, of which 350 miles were paved. On March 31, 1955, there were two airports. During 1955 there were 13,790 telephones and 22,000 radios in use. The province is connected with the mainland by four car ferries during the summer months and in the winter by the world's largest ice-breaking ferry of its type. There are daily airplane flights from Charlottetown and Summerside to the mainland.

GEORGE V. FRASER,
Director, Prince Edward Island Travel Bureau.

PRINCIPE. See PORTUGUESE TERRITORIES.

PRINTING AND PUBLISHING. See BOOK PUBLISHING AND SALES; GRAPHIC ARTS; JOURNALISM; MAGAZINE PUBLISHING.

PRISONERS OF WAR. See Index entry.

PRISONS. There are in the United States approximately 230 state and federal institutions of various kinds—reformatories, prisons, prison farms, and camps—for adult offenders. These do not include the local and county jails, about 3,000 in number, which frequently handle both sentenced and unsentenced prisoners. At the end of 1954, the state and federal institutions had a total prison population of 182,051, representing the highest number of persons in adult institutions since the collection of uniform statistics on prison population was started in 1939.

Prisoners in state institutions numbered 162,048 at the end of 1954, an increase of 8,642 over the previous year. In the federal institutions, the year-end population rose to 20,003, an increase of 640. At the same time, the number of persons committed by the courts to both state and federal institutions increased even more sharply. A total of 79,946 persons were sent to prison in 1954, as compared with 73,299 in 1953, a rise of over 9 per cent.

Of importance also in these population statistics is the fact that the number of prisoners released from prison has increased at a much slower rate. During 1954, a total of 78,184 persons were released from prison, as compared with 75,125 in 1953, an increase of only a little over 4 per cent.

In the face of this growing problem of overcrowding in prisons throughout the country, the



UNITED PRESS

Guards use tear gas to subdue rioting inmates of the Nebraska Men's Reformatory, at Lincoln, on Sept. 9, 1955.

SENTENCED PRISONERS IN U.S. PRISONS AND REFORMATORIES (December 31 of each year)

Year	Federal institutions	State institutions	Total	Rate per 100,000 population
1954.	20,003	162,048	182,051	114.4
1953.	19,363	153,366	172,729	110.6
1952.	18,014	149,360	167,374	109.2
1951.	17,395	147,501	164,896	109.1
1950.	17,134	148,662	165,796	110.4
1949.	16,868	146,474	163,342	110.7
1948.	16,328	138,764	155,092	106.8
1947.	17,146	133,719	150,865	105.8
1946.	17,622	121,813	139,435	100.8
1945.	18,638	114,581	133,219	104.4
1944.	18,139	113,835	131,974	104.2
1943.	16,113	120,254	136,367	107.0

continuing rash of prison riots starting in 1952 takes on added significance. Between January and November 1955, twenty riots occurred in ten state prisons and reformatories, one state hospital for the criminal insane, and two county jails. The most serious of these rebellions took place in the state prisons of Nebraska, Washington, and Massachusetts. Others occurred in prisons in Texas, Wyoming, Michigan, and Rhode Island. These were followed by the usual investigations, but by little significant legislation or concerted action toward the improvement of basic conditions or expansion of facilities.

The conditions which make these flare-ups of mass violence possible continue to be overcrowding; untrained, underpaid, and frequently superannuated personnel; lack of a sound system of inmate classification; political meddling in prison administration; harsh and unfair treatment; idleness; and, in most instances, an almost total lack of rehabilitative programs. The problem of providing constructive employment for the many thousands of prisoners in state prisons is probably the most persistent problem in prison administration, and a solution is nowhere in sight. And as for overcrowding, with a few exceptions, no general prison reconstruction program is under way to expand facilities or to establish modern correctional programs.

The federal prison system, too, has not been immune from this problem of overcrowding or from the need for expanded facilities. The federal prison system comprises 29 institutions located in 19 states and the District of Columbia. Designed for a normal capacity of about 19,000, the federal institutions as of Sept. 8, 1955, had to handle a total population of 19,913.

For the fiscal year 1954-55, the total appropriation of funds for the administration of the

BUREAU OF PRISONS INSTITUTIONS (Figures as of Sept. 29, 1955)

Type of Institution	Population
Penitentiaries:	
Alcatraz, California.	295
Atlanta, Georgia.	2,558
Leavenworth, Kansas.	2,551
Lewisburg, Pennsylvania.	1,238
McNeil Island, Washington.	1,010
Terre Haute, Indiana.	1,190
Reformatories:	
Alderson, West Virginia.	546
Chillicothe, Ohio.	1,140
El Reno, Oklahoma.	919
Englewood, Colorado.	370
Petersburg, Virginia.	738
Institutions for juveniles:	
National Training School for Boys, Washington, D.C.	382
Natural Bridge Camp, Virginia.	70
Medical center for federal prisoners:	
Springfield, Missouri.	997
Prison camps:	
Allenwood, Pennsylvania.	128
Florence, Arizona.	269
McNeil Island, Washington.	221
Mill Point, West Virginia.	201
Montgomery, Alabama.	179
Tucson, Arizona.	197
Correctional institutions:	
Ashland, Kentucky.	476
Danbury, Connecticut.	562
La Tuna, Texas.	581
Milan, Michigan.	645
Seago, Texas.	424
Tallahassee, Florida.	574
Terminal Island, California.	488
Texarkana, Texas.	449
Detention headquarters:	
New York, New York.	185

federal prison system was \$27,634,845. The cost averages \$3.53 per day per prisoner, which covers salaries, maintenance of plant and equipment, food, clothing, education, case-work services, and other treatment programs.

The industrial production program is operated by Federal Prison Industries, Inc., a government-owned corporation, but administered as an integral part of the Bureau of Prisons. During the 1955 fiscal year, this industrial production employed about 20 per cent of the federal prison population and produced goods valued at \$20,362,250 for sale to other government agencies. Out of the earnings, the corporation financed the vocational training program, paid out to inmates employed in the shops \$1,185,978 in wages, which are sent home to dependents or kept for them in anticipation of their release. In addition, the corporation has returned in excess of \$28,500,000 to the U.S. Treasury over the past nine years—in itself a substantial return to the taxpayer for the cost of operating the federal prisons.

A noteworthy event in 1955 was the first United Nations World Congress on the Prevention of Crime and the Treatment of Offenders, held in Geneva, August 22-September 3. This was a continuation of similar congresses previously called by the International Penal and Penitentiary Commission, whose functions have now been taken over by the United Nations. Some 500 delegates attending represented a wide gamut of professional interests focusing on the treatment of the offender. Psychiatrists, social workers, judges, and prison administrators and other professional groups discussed the adoption of minimum standards of treatment, training of institutional personnel, the relative merits of the open-type institution, and the universal problem of the utilization of prison labor.

Prison reform has traveled a long road since the days of the fortress prison, the galley ship, the whipping post, and the pillory, and while

many prisons today still reflect these old traditions, the spirit of this international congress and the topics discussed there reflect the slowly moving worldwide trend toward a criminal policy that has a social rather than a punitive purpose, that seeks rehabilitation rather than punishment for its own sake. (See also CRIME—Crime Prevention; POLICE.)

J. V. BENNETT,
Director, U.S. Bureau of Prisons.

PRIZES AND AWARDS. The principal prizes and awards announced in 1955 include those in the following list, classified by subject. For other awards not listed here, see the Index entry, *Prizes and Awards*.

NOBEL PRIZES

Chemistry.—Dr. Vincent du Vigneaud (q.v.) of Cornell University Medical College, for his synthesis of the hormone oxytocin and his work in typing the hormone vasopressin.

Literature.—Halldór Kiljan Laxness (q.v.), Icelandic novelist, for his "vivid epic writing, which has renewed the great Icelandic narrative art."

Peace.—Office of the U.N. High Commissioner for Refugees, 1954 prize.

Physics.—Dr. Willis E. Lamb, Jr. (q.v.), of Stanford University, "for his discoveries regarding the hyperfine structure of the hydrogen spectrum"; and Dr. Polykarp Kusch (q.v.) of Columbia University "for the precision determination of the magnetic moment of the electron."

Physiology and Medicine.—Dr. Hugo Theorell (q.v.), Swedish biochemist, for his discoveries on oxidation enzymes.

The 1955 awards were equivalent to \$36,720 in each field; the 1954 peace prize, to \$35,066.

PULITZER PRIZES

Announced by the trustees of Columbia University on May 2, 1955, the Pulitzer Prize awards for 1954 were as follows:

Journalism.—Most disinterested and meritorious public service rendered by a United States newspaper: Columbus (Ga.) *Ledger* and Sunday *Ledger-Enquirer*, for its news coverage and editorials on corruption in Phenix City, Ala. Distinguished local reporting (under pressure of edition time): Mrs. Caro Brown of the Alice (Texas) *Daily Echo*, for an article on the one-man political rule of George B. Parr in Duval County. Distinguished local reporting (showing initiative and resourcefulness, not under pressure): Roland K. Towery of the *Cuero (Texas) Record*, for a series of articles on fraud in the administration of the state veterans' land program. Distinguished reporting on national affairs: Anthony Lewis of the Washington (D.C.) *Daily News*, for a series of articles which led to the clearance and reinstatement of Abraham Chasanow, dismissed by the Navy Department as a security risk. Distinguished reporting on international affairs: Harrison E. Salisbury of the New York *Times*, for his series of articles entitled "Russia Re-viewed." Distinguished editorial writing: Detroit *Free Press*, for an editorial by Royce Howes on a Chrysler Corporation strike. Distinguished editorial cartoon: Daniel R. Fitzpatrick of the St. Louis *Post-Dispatch*, for a cartoon on Indochina entitled "How Would Another Mistake Help?" and for the body of his work. Outstanding news photography: John L. Gaunt, Jr., of the Los Angeles *Times*, for his picture of a couple whose 19-month-old son had just been drowned in the surf.

Letters.—Fiction in book form: William Faulkner (q.v.), for *A Fable*. Original American play: Tennessee Williams (q.v.), for *Cat on a Hot Tin Roof*. Book on United States history: Paul Horgan (q.v.), for *Great River: The Rio Grande in North American History*. American biography: William S. White, for *The Taft Story*. Volume of verse: The late Wallace Stevens (q.v.), for *The Collected Poems of Wallace Stevens*.

Music.—Gian-Carlo Menotti (q.v.), for *The Saint of Bleeker Street*.

ART AND MUSIC

Alice M. Ditson Award (\$1,000) for "the aid and encouragement of American musicians": Robert Shaw. American Institute of Architects Fine Arts Medal: Ivan Mestrovic.

American Institute of Graphic Arts Medal: P. K. Conkright, Princeton University Press.

American Watercolor Society Gold Medal: W. Emerton Heitland, for *Quince Street*.

American Watercolor Society Grand Prize (\$1,000): Chen Chi, for *A Man*.

Art Institute of Chicago annual exhibition prizes: Joseph Goto, first prize (\$1,500), for his sculpture *Struggle*; Gerald McLaughlin, second prize (\$1,000), for his painting *The Orator and the Ladies*.

Audubon Artists gold medals: Francis de Erdely, for his painting *The Wanderer*; Jerri Ricci, for her water color *Lower Manhattan*; Constance Scharf, for her drawing *Magnolia Leaves with Vase*; Polygnotos Vagis, for his sculpture *Dancer*.

Benjamin Altman Prize (\$1,500) for figure painting: Isabel Bishop, for *Girls in the Subway Station*.

Benjamin Altman Prize (\$1,500) for landscape painting: Furman Finck, for *Recollections of an English Abbey*.

Edwin Palmer Memorial Prize (\$1,200): Gifford Beal, for *Mending the Nets Off Strattsouth*.

Jean Sibelius Prize (7.5 million markkaa): Paul Hindemith.

National Institute of Arts and Letters Award for Distinguished Service to the Arts: Henry Allen Moe.

National Institute of Arts and Letters First Prize in Architecture: Gordon Bunshaft, designer of Lever House and the Manufacturers Trust Company building in New York.

National Institute of Arts and Letters Gold Medal for Painting: Edward Hopper.

New York Music Critics Circle awards for 1954: Dimitri Shostakovich, for his Symphony No. 10, best orchestral work; Vittorio Rieti, for his String Quartet No. 3, best chamber work; Gian-Carlo Menotti (q.v.), for *The Saint of Bleeker Street*, best opera; Carl Orff, for *Carmina Burana*, best choral work; Vittorio Giannini, for *The Taming of the Shrew*, special citation.

Royal Gold Medal for Architecture for 1956: Walter Gropius.

Sibelius Gold Medal: Igor Stravinsky.

JOURNALISM

F. Wayland Ayer Cup for mechanical excellence in journalism: New York *Herald Tribune*.

George Polk Memorial awards for 1954: Foreign reporting—George Weller, Chicago *Daily News Syndicate*; international affairs—Thomas J. Hamilton, New York *Times*; national reporting—Luther Huston, New York *Times*; metropolitan reporting—James McGlinchey and Sydney Mirkin, New York *Daily News*; wire service reporting—Alan J. Gould and a team of reporters, Associated Press; suburban reporting—Thomas Finnegan, Long Island City (N.Y.) *Star-Journal*; special page—Jacob Jacowitz, New York *World-Telegram and Sun*; news photography—Maurice Johnson, International News Photos; community service—Station WNYC; radio-television reporting—Eric Seavard, Columbia Broadcasting System; special awards—Public Affairs Department, National Broadcasting Company, for *Three Two One . . . Zero*; Leo Rosten, for article in *Look*, "Is Fear Destroying Freedom?"; Dan Parker, New York *Daily Mirror*, for articles on boxing racketeering.

Heywood Broun Award (\$500) for 1954: Anthony Lewis, Washington (D.C.) *Daily News*.

Lasker journalism awards (\$1,000) for 1954: Alton L. Blakeslee, Associated Press, for articles on research at Woods Hole; John Robert Coughlan, *Life*, for an article on the Salk poliomyelitis vaccine; Milton Silverman, for an article in the *Saturday Evening Post* on the use of drugs in hypertension and mental diseases.

Lauterbach Award (\$1,000) of the Authors Guild: Joseph and Stewart Alsop, for their article "We Accuse" in *Harper's Magazine*.

Maria Moors Cabot awards for "advancement of international friendship in the Americas": Pedro G. Beltrán, director, *La Prensa*, Lima, Peru; Breno Caldas, director, *Correio do Povo*, Porto Alegre, Brazil; John Oliver La Gorce, editor, *National Geographic Magazine*; Roberto J. Noble, proprietor and director, *Clarín*, Buenos Aires, Argentina; Archibald T. Steele, New York *Herald Tribune*.

Overseas Press Club awards: Best consistent reporting of domestic or United Nations news that has an effect on foreign affairs—James Reston, New York *Times*; best consistent press reporting from abroad—New York *Times*; best consistent radio reporting from abroad—Columbia Broadcasting System; best consistent television presentation of foreign affairs—See *It Now*; best press interpretation of foreign news—New York *Times*; best radio interpretation of foreign news—CBS *World News Roundup*; best photographic reporting from abroad—*Life*; George Polk Memorial Award—the late Robert Capa, *Life* photographer.

Raymond Clapper Memorial Award (\$500) for Washington reporting in 1954: James Reston, New York *Times*.

LITERATURE

American Academy of Arts and Letters Award of Merit (medal and \$1,000): Jorge Guillin.

Bancroft prizes (\$2,000) of Columbia University "for distinguished writings in American history": Leonard D. White, for *The Jacksonians*; Paul Horgan (q.v.), for *Great River: The Rio Grande in North American History*.

Bollingen Prize in Poetry (\$1,000) for 1954: Louise Bogan, for *Collected Poems, 1923-53*; Léonie Adams, for *Poems: A Selection*.

Carey-Thomas Award for the best example of creative publishing: Doubleday & Co., for Anchor Books.

PRIZES AND AWARDS

Edgar Allan Poe awards of the Mystery Writers of America, Inc., for 1954: Raymond Chandler, for *The Long Goodbye*, best mystery novel; Jean Potts, for *Go, Lovely Rose*, best first mystery novel; Stanley Ellin, for *The House Party*, best short story; Charles Boswell and Lewis Thompson, for *The Girl with the Scarlet Brand*, best fact crime writing; John Michael Hays, for *Rear Window*, best mystery film; Gore Vidal, for *Smoke*, best television mystery program; Stanley Niss, for *The Tree*, best radio mystery program; Agatha Christie, for *Witness for the Prosecution*, best mystery play; Drexel Drake of the *Chicago Tribune*, Dell Books, and Berton Rouché, special awards.

Governor General's awards to Canadians for the best books of 1954: Fiction—*Fall of a Titan*, by Igor Gouzenko; creative nonfiction—*Thirty & Three*, by Hugh MacLennan; academic nonfiction—*This Most Famous Stream*, by A. R. M. Lower; poetry—*The Metal and the Flower*, by P. K. Page; juvenile—*The Nor' Westers*, by Marjorie Wilkins Campbell.

Grand Prix for the writer whose work is considered to have conferred the greatest luster on French letters: Jean Schlumberger.

Leacock Medal for humor: Robertson Davies, for *Leaven of Malice*.

National Book awards: Fiction—William Faulkner (q.v.), for *A Fable*; nonfiction—Joseph Wood Krutch, for *The Measure of Man*; poetry—the late Wallace Stevens (q.v.), for *The Collected Poems of Wallace Stevens*; special citation—E. E. Cummings, for *Poems, 1923-1954*.

National Institute of Arts and Letters Gold Medal for Essays and Criticism: Edmund Wilson.

Poetry Society of America Gold Medal for Distinguished Achievement: Mrs. Leonora Speyer.

Prix Femina: André Dhôtel, for *Le pays où l'on n'arrive jamais*.

Prix Goncourt: Roger Ikor, for *Les eaux mêlées*.

Prix Interallié: Félicien Marceau, for *Les élans du coeur*.

Prix Théophraste Renaudot: Georges Govy, for *Le moissonneur d'épines*.

RADIO AND TELEVISION

Academy of Television Arts and Sciences awards for 1954: George Gobel, outstanding new personality; John Daly, best news reporter or commentator; *Operation Undersea* (*Disneynland*), best individual program of the year; *This Is Your Life*, best audience or guest participation or panel program; *Lassie*, best children's program; *Omnibus*, best cultural, religious, or educational program; *Art Linkletter's House Party*, best daytime program; *Gillette Cavalcade of Sports*, best sports program; *United States Steel Hour*, best dramatic series; *Dragnet*, best mystery or intrigue series; *Make Room for Daddy*, best situation comedy series; *Disneynland*, best variety series; *Stories of the Century*, best Western or adventure series; Robert Cummings, best actor in a single performance (*Twelve Angry Men*); Danny Thomas, best actor starring in a regular series; Art Carney, best supporting actor in a regular series; Judith Anderson, best actress in a single performance (*Macbeth*); Loretta Young, best actress starring in a regular series; Audrey Meadows, best supporting actress in a regular series; Perry Como, best male singer; Dinah Shore, best female singer; *Twelve Angry Men*, best dramatic script; *George Gobel Show*, best comedy script; Bob Markell, best live-show direction, for *Tragedy on Mount Everest (You Are There)*; Ralph Berger and Albert Pyke, best filmed-show direction, for *Christmas Carol (Shower of Stars)*.

Alfred I. du Pont awards for public service in radio and television: Eric Sevareid, Columbia Broadcasting System; Station KCAK, Gallup, N. Mex.; Station WHAS, Louisville, Ky.

George Foster Peabody awards for 1954: *Radio*.—*Conversation*, best entertainment; *Man's Right to Knowledge*, best educational program; *Pauline Frederick at the U.N.*, award for contribution to international understanding; Station KCAK, Gallup, N. Mex., cited for local public service; Boris Goldovsky, cited for conducting musical quiz program during Metropolitan Opera broadcast intermissions. *Television*.—George Gobel, best entertainment; *Adventure*, best educational program; *Disneynland*, best youth and children's program; *Omnibus* and *The Search*, special awards; *Industry on Parade*, cited for national public service; Station WJAR-TV, Providence, R.I., cited for regional public service. *Radio and Television*.—John Daly, best news analysis.

Sylvania Television awards for 1955: *Peter Pan*, most outstanding program; *The \$64,000 Question*, best new television series; *You'll Never Get Rich*, best comedy show; *Kraft Television Theatre*, best dramatic series; *Patterns*, best dramatic show; *The Vice Presidency—the Great American Lottery (See It Now)*, best documentary program; *The Voice of Firestone*, best musical series; *Mickey Mouse Club*, best network children's show; *Omnibus*, best network educational series; *The Search*, outstanding network public service; *Home*, best network woman's show; *The Ed Sullivan Show*, best showmanship in variety entertainment; *A Man Is Ten Feet Tall*, most original play; Sidney Poitier, best performance by

an actor (*A Man Is Ten Feet Tall*); José Ferrer, best performance in a classical role (*Cyrano de Bergerac*); Ed Begley, best performance by an actor in a supporting role (*Patterns*); Julie Harris, best performance by an actress (*Wind from the South*); Mildred Dunnock, best performance by an actress in a supporting role (*A Child Is Born*); *Focus on Delinquency*, outstanding local public service; Station WBZ-TV, Boston, Mass., best local news coverage; *Your Future Unlimited*, best local educational series; *Children's Corner*, best local children's show; James C. Hagerly, cited for opening presidential press conferences to television; Sylvester L. Weaver, Jr., cited for "the greatest contributions to creative television techniques"; the broadcasting industry, cited for its coverage of the 1955 Northeastern floods.

SCIENCE

Albert Lasker Award (\$1,000) of the American Heart Association for 1955: Dr. Carl J. Wiggers, Bunts Educational Institute, Cleveland, Ohio.

Albert Lasker awards in medical research and public health administration: Dr. Karl Paul Link, University of Wisconsin; Dr. Robert D. Defries, University of Toronto; Dr. C. Walton Lillehei and others, University of Minnesota; Menninger Foundation and Clinic; Nursing Services of the U.S. Public Health Service; Drs. Walsh McDermott and Carl Muschenheim of New York Hospital-Cornell University Medical Center and other tuberculosis researchers.

American Cancer Society National Award: Dr. Cornelius P. Rhoads, Sloan-Kettering Institute for Cancer Research.

American Chemical Society Award (\$1,000) for nuclear applications in chemistry: Dr. Willard F. Libby, University of Chicago.

American Chemical Society Award (\$1,000) in pure chemistry: Dr. Paul M. Doty, Harvard University.

American Institute of Chemists Gold Medal for service to chemistry: Raymond Stevens of Arthur D. Little, Inc.

American Meteorological Society awards for 1955: Jerome Niamas, U.S. Weather Bureau; Dr. Charles F. Brooks, Blue Hill Observatory; Science Service, Inc.

American Society of Mechanical Engineers Medal: Granville M. Read, E. I. du Pont de Nemours & Co., Inc.

Arthur L. Day Medal of the Geological Society of America: Dr. Earl Ingerson, U.S. Geological Survey.

Benjamin G. Lamme Medal of the American Institute of Electrical Engineers for 1954: A. M. de Bellis, Consolidated Edison Company.

Borden Award (gold medal and \$1,000) of the Association of American Medical Colleges: Dr. Charles Huggins, University of Chicago.

Borden Award (\$1,000) in milk chemistry: Dr. Samuel R. Hoover, U.S. Department of Agriculture.

Collier Trophy "for the greatest achievement in aviation in 1954": Richard T. Whitcomb, National Advisory Committee for Aeronautics.

Daniel Guggenheim Medal of the American Society of Mechanical Engineers: Dr. Theodore von Kármán.

Dr. C. C. Criss Award (gold medal and \$10,000) for 1955: Dr. Jonas E. Salk (q.v.).

Egleston Medal of Columbia University for "distinguished engineering achievement": Rear Admiral Hyman G. Rickover.

Eli Lilly and Company Award (gold medal and \$1,000) in biological chemistry: Dr. Robert A. Alberty, University of Wisconsin.

Fisher Award (\$1,000) in analytical chemistry: Dr. Harvey C. Diehl, Iowa State College.

Francis P. Garvan Medal of the American Chemical Society: Dr. Allene Jeanes, U.S. Department of Agriculture.

Frank H. Lahey Award "for outstanding leadership in medical education": Herbert Hoover.

Fritzsch Award (gold medal and \$1,000) for work in essential oils: Dr. Herman Pines, Northwestern University.

Grosvenor Medal of the National Geographic Society: Dr. John Oliver La Gorce.

Holley Medal of the American Society of Mechanical Engineers: Dr. George J. Hood.

Hoover Gold Medal for distinguished public service by an engineer for 1955: Charles F. Kettering.

Institute of Radio Engineers Medal of Honor for 1956: John V. L. Hogan, Hogan Laboratories, Inc.

James Watt International Medal of the Institution of Mechanical Engineers: Igor Sikorsky.

John Scott Award (medal and \$1,000): Dr. Walter H. Brattain, Bell Telephone Laboratories, Inc.; Dr. John Bardeen, University of Illinois.

Kalinga Prize (£1,000) of the U.N. Educational, Scientific and Cultural Organization: Dr. Augusto Pi-Suñer, Central University of Venezuela.

Kendall Company Award (\$1,000) in colloid chemistry: Dr. Victor K. La Mer, Columbia University.

Langley Gold Medal of the Smithsonian Institution for research in aerodynamics: Dr. Jerome C. Hunsaker, Massachusetts Institute of Technology.

Max Planck Medal for distinguished service to world

science: Professor Hans A. Bethe, Cornell University.
Octave Chanute Award of the Institute of the Aeronautical Sciences: Maj. Gen. Albert Boyd, Wright Air Development Center, U.S. Air Force.

Passano Foundation Award (\$5,000) for distinguished medical research: Dr. Vincent du Vigneaud (q.v.).

Paul-Lewis Laboratories Award (\$1,000) in enzyme chemistry: Dr. Merton F. Utter, Western Reserve University.

Penrose Medal of the Geological Society of America: The late Dr. Maurice Gignoux, University of Grenoble.

Precision Scientific Company Award (\$1,000) in petroleum chemistry: Milburn J. O'Neal, Shell Oil Company.

Priestley Medal of the American Chemical Society: Dr. Charles Allen Thomas, Monsanto Chemical Company.

Research Corporation Scientific Award (\$2,500) for 1954: Dr. Willis E. Lamb, Jr. (q.v.).

Rittenhouse Medal of the Franklin Institute: Sir Harold Spencer Jones, astronomer royal.

Robert M. Losey Award of the Institute of the Aeronautical Sciences: Herman B. Wobus, U.S. Navy Fleet Weather Central, Norfolk, Va.

Royal Geographical Society Patron's Medal: Dr. John K. Wright, American Geographical Society.

Rumford Award of the American Academy of Arts and Sciences: Professor James Franck, University of Chicago.

Scientific Apparatus Makers' Award (\$1,000) in chemical education: Dr. Otto M. Smith, Oklahoma Agricultural and Mechanical College.

Sedgwick Memorial Medal of the American Public Health Association: The late Dr. Albert J. Chesley, Minnesota State Board of Health.

Thomas A. Edison Medal of the American Institute of Electrical Engineers: Dr. Oliver E. Buckley, Bell Telephone Laboratories, Inc., medal for 1954; Leonid A. Umansky, General Electric Company, medal for 1955.

Thurman H. Bane Award of the Institute of the Aeronautical Sciences: Dr. Gottfried Guderley, Wright Air Development Center, U.S. Air Force.

Trudeau Medal of the National Tuberculosis Association: Dr. William H. Feldman, Mayo Foundation.

Willard Gibbs Medal of the American Chemical Society for 1956: Dr. Vincent du Vigneaud (q.v.).

Wright Brothers Medal of the Society of Automotive Engineers for 1954: John Tyler and E. C. Perry, Jr., Pratt & Whitney Aircraft.

THEATER AND MOTION PICTURES

Academy of Motion Picture Arts and Sciences awards for 1954: Best picture of 1954—*On the Waterfront*; best film actress—Grace Kelly (q.v.), for performance in *The Country Girl*; best film actor—Marlon Brando (q.v.), for performance in *On the Waterfront*; best director—Elia Kazan, for *On the Waterfront*; best supporting actress—Eva Marie Saint, in *On the Waterfront*; best supporting actor—Edmond O'Brien, in *The Barefoot Contessa*; best foreign-language film—*Gate of Hell* (Japanese); best feature-length documentary film—*The Vanishing Prairie*; best short documentary film—*Thursday's Children*; best story and screenplay—Budd Schulberg, for *On the Waterfront*; best screenplay—George Seaton, for *The Country Girl*; best film story—Philip Yordan, for *Broken Lance*; best music score for drama or comedy—Dimitri Tiomkin, for *The High and the Mighty*; best scoring of a musical film, Saul Chaplin and Adolph Deutsch, for *Seven Brides for Seven Brothers*; best original song—*Three Coins in the Fountain* (Jule Styne and Sammy Cahn); best cinematography (black and white)—Boris Kaufman, for *On the Waterfront*; best cinematography (color)—Milton Crasner, for *Three Coins in the Fountain*; best set decoration (black and white)—Richard Day, for *On the Waterfront*; best set decoration (color)—Emile Curi, for *Twenty Thousand Leagues Under the Sea*; best art direction (black and white)—Richard Day, for *On the Waterfront*; best art direction (color)—John Meehan, for *Twenty Thousand Leagues Under the Sea*; best special effects—*Twenty Thousand Leagues Under the Sea*; best costume design (black and white)—Edith Head, for *Sabrina*; best costume design (color)—Sanzo Wada, for *Gate of Hell*; best film editing—Gene Milford, for *On the Waterfront*; best sound recording—*The Glenn Miller Story*; best cartoon short subject—*When Magoo Flew*; best one-reel short subject—*This Mechanical Age*; best two-reel short subject—*A Time Out of War*; special awards—Greta Garbo; Paramount Pictures Corporation, for its development of VistaVision; Danny Kaye, for *Assignment Children*, made for the U.N. Children's Fund.

Antoinette Perry awards: *The Desperate Hours*, play by Joseph Hayes; *The Pajama Game*, musical by George Abbott and Richard Bissell, with lyrics and music by Richard Adler and Jerry Ross; Nancy Kelly, for performance in *The Bad Seed*; Alfred Lunt, for performance in *Quadrille*; Mary Martin and Cyril Ritchard, for performances in *Peter Pan*; Walter Slezak, for performance in *Fanny*; Patricia Jessel and Francis L. Sullivan, for per-

formances in *Witness for the Prosecution*; Carol Haney, for performance in *The Pajama Game*; Robert Montgomery, for direction of *The Desperate Hours*; Cecil Beaton, for costumes of *Quadrille*; Thomas Schippers, for conducting orchestra of *The Saint of Bleecker Street*; Oliver Messel, for sets of *House of Flowers*; Robert Fosse, for choreography of *The Pajama Game*; Richard Rodda, with *Peter Pan*, for work as stage technician; Proscenium Productions, for consistently good work by an off-Broadway group.

Barter Theater Award: Mary Martin, for performance in *Peter Pan*.

British Film Academy awards for 1954: Best film—*The Wages of Fear* (French); best British film—*Hobson's Choice*; best British actress—Yvonne Mitchell, for performance in *The Divided Heart*; best British actor—Kenneth More, for performance in *Doctor in the House*; best non-British actress—Cornell Borchers, for performance in *The Divided Heart*; best non-British actor—Marlon Brando (q.v.), for performance in *On the Waterfront*; most promising newcomer—David Kossoff, for performance in *The Young Lovers*; best documentary film—*The Great Adventure* (Swedish); United Nations Award—*The Divided Heart*.

Cannes International Film Festival prizes: Golden Palm—*Marty*; best dramatic film—*East of Eden*; best actor—Spencer Tracy, for performance in *Bad Day at Black Rock*; best actress—Haya Harari, for performance in *Hill 24 Doesn't Answer*; best documentary—*The Isle of Fire* (Italian); best reporting—*La grande pêche* (French); best cartoon—*Blinkety Blank* (Canadian); international prizes—*Romeo and Juliet* (Russian) and *The Great Family* (Russian); International Critics Association Award—*Raíces* (Mexican); best director—Jules Dassin, for *Du ruff chez les hommes* (French), and Serge Vassiliev, for *The Heroes of Chippka* (Russian-Bulgarian); special awards—*Lost Continent* (Italian) and *The Golden Antelope* (Russian).

Clarence Derwent awards (\$500) for best non-featured performances by an actress and an actor for 1954-55: Vivian Nathan, for performance in *Anastasia*; Fritz Weaver, for performance in *The White Devil*.

David O. Selznick Golden Laurel film award for 1955: *Ugetsu* (Japanese).

Donaldson awards for 1954-55: Best play—*Cat on a Hot Tin Roof*; best musical—*The Pajama Game*; best acting in a play—Kim Stanley, for performance in *Bus Stop*, and Paul Muni, for performance in *Inherit the Wind*; best acting in a musical—Mary Martin and Cyril Ritchard, for performances in *Peter Pan*.

Milestone Award of the Screen Producers Guild: Cecil B. de Mille.

New York Drama Critics Circle awards: *Cat on a Hot Tin Roof*, best American play of the 1954-55 season; *Witness for the Prosecution*, best foreign play; *The Saint of Bleecker Street*, best musical.

New York Film Critics awards: Best picture—*Marty*; best actress—Anna Magnani, for performance in *The Rose Tattoo*; best actor—Ernest Borgnine, for performance in *Marty*; best director—David Lean, for *Summertime*; best foreign-language film—*Diabolique* (French) and *Umberto D.* (Italian).

Screen Directors Guild of America citation for 1954: Elia Kazan, for *On the Waterfront*.

Venice International Film Festival awards: Golden Lion of St. Mark—*Ordet* (Danish); Silver lions of St. Mark—*Le amiche* (Italian); *The Cricket* (Russian); *Ciske de rat* (Dutch); best actor—Kenneth More, for performance in *The Deep Blue Sea*, and Kurt Jürgens, for performance in *Des Teufels General*; best actress—no award made.

Writers Guild of America awards for 1954: Laurel Award for Achievement—Robert Riskin; best drama—Budd Schulberg, for *On the Waterfront*; best comedy—Billy Wilder, Ernest Lehman, and Samuel Taylor, for *Sabrina*; best musical—Albert Hackett, Frances Goodrich, and Dorothy Kingsley, for *Seven Brides for Seven Brothers*.

MISCELLANEOUS

Florina Lasker Social Work Award (\$1,000): Jane M. Hoey.

Franklin medals of the Franklin Institute: Sir Winston Churchill; Mrs. Franklin D. Roosevelt.

Freedom Award of Freedom House: Sir Winston Churchill.

Freedoms Foundation awards for 1954: Freedom Leadership Medal—Columbia University, for its bicentennial program; special awards (\$1,000)—Rev. Billy Graham; faculty of St. John's University; first-place awards (\$1,000)—Kiwanis International, Hawaii Residents' Association, and All-American Conference to Combat Communism, general awards; Clarence G. Allen of the Tulsa (Okla.) *Tribune*, cartoon award; Eldorado (Ill.) Community Study and Development Group, community program award; J. Oliver Emmerich of the McComb (Miss.) *Enterprise-Journal*, editorial award; Esther Sharp Sanderson, Huntsville, Tenn., essay award; Corp. James R. Odermatt, Fort Ord, Calif., award for a letter from a member of the armed forces; Vincent Godfrey Burns, Annapolis, Md., public address award;

PRODUCTION — PROFITS AND DIVIDENDS

Dr. Lowell R. Ditzen, Bronxville, N.Y., sermon award; University of Southern California, college campus program award.

Grolier Society Award (\$500) for an unusual contribution by a librarian to the stimulation and guidance of reading by children and young people: Mrs. Charlesmae Rollins, Hall Branch, Chicago Public Library.

Harmon International Aviation awards for 1955: Aviator—Lieut. Col. James F. Coleman, U.S. Marine Corps; aeronaut—Capt. Marion H. Eppes, U.S. Navy.

Horatio Alger awards: Roger W. Babson; Hugh Roy Cullen; Percy J. Ebbott; William E. Lewis; James W. McAfee; Frank B. Rackley; Arthur Rubloff; James C. Self; Carl J. Sharp; Donald S. Smith.

Howard W. Blakeslee awards (\$500) of the American Heart Association: Jane Stafford, for coverage of cardiovascular developments supplied to newspapers and magazines through *Science Service*; Frances Burns, for a series of 13 articles in the Boston *Daily Globe* on heart research and advances in treatment and prevention of heart circulatory diseases; William Peters, for his article "New Heart for Pamela" in *Cosmopolitan*; Columbia Broadcasting System for the television program *Gate 27 (The Search)*.

Joseph W. Lippincott Award (\$500) of the American Library Association: Emerson Greenaway, director, Free Library of Philadelphia.

Lactare Medal of the University of Notre Dame: George Meany (q.v.).

Nansen Medal for "services to the humanitarian cause of refugees": Mrs. Franklin D. Roosevelt, medal for 1954; Queen Juliana, medal for 1955.

National Conference of Christians and Jews Gold Brotherhood Award: Benjamin F. Fairless, chairman of the board, United States Steel Corporation.

Pan American Institute Distinguished Service Medal for 1955: Dr. Joaquim de Siqueira Coutinho, Georgetown University.

Stephen Wise awards (\$1,000) for 1954: Elmer Davis; Louis Lipsky; Professor Franz Boehm; Yale University.

Theodore Roosevelt medals for distinguished service: Thomas E. Dewey; Dr. Arthur H. Compton.

Williamsburg Award (\$10,000) of Colonial Williamsburg: Sir Winston Churchill.

Wright Brothers Memorial Trophy for 1955: Dr. Hugh L. Dryden, director, National Advisory Committee for Aeronautics.

B. E. E.

PRODUCTION, Industrial. See **INDUSTRIAL PRODUCTION.**

PROFITS AND DIVIDENDS, Corporate. Profits.—

Before-tax net income of corporations organized for profit in the United States was at a seasonally adjusted annual rate of \$42 billion in the first half of 1955. This was \$8.5 billion, or over 25%, higher than the total for 1954.*

The highest such rate recorded for any previous half-year had been \$48 billion for the latter part of 1950. That all-time peak figure, however, had included over \$8 billion realized because of price advances occurring while inventory goods were being processed or held for use or sale.

Profits earned in current production, exclusive of such inventory gains, in the first half of 1955 were at an annual rate just under \$41 billion. The best previous half-yearly rate on this basis had been about \$40 billion, reached in 1951 and again in the early part of 1953. From its peak in the latter year, the seasonally adjusted annual rate fell to \$34 billion in the second half of 1953 and to \$33 billion in the first half of 1954. It turned upward in the autumn of 1954 with an advance which continued into 1955.

The recent two-year swing in profits accompanied an extensive market readjustment, involving a temporary shift from accumulation to net liquidation of inventories by business, a cutback in national security purchases by the federal government, and some hesitation in the flow of business and consumer funds into the markets for durable manufactures in particular. This read-

* Annual rates, used to facilitate comparisons of part-year with full-year results, represent seasonally adjusted quarterly or semiannual totals multiplied by 4 or by 2 as required to put them on a full-year equivalent basis.

TABLE 1—DISPOSITION OF CORPORATE PROFITS, HALF-YEARLY, 1953–55

(Billions of dollars, seasonally adjusted at annual rates)

	1953		1954		1955
	1st half	2d half	1st half	2d half	1st half
Profits and inventory valuation adjustment.....	40.3	34.1	33.3	34.3	40.9
Profits before tax.....	41.4	35.2	33.2	34.8	41.9
Profits tax liability.....	23.0	19.6	16.6	17.4	21.0
Profits after tax.....	18.4	15.6	16.6	17.3	20.9
Inventory valuation adjustment.....	-1.1	-1.1	...*	-0.5	-1.0

* Under 0.05. (Source: U.S. Department of Commerce, Office of Business Economics.)

justment is discussed in more detail under **INCOME—Gross National Product.**) Like most such shifts, its impact on corporate business was more apparent in the characteristically volatile profits share of total income than in the share represented by compensation of employees.

A considerable part of the 1953–54 decline in before-tax profits was absorbed by the portion of this total going for taxes on income. The combined effective rate of federal, state, and local taxes on corporation profits is approximately 50%. Because of this fact, and the termination of the federal excess profits tax at the end of 1953, the drop of \$8 billion in before-tax profits from early 1953 to early 1954 was accompanied by a cut of less than \$2 billion in profits after taxes. With the overall tax rate indicated to have been approximately stable since the beginning of 1954, after-tax profits have fluctuated proportionately with profits before taxes, rising from \$17 billion in 1954 to a seasonally adjusted annual rate of \$21 billion in the first half of 1955. This 1955 figure is the highest for any half-year since late 1950, when a level of \$26.5 billion was recorded with the combination of the record high book profits and an effective tax rate significantly lower than those of later years.

TABLE 2—U.S. CORPORATE PROFITS BEFORE TAX, BY MAJOR INDUSTRIES, HALF-YEARLY, 1953–55

(Billions of dollars, unadjusted for seasonal variation)

	1953		1954		1955
	1st half	2d half	1st half	2d half	1st half
All industries, total.....	20.0	18.3	16.0	18.1	20.6
Mining.....	.6	.7	.6	.6	.8
Manufacturing.....	12.0	9.4	9.0	8.8	12.0
Durable-goods industries..	7.4	5.3	5.2	4.8	7.3
Nondurable-goods industries.....	4.6	4.1	3.9	4.0	4.7
Transportation.....	.9	.7	.4	.6	.6
Communications and public utilities.....	1.7	1.6	1.8	1.8	2.0
All other industries.....	4.7	5.8	4.0	6.3	5.1

(Source: U.S. Department of Commerce, Office of Business Economics.)

Recent shifts in the industrial pattern of profits before taxes are reflected in Table 2. These data are half-yearly dollar totals, unadjusted for seasonal variation. The all-industry aggregate is shown to have ranged from \$20 billion in the first half of 1953 down to \$16 billion in early 1954 and up to \$20.5 billion in the first half of 1955.

The fluctuations centered largely in manufacturing—which has generally accounted for somewhat more than half of all corporate profits—and in such economically related lines as transportation and the large wholesale and retail trade components of "All other industries." Within

manufacturing, the metals groups and other durable-goods industries collectively have shown sharper swings in profits than have the nondurables. The 1954-55 recovery was sparked by a sharp improvement in the auto industry, in particular, and seems to have spread progressively to other lines of durables manufacturing and to basic nondurables-manufacturing groups, and at the same time to mining, transportation, and other related industries.

Dividends.—Net dividend payments by corporations in the United States moved up from quarter to quarter, on a seasonally adjusted basis, during the first nine months of 1954. The annual rate of \$10.5 billion recorded for the first half of 1955 compares with the previous high of \$10 billion reached in 1954.

The dividend total has generally fluctuated much less from year to year than have total after-tax profits. It held level or expanded during the dips in profits recorded for 1944-45, 1949, 1952, and 1954. The same tendency to relative stability of disbursements has been apparent for years of rapidly rising profits, when expansion of dividends has usually not kept pace. Thus the advance of one fourth in seasonally adjusted profits after taxes from the first half of 1954 to the same period of 1955 was accompanied by an increase of only about one twelfth in dividends.

The rise in payments from 1954 to 1955 was widespread among the various industry groups. Publicly reported cash dividends for the first three quarters of 1955 were up from the January-September period of 1954 in all eight of the nonmanufacturing groups distinguished in the Commerce Department's tabulation, and in nearly all of the twelve manufacturing groups, with above-average gains reported for mining and finance and for metals, transportation equipment, chemicals, and electrical machinery manufacturing.

HARLOW D. OSBORNE,

National Income Division, Office of Business Economics, U.S. Department of Commerce.

PROPAGANDA. See Index entry.

PROTESTANT EPISCOPAL CHURCH. The Episcopal Church moved forward with power in 1955 as witnessed by its concern for such vital contemporary questions as segregation, the changing urban-industrial scene, Southeast Asia, radio-TV as modern evangelistic media, relief for stricken peoples in all parts of the world, and the relation of man and his work to religion.

Many of these subjects emerged in the General Convention, held Sept. 4-15, 1955, in Honolulu, Hawaii. This triennial assembly, modeled on the Congress of the United States, is the supreme legislative body of the church. The 1955 meeting also established some interesting firsts. For the first time since the first meeting in Philadelphia in 1785, the convention met outside of continental United States and in an overseas missionary district. For the first time, too, it met on a church property, the campus of Iolani School. The convention at its opening service received the Builders for Christ offering, the result of an effort inaugurated by the 1952 convention to raise \$4,150,000 to provide an enlarged physical plant for the church's work in strategic areas both in the United States and overseas. During the convention the women of the church presented a record \$3,149,197.83 as their triennial United Thank Offering.

The convention reflected the spirit of the church itself and the setting in which it was

meeting by adopting the largest budget ever approved for the church's national and international work. Among the increases included in this record annual budget of \$6,807,947.84 is an annual appropriation of \$100,000 to enable the church to begin to use radio-TV more effectively.

The great interest of the church in Southeast Asia was reflected in the pastoral letter issued by the House of Bishops at the close of the convention. Six months prior to the meeting of the General Convention, the Council of the Episcopal Church in Southeast Asia met in Hong Kong. This council, organized as an outgrowth of the Anglican Congress of 1954 and the Committee on Missionary Strategy of the Anglican Communion, discussed the church's responsibility to the millions of Chinese living outside Communist China; work among Mohammedan peoples of the area; and responsibility to begin missionary work in Thailand. Present at the meeting were the bishops of Hong Kong, Singapore, Borneo, Korea, and the Philippines.

The movement begun at the General Convention of 1946 to provide the Episcopal Church with an official curriculum for the Christian education of its people reached its first goal in 1955 with the publication on May 1 of the first courses in the Seabury Series. These courses are for grades 1, 4, and 7, and will be followed in 1956 and 1957 with courses for other grades in the church school.

Soon after the U.S. Supreme Court decision on segregation in the public schools, the National Council, through its Division of Christian Citizenship, issued a study of segregation entitled *Just Right and Necessary*. The church also continued its interest in and concern for stricken people throughout the world, and cooperated with Church World Service, World Council of Churches, and other agencies in relief work.

Headquarters of the National Council, which is the board of directors of the Domestic and Foreign Missionary Society, are at Church Missions House, 281 Fourth Avenue, New York 10, N.Y. The official publication is *Forth*, William E. Leidt, Publisher. The president of the National Council is the presiding bishop, the Rt. Rev. Henry Knox Sherrill.

WILLIAM E. LEIDT,

Director of Publications, National Council, Protestant Episcopal Church.

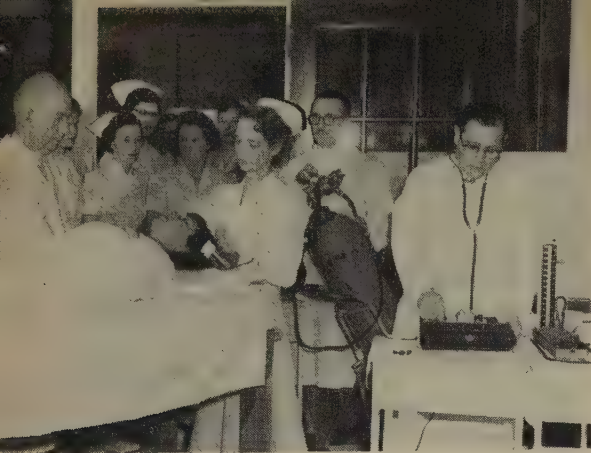
PROTESTANTISM. See RELIGION.

PRUNES. See FRUITS.

PSYCHIATRY. Psychiatry's major advances in 1955 were in electronic and drug therapies. Psychotherapy continued to hold the center of the stage in clinic and office treatment, but research focused largely on organic changes in mental disorders.

Drugs.—The year 1955 marked the 20th anniversary of the use of insulin in psychiatry. Generally, insulin has stood up remarkably well. Surveys of two decades show that insulin remission rates have stabilized at about 65 per cent. While relapses are frequent, most relapsing patients respond to second courses. Reserpine and chlorpromazine, catapulted into prominence in 1954, continue to be widely used. Though not without undesirable side effects, they have been effective in tranquilizing the disturbed patient. (See CHEMOTHERAPY.) With paranoid and depressed patients, however, results have been less spectacular.

From Europe come encouraging reports of placental tissue implants in depressed patients.



WIDE WORLD

A nurse demonstrates the use of electronic therapy at Essex County Hospital, Cedar Grove, N.J. Dr. Henry Davidson (at right), author of the accompanying article, *Psychiatry*, prepares to administer a low voltage "shock."

Since fructose is more easily metabolized than is its sister-sugar, glucose, it is now being used to supply nutritional needs in seniles and in alcoholics. Current interest is reported in sex steroids and synthetic hormones, but psychiatric journals warn against overuse of such potent medications. A new drug, pipradol, has now been added to the family of stimulants useful in treating depressed patients. Pharmacologists in 1955 also turned their attention to carbonic anhydrase inhibitors for the control of seizures.

Electronic Therapies.—Electronic therapies continue to head the list of treatment technics in mental hospitals. Their value seems now to be accepted by nearly all psychiatrists, and current studies concern modifications to make these therapies safer or more effective. Reports reveal success in combining electronic therapy with photic or pharmacologic stimulants, in immediate repetition of the "shock," in prolonging the period of current passage, in the use of relaxants and antispasmodics to soften the muscle reaction, in pretreatment anesthesia, in varying the electrode positions, and in the use of unidirectional currents.

Somatic Nonshock Therapies.—In 1955 there was a rising tide of interest in somatic nonshock therapies. Promising results have been reported in using ether drip, carbon dioxide, focal stimulation, histamine, nitrous oxide, subshock insulin, and photic stimulation. It is generally agreed, however, that none of these can replace deeper shock, coma, or convulsive therapies.

Psychosurgery.—Earlier fears of psychosurgery now appear to be groundless. At one time it was expected that the lobotomized patient might become a living vegetable. Technical refinements and more precise testing methods now show no significant deterioration after properly accomplished lobotomy. Encouraging reports have also been submitted on ultrasonic vibrations to destroy deep white matter without surgical removal.

Experimental Psychiatry.—An upsurge of interest in experimental psychiatry was a milestone of 1955. It was shown that certain drugs could produce psychotic symptoms. It has been argued that if drugs (or other reproducible external stimuli) can cause psychoses, perhaps antidotes to these drugs (or forces to neutralize the stimuli) can heal the psychoses. Reproduction of psychoses by drugs suggests that more attention might fruitfully be paid to biochemical causes of

mental disorders. This has also led to a renaissance of interest in vitamin therapy. The ability to reproduce at will a model of a schizophrenic psychosis has greatly expanded the frontiers of psychiatric research.

Family Care.—With the overcrowding of public mental hospitals has come expanding interest in placing appropriate patients in homes other than their own. Foster home and family care programs have grown. Throughout 1955 there was an average of about 8,000 psychotic patients in foster homes. In most places it costs the state less to pay for such placements than to maintain the patient in an institution. These programs also encourage recovery, free scarce hospital beds, and offer a bridge between the hospital and the outside world.

Administrative Psychiatry.—The growing status of administration as a medical subspecialty within psychiatry was signaled in 1955 by the general acceptance of the certification of mental hospital administrators through examination under auspices of the American Psychiatric Association. Also rapidly advancing in 1955 was the new subspecialty of industrial psychiatry. With a grant from the Carnegie Corporation, Cornell University in 1955 developed a training program in industrial psychiatry. And, for the first time, the number of psychiatrists in private practice exceeded the number of salaried psychiatrists. The American Psychiatric Association, in a pioneer move to study the economic facets of private practice psychiatry, appointed a committee on the subject.

Reporting at the association's 1955 convention, this committee highlighted difficulties in the general hospital placement of neurotic or mildly psychotic patients under existing Blue Cross medical insurance contracts. It was reported that most such insurance plans failed to cover—or discriminated against—emotional disorders. Development of better insurance coverage for psychiatric illness is announced as one of the profession's goals for 1956.

The greatest overall challenge to American psychiatry continued to be the senile patient. The trend toward smaller homes, the lessening stigma of the mental hospital, and the increasing longevity of the population, all conspire to push higher and higher the hospital admission rate for senior citizens. (See also NERVOUS SYSTEM.)

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PSYCHICAL RESEARCH. See PARAPSYCHOLOGY.

PSYCHOLOGY. The American Psychological Association.—The 1955 annual meetings of the APA were held in San Francisco, September 1–7. In spite of the distant location relative to the Eastern concentration of population, attendance was in every way comparable to other meetings of the association during the last several years. There was the usual rich fare of formal research and theoretical papers, symposia, business sessions, and informal discussions. The complete program of these meetings is published in the *American Psychologist* for August 1955, which also contains short synopses of all formal papers that were presented.

Publications.—The main outlets for psychological publication, besides books and monographs, comprise an impressive list of somewhat over 100 journals devoted to various aspects of the subject. To help readers keep abreast of this volume of output, modern devices have been developed for

the cooperative systematization and classification of the work. This is accomplished by the *Psychological Abstracts*, which lists and summarizes all books and articles of psychological interest as soon as feasible after their appearance in print, and in the *Annual Review of Psychology* (Stanford, Calif.), which summarizes the achievements of the year within each of several large subareas of research. These sources, together with the programs of the APA and the several regional psychological associations, provide an efficient guide to the literature of any given year and make possible the following summary for 1955.

Some 10,000 books, monographs, and research articles were published during 1955 through regular channels of publication, and no fewer than 1,500 additional papers were presented in the various psychological meetings, including that of the APA. Using the *Abstracts* as a basis of estimation, 35% of the published output falls within the area of behavior pathology and its amelioration; 25% falls within the area of experimental psychology, including the general fields of learning, sensory-perceptual processes, response processes, thinking and problem solving, comparative psychology, and physiological psychology; 15% falls within the applied areas of educational, industrial, military, and personnel psychology; 10% falls in the field of social psychology; and 5% falls within the area of developmental psychology. The remaining 10% of the work consists of general publications and articles dealing with the affairs and problems of psychologists and psychological associations.

Experimental Psychology.—The scope of experimental psychology may best be discerned from such a compendium as Robert S. Woodworth's and Harold Schlossberg's *Experimental Psychology* (New York 1954). It comprises the more rigorous and exacting scientific efforts of psychologists in such fields as sensation, perception, learning, thinking, comparative psychology, and psychophysiology.

Learning.—The field of learning continues to stand in the forefront of experimental and theoretical interest and productivity, and the year's output revealed a steady and continued attack on the problems of learning. As one author (Kenneth MacCorquodale in the *Annual Review of Psychology*, 1955) said, after having read over 200 articles in preparation for his review of the year's output on learning, learning has been studied in almost every type of organism from earthworms to college sophomores. He might well have added that ingenious model-makers, intent on reducing organismic phenomena to the simplicities and regularities of mechanics, have even built machines that exhibit what these ambitious men have fondly called "learning"!

Though learning is a subject that has universally meaningful and practical implications that build up expectations of immediate applicability, the experimental and theoretical literature concerning it is highly technical and difficult to translate into a more widely understood vernacular. The learning psychologist seeks to understand the conditions and processes through which modifications occur in the behavior of man and animals as a result of the behavior itself rather than of other agencies. Among the problems this involves are the conditions of drive or motivation that instigate learning, the stimuli and other situational variables that enter into the learning process as conditioning factors, the nature and types of responses that are made and that are

modified, the rate of acquisition, the permanency of learning, and the conditions that result in its extinction. Other problems concern the interrelations and interactions among learned systems, and most of all, perhaps, the building of a comprehensive theory within which all the significant factors are accounted for and systematically related.

Sensation and Perception.—Sensory psychology, formerly the province of the "experience" psychologist and introspectionist, has come strongly under the wing of behavior, and tends to appear on the input side of studies in learning, motivation, personality, and the like. However, there continue to be those who study visual, auditory, and other modal sensory phenomena in their own right and for the insights they provide. The determination of thresholds, both absolute and relative, time-honored in the psychological laboratory, is still a fruitful enterprise, and so is the phenomenology of sensory-perceptual events. With the development of electronics and its application especially to photic and acoustic phenomena, and with the increasing improvement of engineering devices requiring matching to the sensory-perceptual and motor capacities of the human user, new problems of practical as well as theoretical import are constantly arising. In the service of the sensorily handicapped such sensory-perceptual measurements as audiometry provide an important adjunct to the weapons for healing used by the practitioner and diagnostician.

An important publication in the field of hearing is Ernest G. Wever's and Merle Lawrence's *Physiological Acoustics* (Princeton 1954). This book presents many experiments dealing with various parts of the hearing mechanism as they operate in sound transmission. These authors also incorporate a chapter in which they evaluate modern auditory theory.

In other areas of sensory psychology the pace is much slower. Some work is being done in somesthetic responses, particularly pain and thermal sensitivity; and in the chemical senses of smell and taste. The difficulty of isolating and identifying basic response dimensions, as well as the imbeddedness of the receptor mechanisms, constitutes a considerable handicap in the investigation of these phenomena.

Thinking.—An important area of experimental psychology which is showing new life is that of thought, judgment, imagination, and the higher psychological processes in general. Several books in this area have recently been published, including Donald M. Johnson's *The Psychology of Thought and Judgment* (New York 1955). This book comprehensively treats the important problems and theories dealing with the human activities of thinking, imagining, inventing, judging, and problem solving, and reviews the pertinent experiments in these areas. In their review of the subject in the *Annual Review*, Taylor and McNemar state that of 125 doctoral dissertations written on relevant problems since 1949, 35 have appeared during the past year. These reviewers stress the problem areas of concept formation; set, rigidity, and functional fixedness; individual problem solving; and group problem solving.

Applied Psychology.—The largest area of applied psychology is concerned with the amelioration of behavior pathology (see *PSYCHIATRY* and the Index entry, *Mental Health*). In the field of industrial psychology, research is being done on job satisfaction and morale, problems of leadership training, job analysis and evaluation, equip-

ment design, and the establishment of criteria for assessment. Educational psychology is concerned with problems of school learning, social behavior in children, child development, measurement of educational outcome, teacher activity, and the treatment of exceptional children. More and more studies are appearing in the field of gerontology, and the area of psychological counseling is producing its share of research and theoretical contributions. (See also PARAPSYCHOLOGY.)

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PUBLIC ASSISTANCE. See CHILD WELFARE; SOCIAL WELFARE.

PUBLIC BUILDINGS SERVICE. See GENERAL SERVICES ADMINISTRATION.

PUBLIC DEBT. See DEBT, PUBLIC AND PRIVATE; TREASURY OF THE U.S.

PUBLIC HEALTH. The year 1955 saw many developments in the field of public health which offered promise of vast improvements in the health status of the United States.

On April 12, 1955, the Poliomyelitis Vaccine Evaluation Center of the University of Michigan reported that the 1954 field trials of the Salk vaccine showed that it was safe and effective in reducing the risk of paralytic poliomyelitis. On the recommendation of the U.S. Public Health Service, the secretary of health, education, and welfare licensed the vaccine. The National Foundation for Infantile Paralysis provided the states with enough vaccine for two of the three recommended inoculations for all first- and second-grade children whose parents requested them.¹

By late fall, more than 10 million children and pregnant women had received at least one injection of the vaccine. Preliminary reports on the effectiveness of the vaccine indicated that the attack rate of paralytic poliomyelitis was two to five times greater among unvaccinated than among vaccinated children. (See also POLIOMYELITIS.)

Early in 1955 a program was started to combat another scourge of childhood, rheumatic fever. The Public Health Service and the American Heart Association are cooperating in a program to help communities establish rheumatic fever prevention programs in which emphasis is placed on eradication of streptococcal infections from the throat by full doses of penicillin.

On July 14, President Eisenhower signed the Air Pollution Control Act, which authorizes the Public Health Service to provide research and technical assistance relating to this problem. An appropriation of \$500,000 was made for this program, which is the first of its kind.

During the year Congress also enacted the Mental Health Study Act, which provides \$250,000 to be allocated by the surgeon general to nongovernmental agencies for research into all aspects of mental illness.

The Nation's Health.—The general death rate in the United States in 1954 was 9.2 per 1,000 population. This was the seventh consecutive year that the death rate had been below 10 per 1,000. The infant death rate was 26.6 per 1,000 live births, and the maternal death rate was 5.3 per 10,000. Both infant and maternal death rates

continued the downward trend. The tuberculosis death rate dropped from 12.6 per 100,000 population in 1953 to 10.5 in 1954. The principal diseases of childhood, scarlet fever and streptococcal sore throat, diphtheria, whooping cough, and measles, which together caused about 15 deaths per 100,000 in 1944, were responsible for only about 2 per 100,000 in 1954. Major heart and blood vessel diseases accounted for 53% of all deaths in 1954, and malignant neoplasms (cancer), 16%. (See also DEATH, CAUSES OF.)

Increases were reported in the number of cases of infectious encephalitis, infectious hepatitis, measles, poliomyelitis, scarlet fever and streptococcal sore throat, whooping cough, and psittacosis. There was a marked reduction in cases of malaria.

There were an estimated 4,021,000 births and 1,476,000 marriages in 1954.

Local Health Services.—The number of local health units in the United States increased only slightly in 1955. There are 1,442 local units serving 2,323 counties and covering approximately 88% of the population.

Plans have been approved for the first nursing home and the first diagnostic or treatment centers to be built under the Hospital and Medical Facilities and Construction Act as amended in 1954.²

By Sept. 30, 1955, the total number of hospital construction projects approved under the original program was 2,571. When all are completed, 120,740 beds and 560 health centers will have been added to the nation's health resources. (See also HOSPITALS.)

Federal appropriations for grants in aid for state and local health services totaled \$21,263,000, a decrease of about 7% from the previous year. State appropriations available to state health departments amounted to \$122,689,233, or 5.5% more than 1954.

The Public Health Service.—The principal federal health agency, the Public Health Service of the Department of Health, Education, and Welfare, continued its program of research, medical care for designated groups, and technical assistance to state and local health agencies. The Commissioned Reserve Corps of the service was being expanded and reorganized in 1955 to provide a large reserve force that can be mobilized in a national emergency. The service also was given responsibility for the health and medical care of the American Indians.

Research.—Outstanding among research accomplishments during 1955 was development of an experimental vaccine for one of the adenoidal-pharyngeal-conjunctival viruses. Clinical trials of the antirheumatic drugs prednisone and prednisolone indicated that they are four times as potent as—and in some respects less hazardous than—cortisone.

The cancer chemotherapy program was accelerated and the pilot program in Memphis, Tenn., for detection of cancer of the cervix, completed its third year. New evidence that diet can influence the development of dental caries was discovered, and further investigations of fluorides in drinking water showed that they have no effect on growth or calcium metabolism in bones of young rats.

A simple color test has been devised by

¹ Late in April, cases of poliomyelitis were reported among children who had received vaccine manufactured by one of the producers. The Public Health Service requested withdrawal of this product and conducted a comprehensive investigation of the production and testing of the vaccine. This review led to revisions in the requirements for manufacture and testing of the vaccine.

² This amendment broadened the Hospital Survey and Construction Program by authorizing additional aid for the construction of chronic disease hospitals and by permitting federal assistance to states and communities in building nursing homes, diagnostic and treatment centers, and in rehabilitation facilities.

which a tumor originating in the small intestine and spreading to other abdominal organs can be detected. Heart disease research was carried out on the use of the tranquilizing drug, reserpine, in hypertension, and on the effect of injections of heparin on the fat-clearing factor in the blood. (See also HEART DISEASE.)

Medical Services.—The service continued to supply medical services to merchant seamen and other federal beneficiaries, and to assist other federal agencies in providing needed medical care. The service maintains 16 hospitals, including two for the treatment of narcotic addiction, one for tuberculosis, and one for the treatment of leprosy; 25 outpatient clinics; and 96 outpatient offices.

Services to States.—Consultative and technical assistance was given to states and communities in health education, public health nursing, disease control, and collection of vital statistics. Programs of interstate carrier sanitation and vessel inspection were continued. Comprehensive water pollution control programs for river basins in half of the nation's area have been developed.

Experimental studies proved that in guinea pigs tuberculosis can be completely prevented by giving isoniazid at the time of infection. A national study, to involve ultimately 1,000 children, was initiated to determine whether isoniazid will prevent tuberculosis, meningitis, and other complications.

Occupational health studies included a field epidemiological survey of the diatomaceous earth industry and the continuation of a long-term study of the effect of industrial noise.

In its international health activities the service staffed health programs in 42 countries and aided 771 persons from 68 countries who came to the United States for additional training in 111 fields of health study.

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PUBLIC HOUSING ADMINISTRATION. See HOUSING.

PUBLIC OPINION SURVEYS. See Index entry.

PUBLIC ROADS, Bureau of. See HIGHWAYS.

PUBLIC UTILITIES. Electric Power.—Installed capacity of electric public utility generating plants in service in the United States as of June 30, 1955, according to tentative data from the Federal Power Commission (q.v.), was 107.6 million kilowatts, or an increase of 12.9% since June

U.S. ELECTRIC POWER SALES

(In billions of kilowatt-hours)

Area	1954	1955	Per cent change 1954-55
New England.....	18.1	19.1	5.9
Middle Atlantic.....	73.9	77.7	5.1
East North Central.....	84.5	94.1	11.3
West North Central.....	25.9	28.2	9.0
South Atlantic.....	50.4	55.0	9.0
East South Central.....	46.1	63.2	37.0
West South Central.....	31.5	35.5	12.6
Mountain.....	16.5	17.9	8.3
Pacific.....	58.9	64.6	9.8
United States.....	406.1	455.6	12.2

(Source: Federal Power Commission.)

1954. Electric energy production by utilities for the 12 months ending June 30, 1955, was 503.2 billion kilowatt-hours, the highest for any 12 months to date, and 11% above the total production for the year ending June 30, 1954.

Sales of electric energy to ultimate consumers for the year ending June 30, 1955, compared

with the year ending June 30, 1954, indicate that the greatest gain for any geographical area was 37% in the East South Central division; the least gain was 5.1% in the Middle Atlantic states. The accompanying table shows the percentage gain in sales of electric power for all geographical divisions and for the entire United States. (See also ELECTRICAL DEVELOPMENTS.)

Natural Gas.—The American Gas Association Committee on Gas Supply, Transmission and Storage reported in May 1955 that the volume of natural gas in underground storage in the United States in 1954 was 1,011 billion cubic feet. This represented an increase of 125 billion over the previous year. The volume of gas in storage was reported to have risen in five years to over 2.45 times the amount in storage in 1950. The ultimate capacity of all underground storage reservoirs in the United States as of Oct. 31, 1954, was reported as 1,859 billion cubic feet. At the end of 1954 there were 6,395 wells operating 172 pools located in 17 states. Pennsylvania continued to lead all other states in underground storage operations; Ohio was second, and West Virginia ranked third. For the 12 months ending March 31, 1955, compared with the same period of 1954, the greatest gain in gas revenues was from residential customers, an increase of 12.8%; for commercial consumers the gain was 12.6%; and for industrial customers the gain was 8.8%. (See also GAS.)

In 1954 the FPC authorized the Pacific Northwest Pipe Line Corporation of Houston, Texas, to construct a natural gas pipeline from New Mexico through Colorado, Wyoming, and other oilfields along the route, to furnish natural gas to the Pacific Northwest. Competing applications to furnish Canadian natural gas in the State of Washington were denied. Later a compromise was before the FPC whereby the Pacific Northwest Pipe Line Corporation would buy a portion of the natural gas supply from the West Coast Transmission Company, Ltd. at the international boundary in western Washington.

Local Mass Transit Companies.—Those transit companies which during recent years have failed to improve their financial position by increasing rates, secured some financial advantages during 1955 by other means. Examples include a 1955 Illinois law which it is estimated will save the Chicago Transit Authority about \$1,500,000 by exempting the company from certain obligations to the state, especially from the payment of state gasoline taxes. In Wisconsin a 1955 law exempts transit companies from local license taxes and permits deductions on state returns of federal taxes and increased depreciation allowances.

As a consequence of the 52-day transit strike in the District of Columbia (q.v.), which ended in August, fares were increased to provide revenue for higher hourly wage rates, and the Capital Transit Company's franchise was to be terminated within a year.

Supreme Court Decisions.—Regional competition of natural gas pipeline companies was upheld by refusal of the U.S. Supreme Court (75 S.Ct. 598) to review a decision of the U.S. Circuit Court of Appeals of the District of Columbia. This decision permitted the American Louisiana Pipe Line Company to serve natural gas to the Michigan area as a competitor of Panhandle Eastern Pipe Line Company.

The U.S. Supreme Court in April 1955 handed down two identical *per curiam* opinions reversing the Oklahoma Supreme Court on two cases in which that court upheld natural gas

rates set by the Oklahoma Corporation Commission. The court's brief opinion (75 S. Ct. 576 and 578) was guided by its decision in the case of *Phillips Petroleum Co. v. Wisconsin* (347 U.S. 672). The opinion held that even if a regulatory gap existed because the FPC had not fully exercised its power to set rates for natural gas sold in interstate commerce after its production and gathering had ended, a state could not regulate such rates.

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PUBLISHING. See BOOK PUBLISHING AND SALES; GRAPHIC ARTS; JOURNALISM; MAGAZINE PUBLISHING.

PUERTO RICO, Commonwealth of. A commonwealth associated with the United States, the island of Puerto Rico, smallest and easternmost of the Greater Antilles, lies 1,000 miles southeast of Florida. It is approximately 100 miles long and 36 miles wide, and has an area (including several small nearby islands) of 3,435 square miles, divided into 75 municipalities.

Population.—Puerto Rico's total population in 1954 (U.S. Census Bureau est.) was 2,229,000, as against 2,210,703 in 1950. This slight increase, by far the lowest for any similar period in this century, is accounted for by the effects of emigration and a falling birth rate. Chief cities, with their populations as of 1950, are: San Juan, the capital and main port, 357,205; Ponce, 99,492; Mayagüez, 58,944; and Caguas, 33,759.

Vital Statistics.—The birth rate, which had dropped to 34.5 per thousand population in 1954, rose slightly to 35.0 in 1955. The death rate continues to fluctuate between 8 and 9 per thousand. Leading causes of death are heart diseases, cancer, and pneumonia (in the order named) for the middle-aged and elderly; and diarrhea and enteritis for children.

Emigration.—Emigration of Puerto Ricans to the United States (69,124 in 1953) fell off in 1954 to 21,531, but showed signs of rising again in 1955. The exact number of Puerto Ricans in the United States is unknown, but best estimates placed the figure at close to 600,000 in 1955. There is a growing tendency for emigrants now to go beyond New York City to industrial centers all over the country. During 1955 there were intentions of developing emigration to Costa Rica, but workers manifested little enthusiasm for the project and it was dropped.

Government.—Since 1952, all Puerto Rican officials have been elected, or named, locally. Elections are held every four years, coincidental with presidential elections in the United States. At present the governor, two thirds of the legislators, and all the mayors of the 75 cities and towns are members of the Popular Democratic Party, which has dominated the Puerto Rican political scene since 1940. There is a high degree of centralization of government services, with schools, the

police force, health programs, water and electricity, being the responsibility of the insular government. Municipal authorities confine themselves largely to housekeeping duties. Puerto Rico elects a resident commissioner to represent it in Washington; in Congress he has a voice and committee assignments, but no vote. Puerto Ricans are American citizens, with all of the rights and obligations inherent in that citizenship. Thus, they may enter the continental United States freely, settle wherever they wish, and participate in elections. They are also subject to the same terms of military service as are those born within the continental United States.

Puerto Rico's chief officials in 1955 were Luis Muñoz Marín, governor; Roberto Sánchez Vilella, secretary of state; A. Cecil Snyder, chief justice of the supreme court; Jaime Benítez, chancellor of the university; José Trias Monge, attorney general; and Antonio Fernós Isern, resident commissioner in Washington.

Finance.—Net income of the commonwealth for the fiscal year 1954-55 was \$990 million. Of this amount, \$201 million came from trade, \$168 million from agriculture, and \$148 million from manufactures. Per capita income continued to rise slowly, and in 1955 reached \$436—low in comparison with that in the United States, high in relation to that in most Latin American areas.

Total revenue for 1954-55 rose to \$161 million, including \$130 million in taxes collected locally and \$31 million in federal grants-in-aid and United States excise taxes on offshore shipments, which taxes are retained by the Puerto Rican government by authority of federal law. The public debt, including insular and municipal governments, was \$55.3 million on June 30, 1955. In addition, the public corporations, which are self-liquidating, had a debt of \$127.6 million.

Final insular budgetary expenditures for the fiscal year 1954-55 amounted to \$181.5 million. Total bank assets in June 1955 were 414 million, as against \$391 million in June 1954. Total bank deposits in June 1955 were \$330 million, and total loans, as of the same date, were \$217 million.

Education.—Total enrollment in public and private schools for 1955-56 was 547,210 (90% in the public schools); there were more than 12,000 teachers. The University of Puerto Rico in its various branches, including extramural courses, has an enrollment of 16,000. Puerto Rico continues to spend over one fourth of its income on education; and, although it had 9,312 public school classrooms in 1955, it still lacked the requisite facilities for providing schooling for all of its children and for keeping the majority of pupils in school beyond the sixth grade. The illiteracy rate remains at about 22% of the population over 10 years of age, and the campaign to reduce the number of adult illiterates has not been as effective as hoped.

Agriculture and Industry.—There was a decline in value of agricultural products in 1954-55 to \$207,830,000; for the previous year it had been \$219,960,000. Over \$10 million of this decline was in sugar production and sales. Because of drought and labor shortage in some areas, sugar production fell to 1,163,000 short tons, or 17,000 tons less than the federal marketing quota. Sugar prices also fell off somewhat. Coffee production fell sharply, as expected, to 193,000 hundred-weight; however, it is expected that there will be a crop of 309,000 hundredweight in 1955-56. Other crops, including tobacco, fruits, and vegetables, did well. A great problem in agricultural areas of the island is the migration of workers to the cities and to the United States. Between 1950 and 1955, the working force in farm sections fell from 200,000 to 164,000. It is expected that the problem will eventually be taken care of by increased mechanization.

The industrialization program of the government of Puerto Rico continues to make headway. New industries (412 between 1948 and 1955) had a combined payroll in 1955 of \$25 million. Employment has been created for 25,000 workers, and it is estimated a similar number have profited indirectly. Invested capital in new factories rose from \$115 million in 1953-54 to \$188 million in 1954-55. Production of electric power rose to 963 million kilowatt-hours in 1955 from 895 million in 1954. Much of the strength of the industrialization lies in the diversity of products, of which 263 different kinds were being manufactured in 1955. Among the new in-

Governor Muñoz Marín of Puerto Rico (right) greets Vice President and Mrs. Nixon at San Juan, Feb. 27, 1955.



WIDE WORLD

dustries established in 1955 were two oil refineries, the first in the island's history; both will begin operating by early 1956. Wages in industry are low by United States standards, averaging 56 cents per hour, with home needleworkers getting as little as 23 cents. There is universal agreement that wages must be raised, but it is feared that the intentions of some congressmen to apply the \$1 per hour federal minimum can only bring economic disaster to the island. The government of Puerto Rico continues its program of tax exemption for new industries, but emphatically does not want those that seek refuge from tax laws in those states in which the industries are already established.

Trade.—Total exports for 1954-55 were valued at \$546.8 million, largely to the United States. Principal exports were sugar, rum, and needlework. Total imports for the same year were \$642.7 million, mostly from the United States. Principal imports were foodstuffs, automobiles, machinery, shoes, and chemical products. The tourist trade increases yearly, but lack of hotels has impeded its greater development. Tourists spent an estimated \$21 million on the island in 1954.

Communications.—Travel in Puerto Rico is mainly by bus or car. The one railroad on the island is slowly giving way to competition by trucks. There are over 3,000 miles of paved roads, with a program already initiated for more. In 1953-54, over 4,300 ships, both steam and sail, touched island ports. The new international airport in San Juan was dedicated on May 20, 1955, and put into use four days later. There were 653,000 air passengers, carried by 15 airlines, in and out of Puerto Rico in 1954-55. There are 23 radio stations and 3 television stations on the island.

Principal Events, 1955.—Puerto Rico had a quiet year in 1955. There were no labor troubles of any dimensions. Although some hurricanes came close, they did not strike. Sporadic debate during the year over the political status of the island held public attention. Despite repeated assurances by Governor Muñoz Marín that the commonwealth status, subject in time to improvements, is what he and the majority of the people want, there has been uneasiness in some quarters that nationalistic ambitions are being nurtured by a small but influential group within the Popular Democratic Party. That party appeared to be assured of again winning the election over a weak opposition in 1956.

THOMAS S. HAYES,

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PULITZER, Joseph, 2d, American newspaper publisher and editor; b. New York, N.Y., March 21, 1885; d. St. Louis, Mo., March 30, 1955. As publisher and editor of the St. Louis *Post-Dispatch* he carried on the tradition of militant journalism dedicated to social justice, a policy established by his father, Joseph Pulitzer, the newspaper's founder.

After preparing for college at St. Mark's School in Southboro, Mass., Joseph Pulitzer entered Harvard College in 1904. At the end of his sophomore year he withdrew to begin his apprenticeship as a newspaperman with the New York *World*, which his father owned. In 1907 his father sent him to the St. Louis *Post-Dispatch* with a letter of introduction to the editor, which read: "This is my son Joseph. Will you try to knock some newspaper sense into his head?"

With the death of the elder Pulitzer on Oct.

29, 1911, the operation of the newspapers, according to his will, was delegated to a trust in which his three sons were to have equal votes. Only a tenth of the annual dividends was bequeathed to Joseph, as compared with three fifths to the youngest son, Herbert, and one fifth to the oldest, Ralph. Whereas the latter took over the reins of the more important *World* (sold in 1931 to Scripps-Howard), Young Joe, as he came to be known, remained in St. Louis with the *Post-Dispatch*. In 1912 he was given full authority over the midwestern newspaper by his brothers.

In the 43 years of his editorship, Pulitzer gave the *Post-Dispatch* an individual character, established it as one of the leading newspapers in the country, and fulfilled his father's aggressive and altruistic journalistic ideals. Under his personal direction, the *Post-Dispatch* often championed unpopular causes and spoke out forcefully and clearly in behalf of what it believed to be the truth. For its meritorious public service the newspaper won five Pulitzer prizes: for its exposure of vote registration frauds in St. Louis (1936); for its campaign to eliminate smoke in that city (1941); for its investigation of the mine disaster in Centralia, Ill. (1948); for its disclosure that newspapermen were on the Illinois state payroll (1950); and for its exposure of corruption in the U.S. Bureau of Internal Revenue (1952). Theoretically nonpartisan, the newspaper usually supported the Democratic Party, although in 1936 and 1948 it backed the Republican presidential candidates.

Like his father, to whom he bore a striking resemblance, Pulitzer suffered from failing eyesight in his later years. In order to accomplish the prodigious amount of work he set for himself, he employed three full-time secretaries who read to him as much as eight hours a day. He was succeeded as publisher and editor by his son, Joseph Pulitzer, 3d.

PULITZER PRIZES. See PRIZES AND AWARDS.

PUTNAM, Herbert, former librarian of Congress; b. New York, N.Y., Sept. 20, 1861; d. Woods Hole, Mass., Aug. 14, 1955. As head of the Library of Congress for 40 years, he directed its transformation into one of the greatest libraries in the world.

The son of the founder of the publishing house of G. P. Putnam's Sons, he was graduated from Harvard College in 1883 and studied law at Columbia University for a year. While awaiting admission to the Minnesota bar (1886), he accepted in 1884 a position as librarian of the Minneapolis Athenaeum. His able administration of the Minneapolis Public Library, which he headed from 1887 to 1891, led to his selection in 1895 as librarian of the public library in Boston, where he had gone to practice law in 1891. During his 4-year stewardship of the Boston library, he helped make it one of the most efficient in the United States.

Appointed librarian of Congress by President William McKinley in 1899, Putnam was the first professional librarian to fill that post. He found the library in a chaotic condition; the staff was small, and there was little money available for adding to the collection of fewer than 1 million poorly catalogued books. By the time he became librarian emeritus in 1939, the library was one of the largest in the world, containing over 5.5 million volumes and pamphlets, as well as extensive and important collections of maps, music, prints, and manuscripts. The system of book classification which he introduced is now in wide use in

the United States and various other countries.

Successful in securing large sums of money from Congress for expanding the library and its collections, Putnam obtained an appropriation of \$1.5 million in 1930 in order to buy Europe's greatest collection of incunabula, the Vollbehr

Collection, which included a copy of the Gutenberg Bible. During his administration, the library's large annex was built, and gifts totaling more than \$4 million were received.

PYRITE. See MINERAL PRODUCTION.



ATAR. See ARABIA.

QUAKERS. See FRIENDS, RELIGIOUS SOCIETY OF.

QUARLES, Donald Aubrey, American public official: b. Van Buren, Ark., July 30, 1894. A research electrical engineer and a business executive, he became secretary of the air force on Aug. 15, 1955.

After his graduation from Yale University in 1916, Quarles enlisted in the army in World War I and served in France as captain of field artillery (1917-19) in the Rainbow Division. Returning to civilian life in 1919, he joined the Western Electric Company's engineering department (which became the Bell Telephone Laboratories in 1925) and, while working as a transmission research engineer, attended graduate courses in theoretical physics at Columbia University. From 1924 to 1940, first as head of apparatus inspection engineering and later as head of outside plant improvements, he was instrumental in the development of much new telephone equipment, including open-wire insulation and the coaxial cable.

During World War II, Quarles was in charge of the Bell Telephone Laboratories' radar research development program. He was named a vice president of the Laboratories in 1947. In August 1946 he was appointed to the Joint Research and Development Board (later called the Research and Development Board), becoming chairman of its electronics committee in 1949.

In 1952, Quarles became a vice president of the Western Electric Company and president of the Sandia Corporation, a nonprofit subsidiary of Western Electric engaged in atomic research and development. On July 28, 1953, he was appointed assistant secretary of defense for research and development, in which position he played a major part in the development of guided missiles and the planning of a man-made earth satellite.

On Aug. 11, 1955, President Eisenhower appointed Quarles secretary of the air force, succeeding Harold Talbott. He assumed office four days later.

QUARTZ CRYSTAL. In the United States the most important use of quartz crystal, which is imported from Brazil, is for making piezoelectric units used in the electronics industry. Such units are of great importance in the military defense program. Imports in 1952 amounted to 1,049,300 pounds and in 1953 to 1,119,200 pounds, but they declined to 613,100 pounds in 1954. Synthetic quartz crystal of excellent quality is now being manufactured experimentally in pilot plants. (For data on crude, crushed, and ground quartz, see ABRASIVES.)

QUEBEC. The largest of the Canadian provinces, Quebec has an area of 594,860 square

miles (15.5% of the total area of Canada). The population as of June 1955 was estimated at 4,520,000. The overwhelming majority of the population is of French origin (83%) and Roman Catholic (88%). Approximately 33% of the population is rural. Principal cities, with 1955 populations, are: Montreal, 1,068,000; Quebec, the capital, 175,000; Verdun, 80,500; Trois-Rivières, 55,000; Sherbrooke, 58,000; and Hull, 48,000. Montreal is the metropolis of Canada and the second largest French-speaking city in the world, ranking second only to Paris.

Government and Administration.—The government comprises a lieutenant-governor, named by the government of Canada; an Executive Council of 21 members, 5 of whom have no portfolio; a Legislative Council of 24 members, appointed for life by the lieutenant-governor in council; and a Legislative Assembly of 92 members, elected for 5 years. The present lieutenant-governor is the Hon. Gaspard Fautoux, while the Hon. Maurice L. Duplessis, leader of the Union Nationale Party, is premier. Membership in the Legislative Assembly is divided as follows: Union Nationale, 68 members; Liberal, 23, Independent, 1. The province is represented in the Canadian Parliament by 24 members in the Senate and 73 in the House of Commons.

Finance.—For the fiscal year 1954-55, the ordinary revenue of the province amounted to \$335,076,456; ordinary expenditure, \$298,441,589; and net capital expenditure, \$57,937,155. The net funded debt was \$373,744,378. Municipal revenue rose to \$163,503,000, and expenditure to \$157,063,000. The debenture debt of municipalities amounted to \$429,800,000.

Education.—The schools governed by the Education Act are either Catholic or Protestant, and French and English are taught therein. In 1954 the entire school system included over 10,700 schools, 45,800 teachers, and 1,014,000 pupils. Teacher training is given in 98 normal schools; secondary school education is given in 77 classical colleges, and in three colleges where a more modern trend is followed. Superior or higher education is provided by 5 universities.

Hydroelectric Power.—Quebec possesses greater wealth in water power resources than any other Canadian province. The actual capacity of turbines in Quebec represents nearly 52% of total turbine installation in Canada. In addition, Quebec owns the two largest power plants in Canada.

The work carried out at the Bersimis development during 1954 comprised the construction of a temporary 15,000-hp. generating plant at Lac Cassé and a new wharf at Forestville, the clearing of land and building of roads and camps, as well as the continuation of digging operations for the tunnel and at the site of the power plant. (See also TUNNELS.) During the summer and autumn of 1954, the 31-mile-long submarine cables were also laid across the bed of the St. Lawrence River for the purpose of transmitting electric power to the mining developments in the Gaspé Peninsula. The cables which link Baie des Outardes on the north shore of the St. Lawrence with Les Boules on the south shore will have an initial capacity of 40,000 hp. and eventually a total capacity of 100,000 hp. An overhead 154-kw. transmission line, covering a distance of 135 miles from Les Boules to Cooper Mountain in Holland Township, was completed in 1954, while a double-circuit 300-kw. line to link Bersimis River with Quebec (240 miles distant) and Montreal (165 miles beyond Quebec) was under construction in 1955. In the northern part of the province, construction of a 154-kw. line between St. Félix and the rich mining region of Chibougamau, a distance of 150 miles, was nearing completion.

Purchasing Power.—The purchasing power of Quebec's population reached \$4.6 billion during 1954; salaries and wages totaling \$3,080 million make up the greater part of the amount. Retail trade in 1954 amounted to \$2,761,085,000.

Agriculture.—Agricultural land covers an area of 66,615 square miles, or about 12% of the total area of the province. According to the 1951 census, the number of farms occupied was 134,336. The area under cultivation (including pastures) in 1955 was estimated at 8,253,000 acres. The three leading crops are hay and clover, oats, and potatoes. Gross values of production for 1954 totaled \$491 million. Farm cash income reached \$408 million and was derived from the sale of dairy products (\$154,029,000), livestock (\$113,670,000), forest products (\$46,151,000), poultry (\$25,799,000), eggs (\$19,577,000), field crops (\$9,157,000), vegetables (\$11,916,000), wool, fruits, maple products, tobacco, honey, and other products (\$27,648,000).

Forestry.—The commercial forests of the province cover an area of 264,170 square miles. The wood cut during 1953 was valued at \$272,410,000 and comprised pulpwood, \$169,781,000; lumber, \$82,269,000; veneer, excelsior, matches, \$6,311,812; and charcoal and firewood, \$11,495,000. In 1954 the pulp and paper industry employed 25,000 persons, and had a payroll of \$100 million and a gross value of production exceeding \$520 million. Newsprint production was estimated to have been 3,100,000 tons, worth approximately \$346 million. In 1953 the lumber industry included 2,150 saw-mills which employed 17,550 persons. Lumber production amounted to 1,234,152,000 board feet.

Mines and Quarries.—The total output from mines and quarries in 1954 amounted to \$275,500,000, subdivided as follows: metals, \$126,212,500; industrial minerals, \$94,920,000; and building materials, \$54,418,000. Gold output was valued at \$37,295,000 (standard rate); copper, \$48,170,000; zinc, \$25,283,000; asbestos, \$79,285,000; and cement, \$19,212,000.

Manufactures.—Manufacturing establishments during 1954 paid out \$1,204,263,000 in salaries and wages to 424,205 workers. The gross value of factory shipments was estimated at \$5,361,-

568,000. Chief industries include pulp and paper, nonferrous metal smelting and refining, petroleum products, slaughtering and meatpacking, cotton yarn and cloth, railway rolling stock, electrical appliances, and synthetic textiles.

Transportation and Communication.—Quebec had 41,938 miles of roads, 28,952 of which were surfaced, in 1954; 674,114 motor vehicle registrations were issued, 478,286 of which were for passenger cars. In 1953 there were 5,108 miles of railways, 932,830 telephones, 2,516 post offices, and 807 telegraph offices.

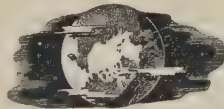
Principal Events, 1955.—In the municipal elections held in Montreal on Oct. 25, 1954, Jean Drapeau, Q.C., was elected chief magistrate of the city. The former mayor, Camille Houde, did not run because of ill health.

The premier of the province, the Hon. Maurice Duplessis, made known the appointment of six parliamentary assistants: Daniel Johnson, Emile Lesage, Hormidas Langlais, J. J. Bertrand, Francis Boudreau, and Redmond Roche, all members of the Provincial Legislature. In a statement issued early in 1955, the Rt. Hon. Louis St. Laurent, prime minister of Canada, announced that taxpayers in the Canadian provinces where no tax agreement had been signed with the federal government would be allowed a 10% reduction from the federal income tax. The Rt. Hon. Thibaudeau Rinfret, retired chief justice of the Supreme Court of Canada, was entrusted by the provincial government with the revision of Quebec's Civil Code.

In June 1955 the Hon. J. Bourque, Minister of Hydraulic Resources, presided at the ceremonies marking the official opening of a tunnel, 35 feet in diameter and 7½ miles in length, which will supply water power for the huge power station which the Quebec Hydro-Electric Commission has under construction at Labrieville in New Quebec. (See also TUNNELS.)

J. C. McGEE,

Director, Quebec Bureau of Statistics.



RACE RELATIONS. See CIVIL LIBERTIES; INDIANS, AMERICAN; NEGROES, AMERICAN; and the Index entry, *Race Relations*.

RACING. See Index entry.

RADIO AND TELEVISION. Developments in radio and television in 1955 are reviewed in this article under three headings, as follows:

- (1) The Radio-Electronics-TV Industry
- (2) Radio and Television Programs
- (3) Radio and Television Engineering

THE RADIO-ELECTRONICS-TV INDUSTRY

The year 1955 was one of record production and sales, high employment, and rising profits for the radio-TV-electronics industry. This upward trend was the more remarkable because fewer new TV markets opened and fewer new TV stations went on the air than in 1954. Military electronics advanced despite a general decline in defense expenditures.

Perhaps the most significant development was the break-through of color television after

an abortive attempt to establish itself commercially a year earlier.

With more than 450 TV stations on the air, television programs were available to an estimated 83 per cent of American homes. TV sets in use at the close of the year numbered about 37,100,000, with the ratio of second sets per family rising sharply. Radio showed new life as set sales rose and the transistor promised to make the personal radio more commonplace. The phonograph, with notable electronic improvements, has again become a fixture in the living room.

Set Output and Sales.—Production of black-and-white TV receivers in 1955 reached a new peak of 7,700,000—more than 300,000 higher than in any previous year. Consumers bought about 7,400,000, a new record and 75,000 above 1954.

Radio receiver production was near 15,000,000—over 4,500,000 above 1954—to make 1955 one of the best radio years since 1947 when 20,000,000 radios were manufactured to meet a postwar demand. Auto radios reached a new high of 7,260,000—about 3,000,000 above 1954—

while home, clock, and portable sets totaled 7,686,000, as against 6,276,000 in the previous year.

Color TV.—After an unsuccessful promotion of small-screen color TV sets in 1954, the industry began making and selling 21-inch color television receivers at a steady, though small, rate in the fall of 1955. While accurate figures were unavailable, up to between 1,200 and 1,500 such sets were reportedly being sold weekly at prices three to four times those of monochrome receivers. Total sales for the year were estimated at 40,000 to 45,000 sets. Industry expectations were that color TV receiver sales in 1956 would reach small-volume proportions of 250,000 or more, and thereafter rise sharply in the next few years.

Military and Industrial Electronics.—Following a slight dip in 1954, the production of electronic devices for the armed services rose slightly in 1955 to approach the 1953 level of \$2.5 billion. The industry's share of the Defense Department's procurement dollar continued to rise as guided missiles, computers, and other electronically controlled apparatus moved out of research laboratories into production facilities.

Industrial electronics took a forward spurt as automation machinery moved into many industrial fields. Moreover, new electronic devices for the home and the car presaged a growing family market for the industry's products, in addition to those of the amusement type.

Economic Trends.—While the radio-TV business became more competitive in 1955, and a few manufacturers were eliminated, electronics attracted a wide variety of nonelectronic manufacturers who desired to diversify their output. There also was a noticeable increase in mergers and the acquisition of small electronic producers by more strongly capitalized companies, frequently from outside the electronics industry.

Despite intense competition, prices and profits in the radio-TV business rose in 1955. One of the significant consumer buying trends was a rising public preference for higher-priced TV models over cheaper "economy" types.

The growing popularity of hi-fi (high-fidelity) equipment among music lovers greatly stimulated the production and sale of phonographs, in both unassembled custom kits and ready-to-play models. This had incidentally added to listening audiences of FM radio stations specializing in musical programs.

Employment.—Higher production wiped out the 1954 declines in factory employment and brought the total close to wartime levels. Production workers in August 1955 numbered 375,000, as compared with about 350,000 a year earlier, while the total employment by manufacturers was in excess of 520,000, according to the U.S. Bureau of Labor Statistics. Weekly and hourly earnings also were well above those of 1954.

Exports.—Total exports of American nonmilitary radio, television, and electronic equipment and components exceeded \$281 million in 1954; reports for the first 10 months of 1955 indicated that a small decline could be expected for the year. The American industry is finding it more and more difficult to sell its products abroad as the British, Dutch, Germans, and Japanese fight for more dominant positions in the world market. Cuba, Venezuela, Italy, and Colombia were the major purchasers of American television receivers, while the greatest number of television chassis went to Mexico and Brazil. Television has expanded rapidly in Canada, West Germany, and Italy.

An estimated 10½ million television receivers are in use throughout the world outside the United States, with the greatest concentrations in the United Kingdom, Canada, and the USSR.

JAMES D. SECREST,
Executive Vice President, Radio-Electronics-
Television Manufacturers Association.

RADIO AND TELEVISION PROGRAMS

A nationwide survey undertaken in the fall of 1955, after the bow of the 1955-56 television season, showed that 7 out of every 10 viewers expressed themselves as being satisfied, on the whole, with TV's program content. This, in itself, is most revealing; but coming at a time when television generally has been upgraded to encompass a totally new dimension in entertainment, it definitely adds up to a plus commentary on America's 37.1 million TV set owners.

Reflecting back on what has transpired in the past 12 months in altering the program concepts in television, one can only come to the conclusion that, as the mainstream of the future of American entertainment, TV has done a remarkable job in proving beyond doubt that it is possible to mass-produce quality. True, there has been a lot of the cliché and the stereotype in programing while catering to inferior tastes, but on the whole TV demonstrated in 1955 that as a medium for entertainment, information, and enlightenment, it need not take a back seat to the motion picture, the legitimate theater, or the concert stage. For it was a year that brought to complete fruition (in its acceptance by advertisers and the viewing public alike) the concept of "big" programing—the "spectacular," as incepted by Sylvester L. Weaver, the imaginative president of the National Broadcasting Company (who has since become chairman of the board). With Weaver walking off with the "man of the year" accolades in TV, it was not surprising that the advent of the 1955-56 season in September also saw the Columbia Broadcasting System embracing the same 90-minute show pattern. as board chairman William S. Paley let it be known that he, too, could "spec up the spectrum," color and all.

Whereas for a full year all the TV excitement and noise—and there was plenty of it—had been generated by NBC, the entrance of CBS into the realm of the spectacular, geared to the same "no talent or production is too big for us" precepts inaugurated by Weaver, was the signal for the most competitive talent race in broadcasting annals. The viewer was the winner as the NBC-CBS roster of spectaculars (practically all of them budgeted in the area of \$250,000 to \$350,000) alternately brought forth Mary Martin in an adaptation of her Broadway success, *Peter Pan*; Frank Sinatra and Eva Marie Saint in *Our Town*; Helen Hayes, Mary Martin, and George Abbott in *Skin Of Our Teeth*; a 90-minute Noel Coward-Mary Martin song frolic; a Sadler's Wells Ballet performance of *Sleeping Beauty*; an imaginatively conceived, star-studded production of *Alice in Wonderland*, as produced by Maurice Evans; José Ferrer in *Cyrano de Bergerac*; or a gripping production of *The Caine Mutiny Court Martial*. Considering NBC's grand total of 75 "big shows" a season, plus an additional 50 from the rival CBS camp, the fact that television's total program cost came to \$500 million in 1955 becomes more understandable.

And as the spectacular began to inscribe for itself a permanent niche in the archives of show business, it was interesting to note on the A. C.



(LEFT) NBC; (RIGHT) CBS

(Left) José Ferrer (l.) plays Cyrano in TV production of *Cyrano de Bergerac*, with Christopher Plummer and Claire Bloom, Oct. 17, 1955. (Right) Noel Coward and Mary Martin in *Together with Music* (Ford Star Jubilee), Oct. 22, 1955.

Nielsen audience popularity charts the virtually complete disappearance of the half-hour shows from the top 10 listings. It took *The \$64,000 Question* to crash through the top 10 "charmed circle," but otherwise it was the "big show" of the 60- and 90-minute variety that ran off with the laurels when the ratings were tallied up at the end of each month.

There were, quite obviously, fears that the overnight success of *The \$64,000 Question* would inspire a whole new wave of network quiz entries. A few other shows did try to duplicate its success, with an NBC entry (*The Big Surprise*) increasing the grand prize to \$100,000. But *The \$64,000 Question* remained alone and unique, demonstrating that the big prize money was not in itself the major lure. What this show possessed—a fine sense of the dramatic and inherent showmanship values—was lacking in the others. TV, it seemed, would not be taken over by the "gimmick boys."

But a sizable portion of the medium was taken over, for better or for worse, by the Hollywood fraternity as a big-time claim was staked in video by the major picture studios, notably 20th Century-Fox, MGM, and Warners. As of the year's end this venture remained a dubious flirtation. Since TV has always been the natural enemy of the film exhibitor, everyone was wondering whether the film companies could afford to pay more than lip service to the TV medium.

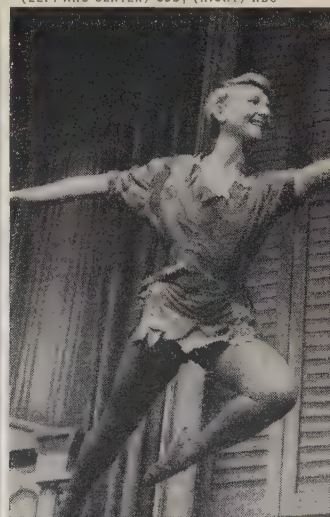
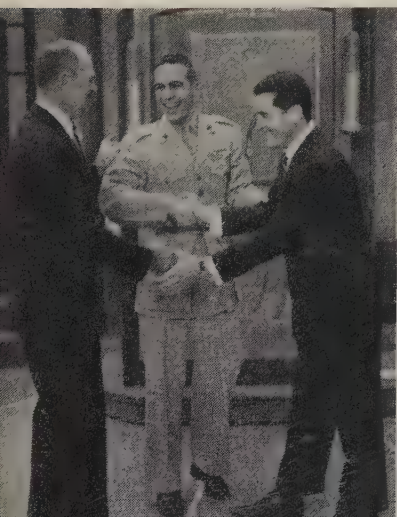
Would they use it more or less to exploit the studios' theatrical product? Certainly in terms of programing for TV, nothing of great moment emerged in 1955. Most of it, as demonstrated in the Warner Bros. *Presents* weekly series on ABC, the 20th Century-Fox alternate-week CBS series, and the MGM weekly series on ABC, was nothing more than rank-and-file material.

Both CBS and NBC began budgeting more and more for color TV programing, with NBC even launching a full-hour, five-times-a-week matinee dramatic series in color. Sales of color receiving sets remained practically at a standstill, however, because of their high cost. RCA and other manufacturers were promising a \$500 set ceiling "within a year," but until that happens color will remain beyond the means of the majority of viewers.

As TV continued to entrench itself to the point where it represented nearly 60% of all media billings in the top advertising agencies* (radio in its best days never siphoned off more than 30%), network radio business continued its tragic decline. NBC, successfully concealing the figures under the corporate umbrella of the RCA consolidated statement, nevertheless emerged

* The Federal Communications Commission reported total radio and TV revenues in 1954 as \$1,042,500,000, as compared with \$908,000,000 in 1953. Of the 1954 total, TV accounted for \$593,000,000 (37% more than in 1953), and radio for \$449,500,000 (a drop of 5.4% from 1953).

(Left) U.S. Marine Capt. Richard McCutchen, first top prize winner on *The \$64,000 Question*, is congratulated by his father (left) and Hal March, Sept. 13, 1955. (Center) Edward R. Murrow's *See It Now* interview with Dr. J. Robert Oppenheimer (standing) was televised on Jan. 4, 1955. (Right) Mary Martin in *Peter Pan*, March 7, 1955.



(LEFT AND CENTER) CBS; (RIGHT) NBC

from 1955 some \$2 million in the red. The network, flushed with TV riches, simply took it in stride, inaugurated its week-end *Monitor* program pattern in a desperate bid to generate some enthusiasm for the aural medium, and followed it up with a similar *Weekday* service.

The fact that the affiliated stations were not too happy about this innovation in programing, fearing encroachments on local and national spot advertising business, was indicative of today's radio trend: a station would prefer an independent rather than a network status. On a local level, the radio station can make a satisfactory profit. Network radio is something else again. Clients want selective markets, and every network has reframed its operation, chopping up shows to fit any sponsor's wish or inclination. Every possible rate formula and program variation has been tested and retested by the networks—for example, Mutual with its "Companionate Radio" and skel-tonized staff, CBS with its "Segmentation Radio," and ABC with its Five-Minute Plan—all working feverishly to ward off the day when successful radio networks may become a matter of history. (See also EDUCATION; PRIZES AND AWARDS.)

GEORGE ROSEN,
Radio-Television Editor, "Variety."

RADIO AND TELEVISION ENGINEERING

Television broadcasting continued a steady expansion in 1955, although the rapid pace of new station construction which had characterized the preceding years slackened. During 1955, 59 new stations began operation in the United States, while a few of the operating stations went off the air. The total number of stations in the United States (including Alaska, Hawaii, Puerto Rico and the Virgin Islands) was 459, as compared with 426 stations at the end of 1954.

Television Facilities.—The established stations in the United States continued to improve their facilities. High-power transmitting equipment was installed and taller transmitting towers were erected to improve television signals. Stations KRLD-TV and WFAA-TV, Dallas, Texas, installed new antennas on top of a common tower. The completed structure is 1,521 feet above ground, the tallest multiple antenna installation in existence and one of the highest structures in the world.

Work was continued to improve the service rendered by stations operating on the ultra-high-frequency (UHF) channels (Channels 14-83). Several UHF stations increased their radiated power to 1 million watts, and others planned increases up to 5 million watts—far greater than that authorized for any other broadcasting service.

The rate of new station construction in other countries increased. By the end of 1955, there was regular television service in 28 countries, and many other administrations had announced experimental operation or construction plans which indicate that the industry may expect a continued rapid growth throughout the world. The accompanying table lists the countries which were known to have regular television stations in operation at the end of 1955, giving the latest available information as to the number of transmitting installations and the number of receiving sets in use in each country.

In addition to the stations listed in the table, the United States armed forces operate 8 low-power stations at widely scattered locations throughout the world (including one at Lime-

stone Air Force Base, Maine) for providing television service to American troops at remote installations.

SUMMARY OF WORLD TELEVISION, 1955

Country	Transmitting stations	Receiving sets
Argentina.....	1	70,000
Austria.....	4	4,000
Belgium.....	4	70,000
Brazil.....	6	150,000
Bulgaria.....	1	150
Canada.....	33	1,800,000
Colombia.....	3	20,000
Cuba.....	9	200,000
Czechoslovakia.....	1	15,000
Denmark.....	2	6,000
Dominican Republic.....	1	6,000
France.....	11	200,000
East Germany.....	8	1,500
West Germany.....	27	192,000
United Kingdom.....	16	5,000,000
Italy.....	12	180,000
Japan.....	5	90,000
Luxembourg.....	1	1,000
Mexico.....	8	125,000
Netherlands.....	3	50,000
Philippine Islands.....	1	4,000
Saar.....	1	1,500
Sweden.....	1	5,000
Switzerland.....	4	7,500
Thailand.....	1	1,000
USSR.....	19	800,000
United States*.....	459	37,100,000
Venezuela.....	3	42,000

* Includes Puerto Rico. (Source: Radio-Electronics Television Manufacturers Association.)

Color TV.—Color television broadcasting continued to expand during 1955. The major networks completed large color studio installations in New York and Hollywood, and the National Broadcasting Company (NBC) announced plans for the expansion of these facilities and the construction of new all-color studios in Chicago. At the end of the year, from 40 to 50 hours of television broadcasts were being produced in color each month by the networks, and many independent stations were producing color broadcasts on a regular schedule.

Improved color television receivers became available during 1955 at reduced prices. Receivers having viewing screens of 19 inches and 21 inches were offered at prices from \$700 to \$900, compared with a price of almost \$1,000 for the early 14½-inch color receivers. The new color receivers featured improved and simplified circuits.

A new color picture tube, still in the developmental stage, was announced by the General Electric Company. This tube employs an improved type of color selection which greatly increases the picture brightness. Still in the early development stages is a "flat" picture tube, only three inches deep, in which the scanning electron beam is introduced from the side. This tube, which is being developed by Willys Motors for military applications, will also be suitable for monochrome picture presentation. When eventually perfected, it will eliminate the need for a deep receiver cabinet to accommodate the long picture tube. (See also ELECTRONICS.)

Subscription TV.—Considerable attention was attracted by publicity given in 1955 to various proposals for "subscription television," in which the viewer would pay to watch certain programs. A number of technical systems have been developed for the transmission of "scrambled" programs, which cannot be satisfactorily received on the ordinary home receiver. In order to receive the desired program, a special attachment to the television receiver is required; the required fee

must be paid before satisfactory reception of the program is possible. These systems have been fully developed technically for several years, but came into prominence during 1955 when the Federal Communications Commission (FCC) announced that proposals would be considered for instituting such a service on a regular basis.

Closed-Circuit TV.—Closed-circuit (nonbroadcast) television presentations of entertainment and sporting events continued, with showings in theaters and large hotels of athletic events, including championship prize fights and college football games.

Television systems for a myriad of applications other than broadcast service continued to expand. These systems, commonly referred to as "industrial television systems," are already used for such diversified applications as reading freight car numbers and comparing depositors' signatures in banks. The new applications for industrial television in 1955 were variegated. A "survival television network" was set up near Washington, D.C., for use in case of enemy attack, linking a secret White House "dispersal" headquarters with 35 secret places already set up outside the city. The U.S.S. *Forrestal*, the U.S. Navy's new aircraft carrier commissioned on Oct. 1, 1955, uses closed-circuit television to keep the ship's officers in visual contact with all parts of the ship. The system includes underwater television cameras which can be swung over the side to inspect the hull in case of battle damage. An elaborate closed-circuit color television system was installed by Radio Corporation of America (RCA) at the army's Walter Reed Hospital in Washington, D.C., for clinical and other uses. The city of Detroit installed closed-circuit television cameras for traffic surveillance. Closed-circuit television cameras were installed in unattended elevators in large office buildings; and one enterprising parking lot operator on the west coast installed a closed-circuit television camera to help him find empty parking spaces in his lot.

Radio Broadcasting.—Radio broadcasting continued to expand during 1955, with 152 new stations going on the air in the United States. This brought the total number of standard (AM) broadcast stations operating in the United States to 2,814. A new 50-kw. standard broadcast transmitter was announced by RCA during 1955, which features considerably more efficient operation than the older types of transmitter. Many broadcast stations installed automatic programing machinery, using prerecorded magnetic tape, which provides many hours of continuous programs and commercials without attention.

Several manufacturers introduced new automobile and portable receivers employing transistors instead of vacuum tubes. Transistors require only a fraction of the current needed by vacuum tubes, are more rugged, and have longer life. They require so little current that a portable receiver using them is capable of operating for hundreds of hours on a single set of batteries. Several new experimental items of equipment employing transistors also were announced, including receivers powered entirely by solar batteries, and experimental transmitters which derive their required energy from the voice of the operator.

New studios and control rooms for the Voice of America were dedicated in Washington, D.C., by Secretary of State John Foster Dulles late in 1954. These studios, representing some of the most extensive installations in the world, originate programs in 39 languages which are relayed

to the Voice of America transmitters throughout the world.

Frequency modulation (FM) radio received a new boost in 1955 when the FCC authorized a system of multiplex operation in which a second and even a third program may be transmitted simultaneously on the same channel with the main program. The additional programs are transmitted by using them to modulate subcarriers above the audible frequency range, which are used in turn to modulate the main carrier. These systems are used for supplying background or "functional" music to stores and other public places.

(See also ELECTRICAL DEVELOPMENTS; ELECTRONICS; FEDERAL COMMUNICATIONS COMMISSION.)

HOWARD T. HEAD,
Consulting Radio Engineer.

RADIOACTIVITY. See Index entry.

RADIOLOGY. See X-RAY.

RAILROAD RETIREMENT BOARD. See Index entry.

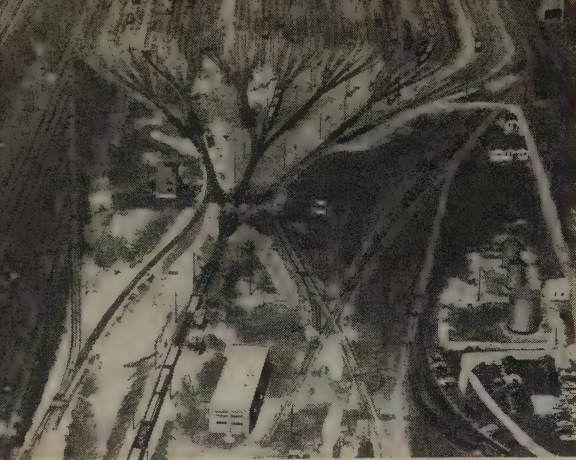
RAILROADS. Traffic and earnings of railroads,* which in 1954 suffered serious declines were in 1955 restored to approximately the levels of 1953. Traffic increases were usual in most commodities, reflecting generally higher economic activity throughout the United States. The large daily car surpluses of 1954 disappeared with the increased traffic, and car supply actually fell short of demand. To meet the shortage, railroads moved to acquire new cars, repair others, and to obtain higher utilization from existing serviceable cars. New freight cars on order at the end of 1955 totaled 135,000, compared with 15,000 in December 1954.

Increases occurred in the wages of railroad employees and in the cost of fuel, materials, and supplies, those items which together make up about 90% of railroad operating expenses. The effect of these increases was minimized, however, by an increase in operating efficiency, resulting from continuing improvements to plant and equipment, on which railroads have spent an average of more than \$1 billion a year for ten years. These expenditures continued in 1955, but at a level of about \$110 million below the post-war average. They included the purchase of 40,000 new freight cars, 450 new passenger-train cars, and 1,000 units of motive power, mostly diesel. These purchases raised the totals of post-war additions to 603,300 new freight cars, 6,200 new passenger-train cars, and 21,200 new locomotives, also mostly diesel. Diesel locomotives in 1955 handled upwards of 90% of all railroad motive power needs.

Other improvements included additional installations of continuous welded rail, completion of the world's first fully automatic freight classification yards, the first permanent installations of television for railroad use, additional mileage brought under centralized control, and use of the latest electronic computing machines. Railroads made these improvements and absorbed the increased costs of operation without benefit of increased rates or fares, other than slight upward adjustments in some commuter fares.

Railroads continued in 1955 to suffer heavy deficits in passenger service, due largely to inroads made by the private automobile and air coach. New lightweight trains, low in initial cost, up-

* Figures and statements refer to Class I railroads, which account for 95% or more of all railway performance in the United States. All 1955 figures are partly estimated.



ELGIN, JOLIET AND EASTERN RAILWAY

Kirk Yard, Gary, Ind., completely equipped with automation, uses radar, electronic scales, automatic retarders, electronic computer, and automatic switching system.

keep, and operation, were ordered by several railroads in an effort to win back some of the traffic and cut losses. At the year's end, two were in experimental service.

Midway in 1955 Congress received recommendations of a Presidential Advisory Committee on Transport Policy and Organization calling principally for greater freedom for the several forms of transportation to make rates competitively, and for strengthening the nation's system of common-carrier transportation. One congressional committee held preliminary hearings on the recommendations after Congress adjourned, but postponed action to 1956.

Facilities.—Railroad plant and equipment in 1955 comprised 352,000 miles of track, including 212,000 miles of first main track, 33,000 locomotives, 34,100 passenger-train cars, and 2,025,000 freight-carrying cars.

Earnings.—Railroads in 1955 had gross revenues of \$10,100 million, an increase of 7.7% over 1954, and total operating expenses of \$7,611 million, an increase of 3% over 1954. Operating expenses were 75% of revenues in 1955, and 79% in 1954. Net railway operating income (the amount remaining after deducting operating expenses, taxes, net rents, and other costs of operation) was \$1,110 million, an increase of \$236 million over 1954. In Table 1, net railway operating income is shown as a rate of return on depreciated and amortized investment in railroad property used in transportation service.

TABLE 1—EARNINGS OF CLASS I RAILROADS

Period	Annual rate (%) of return on investment
1926-30 average.....	4.80
1936-40 ".....	2.51
1941-45 ".....	4.97
1946-50 ".....	3.54
1954.....	3.28
1955 (estimated).....	4.15

Passenger Traffic.—The postwar decline in passenger traffic continued in 1955. Railroads carried 400 million passengers and operated 28,500 million passenger-miles. (See Table 2.)

Freight and Passenger Rates.—The levels of freight rates and passenger fares, as measured by the amounts which railroads receive for moving a ton of freight, or a passenger, one mile, did not rise in 1955. Railroads received on the average 1.4 cents for moving a ton one mile, and 2.6 cents a passenger-mile. Compared with 1928, the 10th year after World War I, the freight average

TABLE 2—PASSENGER TRAFFIC

Year	Passenger- miles (millions)	Per cent increase over 1939
1939.....	22,651	...
1944.....	95,549	321.8
1954.....	29,292	29.3
1955 (estimated).....	28,500	25.8

increased only 31%, while the passenger average decreased 8%.

Freight Traffic.—Railroad freight traffic increased over that for 1954, both in tons originated and in ton-miles (see Table 3).

TABLE 3—FREIGHT TRAFFIC

Year	Tons originated (millions)	Ton-miles (millions)	Ton-miles (% increase over 1939)
1939.....	901.7	333,438	...
1944.....	1,491.5	737,246	121.1
1954.....	1,300.0	549,240	64.7
1955 (estimated).....	1,375.0	620,000	85.9

Fuel and Material Costs.—Prices of fuel, materials, and supplies used in railroad operation rose to all-time highs, as shown by the weighted index figures in Table 4.

TABLE 4—COST OF MATERIALS AND FUEL

Period	Materials and supplies (excluding fuel)	Fuel (coal and oil)	Fuel and all other materials and supplies
1947-49 average.....	100.0	100.0	100.0
December 1939.....	55.5	47.5	52.6
October 1954.....	132.8	109.1	123.9
October 1955.....	141.6	110.1	130.2

Employment.—Railroad employment remained at approximately the 1954 level, while employee compensation (total and average) was at an all-time peak. Agreements made with several classes of employees in the latter half of 1955 were estimated to increase the railroad wage bill by \$413 million a year. Railroad employment and compensation trends are indicated in Table 5.

TABLE 5—EMPLOYMENT AND COMPENSATION

Year	Average number of employees	Total compen- sation (millions)	Average straight- time hourly rate	Average annual compen- sation per employee
1939.....	987,943	\$1,864	\$0.74	\$1,886
1944.....	1,413,672	3,853	0.93	2,726
1954.....	1,064,705	4,855	1.94	4,560
1955 (est.).....	1,056,000	4,970	1.96	4,700

Taxes.—Class I railroads in 1955 paid \$1,120 million in taxes, an average of about \$3 million a day. This figure does not include excise taxes paid on gasoline and other materials or those on freight and passenger traffic collected by railroads and paid to the government.

Research.—Particular attention was given, with good results, to the problem of overheated freight car axles (hot boxes), to more efficient ticket-selling and reservation systems and procedures (see TELEGRAPHY—Ticketfax), to increased mechanization of track construction and maintenance work, and to hauling trucks and trailers on railroad flat cars ("piggy-backing"). At the end of 1955, some 34 railroads in the United States and Canada offered some form of "piggy-back" service.

Nerve center of the widespread research program was the research and testing laboratory of the Association of American Railroads, which at



GENERAL MOTORS CORPORATION

General Motors Aerotrain weighs 50% less than conventional trains and takes curves at higher speeds.

the year's end was pressing ahead on some 200 separate research activities. Other research was conducted by numerous individual railroads and by railroad supply companies.

RAILWAY TRAFFIC, BY MAJOR COUNTRIES

(In millions of passenger-kilometers and freight net ton-kilometers; one kilometer equals 0.62137 mile)

Country	Passenger-km.		Ton-km.	
	1952	1953	1952	1953
Argentina.....	13,451	13,503	16,656	16,824
Australia ¹	...	...	11,046	10,748
Austria ²	4,661	5,032	5,564 ³	5,213 ³
Belgium ⁴	7,435	7,528	6,067 ³	5,721 ³
Brazil.....	10,344	10,735	8,985	8,473 ³
Canada ⁵	5,071	4,801	99,906	94,901
China (main-land) ^{6, 24}	14,743 ⁹	13,200 ¹⁰	5,270 ⁹	4,500 ¹⁰
Czechoslovakia ^{8, 24}	18,160 ¹⁰	18,600 ¹¹	12,690 ¹⁰	13,000 ¹¹
France ¹²	28,580	25,880	44,050	40,340
Germany, West ¹³	29,493	31,113	55,253	50,942
India ^{8, 14}	57,994	...	47,356	...
Italy ^{2, 1, 6}	21,300	21,911	12,025	12,083
Japan ^{1, 2}	81,282	83,554	38,724	40,418
Mexico.....	3,338	3,061	10,756	9,590
Netherlands ⁶	6,392	6,621	3,068 ³	3,252 ³
Pakistan ¹⁴	8,983	...	4,917	...
Poland ^{15, 24}	20,851 ¹¹	26,353 ¹⁶	29,800 ¹¹	32,000 ¹⁶
South Africa, Union of ^{17, 14}	...	...	21,251	21,574
Spain ^{18, 24}	7,854 ¹⁰	7,977 ¹³	7,621 ²⁰	7,574 ²⁰
Sweden.....	6,333	6,234	9,633	9,017
Switzerland ⁸	6,878	...	2,476 ²⁰	...
United Kingdom ²¹	33,297	33,490	36,613 ²²	37,227 ²²
United States ²³	54,771	50,983	902,180	889,072
Yugoslavia ⁸	4,815	5,981	8,383	8,817

Note—Figures relate to domestic and international traffic on all railway lines within each country shown, except those railway lines entirely within an urban unit, and plantation, industrial, mining, funicular, and cable railways. Passenger figures include all except military, government, and railway personnel when carried without revenue; ton-km. figures represent freight net ton-kilometers, and include all goods whether carried by fast or ordinary trains, except service traffic, mail, baggage, and nonrevenue government stores, unless otherwise indicated.

¹ Years ending June 30. ² State railways only. ³ In carload lots. ⁴ Société nationale des chemins de fer belges. ⁵ Excluding small parcels. 1953: 13 railroads only (90% of total traffic), including nonrevenue traffic. ⁶ Ton-km. column excludes livestock. ⁷ Including Newfoundland. ⁸ Ton-km. column includes service traffic. ⁹ Data for 1947. ¹⁰ Data for 1948. ¹¹ Data for 1949. ¹² Société nationale des chemins de fer français only. ¹³ Excluding occupation traffic; including service traffic. ¹⁴ Years beginning April 1. ¹⁵ Standard and broad gauge. ¹⁶ Data for 1950. ¹⁷ Including South West Africa and Vryburg-Bulawayo line of Rhodesia railways. ¹⁸ State railways (RENFE) only. ¹⁹ Excluding suburban traffic. ²⁰ Including mail and passengers' baggage. ²¹ Excluding Northern Ireland. Excluding London Transport railways. The figures relate to British railways. ²² Including free-hauled traffic. ²³ Forty-eight states. ²⁴ Data from Statistical Office of the United Nations, *Statistical Yearbook, 1953*. (Source: Statistical Office of the United Nations, *Statistical Yearbook, 1954*.)

(For further references see the Index entry, *Railroads*.)

CHARLES O. MORCRET,
Manager, Special Studies, Association of
American Railroads.

RAISINS. See Index entry.

RAPID TRANSIT. See URBAN TRANSIT.
RAYON. See TEXTILE INDUSTRY.

RECLAMATION.—Greater participation by state governments and local communities, private industries, and individual citizens marked the progress of the federal reclamation program for the development of the water resources in 17 Western states and Alaska during the fiscal year ending June 30, 1955. The program, administered by the Bureau of Reclamation in the U.S. Department of the Interior, made available facilities capable of delivering irrigation water to more than 7 million acres of land on which approximately 125,000 family-size farms and more than 125,000 suburban units have been developed. The area for which water can be supplied from bureau-constructed works comprises about one fourth of the total irrigated area of the western United States. Approximately 1,600,000 persons, who are directly dependent on these reclamation developments, live in project towns and villages.

The Bureau of Reclamation also provided municipal and industrial water service from bureau-constructed works to more than 2,000,000 people. The bureau is also responsible for protection through proper supervision of the \$2.8 billion federal investment in constructed works. These facilities include 126 storage dams and 80 diversion dams, more than 19,500 miles of canals and laterals, over 5,700 miles of drains, 386 pumping plants, and an estimated 11,300 miles of operating roads.

During the year, the bureau operated 34 power plants with a total nameplate capacity of 4,854,550 kw. Sales of electric power from bureau multipurpose projects and from projects for which the bureau is responsible for marketing the power aggregated 25,031,525,608 kw.-hr., with revenues totaling \$51,764,256.48.

Crop production on irrigated lands within the service area of federal reclamation projects was valued at \$865,025,682 in 1954, the latest crop year reported. Next to 1952, this was the most productive year in Bureau of Reclamation history. The year 1954 was also the fourth consecutive year in which the total crop value exceeded the three-quarter-billion-dollar mark, increasing the cumulative value of all reclamation harvests through 1954 to about \$10.6 billion.

During the fiscal year 1955, the bureau conducted 4 land openings on 2 projects, making 243 farm units embracing 23,514 irrigable acres of new land available for settlement. Since the close of World War II, 48 land openings have been held on 13 reclamation projects. A total of 2,166 new farm units encompassing nearly 183,000 irrigable acres of public land has thus been made available for selection by qualified applicants.

Construction completed during the fiscal year 1955 on Bureau of Reclamation projects provided irrigation facilities to serve about 315,000 acres of land; 133,500 kw. of hydroelectric generating capacity; 785 miles of canals, pipelines, laterals, and drains; and more than 470 miles of transmission lines. The investment in this new construction work and in related water resource and land development features totaled \$152 million. The 186 construction contracts in progress at the end of the fiscal year had a total value of more than \$145 million.

The 1956 fiscal year saw the completion of the Eklutna Project in Alaska, and the placing in service of the 30,000-kw. Eklutna power plant;

the "holing through" of the 6-mile long Tecolote Tunnel on the Cachuma Project in California; completion of the Nimbus Dam and its 13,500-kw. power plant for the Central Valley Project in California; and completion of the 36,000-kw. Alcoa power plant for the Kendrick Project in Wyoming.

Other outstanding construction events were the completion of the Sly Park Dam in the Central Valley Project in California; the completion of the 3.3-mile-long Gateway Tunnel for the Weber Basin Project in Utah; the dedication of the Kirwin Dam in the Missouri River Basin Project in Kansas; and the start of construction in the Missouri River Basin of the Glendo Dam in Wyoming and the Lovewell Dam in Kansas. (See also DAMS.)

WILBUR A. DEXHEIMER,
Commissioner, Bureau of Reclamation.

RECORDS, Phonograph. The year 1955 was distinguished by two significant developments in the merchandising of recorded music. First, a new low price was established by most manufacturers for the popular 12-inch long-play record; and second, the sale of records through the so-called record clubs became increasingly important.

Early in January 1955, RCA Victor announced an overall repricing of its entire line of records, including a reduction in the price of 12-inch long-play records from approximately \$6 to \$4 each. Within a few weeks most of the other record companies followed suit with similar reductions. By mid-1955, sales reports indicated that these price reductions had increased the sale of 12-inch long-play records by as much as 40%.

This new low price for long-play records points up sharply the substantial spread between today's prices and those which existed prior to World War II. The modern 12-inch long-play record with a turntable speed of 33½ rpm. will provide about 25 minutes of music on each side, or a total of 50 minutes' entertainment. Since many of the finest records of this type are now generally priced at about \$4 each, the owner of such a record is buying a minute of recorded music for 8 cents. Prior to the development of the long-play record, the same type of music was supplied on a 12-inch, 78-rpm. record which provided only 3½ minutes of music per side, or a total of 7 minutes per record. These records were ordinarily sold for \$1.50, or the equivalent of 21 cents per minute.

During the late summer of 1955 an important move was also made by Columbia Records, Inc., when it was announced that this company would organize its own record club, and was prepared for the first time to deal directly with consumers. Although other mail order operations of this type have been growing in importance during the last few years, Columbia is the first of the old-line record companies to use this plan of merchandising. The operation set up by Columbia closely follows the formula long and successfully followed in the book publishing field. Each month one or more records are featured, and additional bonus records are provided without charge to regular purchasers. Differing from most other record clubs, the Columbia plan provides for a partial participation by its franchised dealers in the operation of the club.

Principally as a result of price reduction the record industry was expected to sell far more units (possibly 20% more) in 1955 than in any year prior to the development of the long-play

record. Dollar volume, however, was not expected to show so high an increase (possibly 10% over 1954) because of the lower unit prices. This means that the total retail value of records sold in the United States in 1955 was somewhat in excess of \$200 million.

POPULAR RECORDS

In the field of popular music, Frank Sinatra, a Capitol artist, duplicated his recent great success in motion pictures. In a poll of disk jockeys conducted by *Billboard*, a leading trade magazine, he was not only named top artist whose records were most often played during the year by disk jockeys, but was also acclaimed by them as their favorite male singer. His single record, *Learnin' the Blues*, and his album, *In the Wee, Small Hours*, were also voted tops in their categories.

The year 1955 will probably be remembered for *The Ballad of Davey Crockett*. Nearly every record company made one or more versions of this highly popular song, and for several months it seemed to the casual listener that radio stations played this selection almost exclusively. The top recording of this selection was sung by Bill Hayes for Cadence Records.

The Yellow Rose of Texas was a big hit with the disk jockeys, in the juke boxes, and with the public generally, during the summer of 1955. It was an adaptation of a song sung by the Confederate troops during the Civil War, and the new arrangement was another triumph for Mitch Miller of Columbia.

The Decca Company also had its share of outstanding popular successes as, for instance; *Love is a Many-Splendored Thing*, recorded by the Four Aces, and *Rock Around the Clock*, with Bill Haley.

The year 1955 was also distinguished by the fact that some of the smaller record companies were able to come up with several of the really big hits in the popular field. *Autumn Leaves*, by Roger Williams for Kapp Records; Billy Vaughan's recording of *Melody of Love* for Dot Records; and *Hearts of Stone*, by the Fontane Sisters for the same label, are good examples of this trend.

In addition to the records listed above, the following popular records had a large sale during 1955:

Sincerely, McGuire Sisters
Unchained Melody, Les Baxter
Cherry Pink and Apple Blossom White, Perez Prado
Let Me Go Lover, Joan Weber
Mr. Sandman, Chordettes
Unchained Melody, Al Hibbler
Dance With Me Henry, Georgia Gibbs
Ain't That a Shame, Pat Boone
Blossom Fell, Nat (King) Cole
That's All I Want from You, Jaye P. Morgan
Tweedle Dee, Georgia Gibbs
Ko-Ko-Mo, Perry Como
How Important Can It Be, Joni James
Naughty Lady of Shady Lane, Ames Brothers
Sixteen Tons, (Tennessee) Ernie Ford
Crazy Otto, Johnny Maddox
Something's Gotta Give, McGuire Sisters
Hard to Get, Gisele MacKenzie
Honey Babe, Art Mooney
Seventeen, Fontane Sisters

Among individual artists, Doris Day, a Columbia artist, held first position as the favorite female vocalist, as she did in 1954. In this field, Jaye P. Morgan, recording for RCA Victor, jumped to second place, although she was not mentioned among the first ten in 1954. Ella Fitzgerald, of Decca, regained third position after slipping to ninth a year earlier.

Among the men vocalists, Sinatra was, of

course, far out in front. He was followed, as was to be expected, by RCA's Perry Como and Eddie Fisher, and then by Nat (King) Cole, of Capitol.

Among the vocal groups, Decca's Four Aces were outstanding, and Les Elgart's Band, recording for Columbia, jumped from fifth place in 1954 to first place in popularity in 1955.

JOHN W. GRIFFIN,

Executive Secretary, Record Industry Association of America, Inc.

CLASSICAL RECORDS

The following, although it is by no means a complete list of 1955's classical record releases, was selected as indicative of the work of major composers, orchestras, conductors, and musicians.

Beethoven, Violin Concerto: Nathan Milstein, soloist; Pittsburgh Symphony Orchestra, William Steinberg, conductor (Capitol).

Brahms, Orchestral Music: Philharmonic Promenade Orchestra, Sir Adrian Boult, conductor (Westminster).

Couperin, Harpsichord Music: Ruggero Gerlin, soloist (Oiseau-Lyre).

Debussy, *Images pour orchestre*: Amsterdam Concertgebouw, Eduard van Beinum, conductor (Epic).

Elgar, *Enigma Variations*: Royal Philharmonic Orchestra, Sir Thomas Beecham, conductor (Columbia).

Handel, Concerti Grossi, Opus 6: English Baroque Orchestra, Hermann Scherchen, conductor (Westminster).

Handel, *Water Music*: Berlin Philharmonic Orchestra, Fritz Lehmann, conductor (Archive).

Haydn, Mass No. 9 in D Minor (Nelson): Soloists; Akademie Chamber Chorus and Vienna State Opera, Mario Rossi, conductor (Vanguard).

Mozart, *Così fan Tutte*: Elisabeth Schwarzkopf, Nan Merriman, Leopold Simoneau, and others, soloists; Chorus and Philharmonia Orchestra, Herbert von Karajan, conductor (Angel).

Mozart, *Le Nozze di Figaro*: Lisa della Casa, Hilde Gueden, Suzanne Danco, Cesare Siepi, and others, soloists; Chorus and Vienna Philharmonic Orchestra, Erich Kleiber, conductor (London).

Mozart, Symphony No. 36 in C (Linz), K. 425: Rehearsal and performance by Columbia Symphony Orchestra, Bruno Walter, conductor (Columbia).

Puccini, *Manon Lescaut*: Renata Tebaldi, Mario del Monaco, and others, soloists; Chorus and Orchestra of l'Accademia di Santa Cecilia, Francesco Molinari-Pradelli, conductor (London).

Ravel, *Daphnis and Chloë*: Boston Symphony Orchestra, Charles Munch, conductor (RCA Victor).

Satie, Piano Music: William Masselos, soloist (MGM).

Scarlatti, Sixty Sonatas for Harpsichord: Ralph Kirkpatrick, soloist (Columbia).

Strauss, Richard, *Don Juan*; *Till Eulenspiegel*: Vienna Philharmonic Orchestra, Wilhelm Furtwängler, conductor (RCA Victor).

Tchaikovsky, Piano Concerto No. 1: Emil Gilels, soloist; Chicago Symphony Orchestra, Fritz Reiner, conductor (RCA Victor).

Verdi, *Un Ballo in Maschera*: Herva Nelli, Claramae Turner, Jan Peerce, and others, soloists; Robert Shaw Chorale and NBC Symphony, Arturo Toscanini, conductor (RCA Victor).

The Art of the Organ: A recital by E. Power Biggs on 20 European organs (Columbia).

Fifty Years of Great Operatic Singing: A collection of 68 vocal recordings from 1903 to 1951 (RCA Victor).

ROLAND GELATT,

New York Editor, "High Fidelity" Magazine, Author of "The Fabulous Phonograph: From Tin Foil to High Fidelity."

RED CROSS, American National. During 1955 the American Red Cross spent 40 per cent of its budget in services for members of the armed forces, veterans, and their families. Red Cross field directors on United States military installations and in hospitals throughout the world aided servicemen and their families through counseling, financial assistance, communications, assistance in applying for government benefits, and referral.

Chapters also helped approximately 46,000 veterans and their families monthly with somewhat similar services, providing more than \$750,000 in assistance. Each month nearly 21,000 volunteers served patients in 127 military hos-

pitals in the United States and overseas. A slightly larger number served patients in 176 Veterans Administration hospitals.

Recreational services were provided for armed forces stationed in isolated sections of Korea, and five recreational centers were in operation in France and North Africa.

Some 300 disaster relief operations were carried on in 44 states, Alaska, and 2 insular territories during 1955. More than 91,000 persons received emergency mass care—food, shelter, rescue, evacuation, and medical and nursing services. Rehabilitation assistance, including building and repair, long-term medical and nursing care, household furnishings, basic maintenance, and occupational supplies and equipment, was given to 14,400 families. In 1955, about 80 cents of every disaster relief dollar was spent for rehabilitation.

Internationally, the American Red Cross assisted 19 other societies in relief measures for the victims of disasters. Medicines, soap, and mobile dispensaries were also sent to the Viet-Nam Red Cross to help in the care of hundreds of thousands of refugees who voluntarily fled the Communist-occupied section of the country.

The Red Cross Blood Program collected nearly 2,210,000 blood donations in 40 states and the District of Columbia for civilian use and national defense. Blood was provided to 3,800 hospitals. Each month, 16,000 volunteers, including doctors and nurses, served in the program.

Approximately two million certificates were issued to persons who successfully completed training in first aid, water safety, and home nursing. Most of the teaching was done by volunteer Red Cross instructors. Thirty aquatic schools attracted 3,000 students who qualified as instructors in water safety, small craft, and first aid.

Volunteers, the majority specially trained for their assignments, served 600 federal hospitals and installations, 120 civilian mental hospitals, 5,400 other civilian hospitals, and 3,900 community agencies.

Members of the Junior Red Cross, enrolled in 74,000 elementary and secondary schools, participated in chapter volunteer activities as well as in national and international projects. They packed more than 400,000 gift boxes, which were sent overseas to 35 countries; prepared 317 school chests, each containing a year's supplies for 50 pupils; and exchanged school correspondence albums, paintings, and music recordings. The value of these shipments exceeded \$900,000. Most of the aid went to children in disaster-stricken areas.

CARROLL L. BRYANT,

Director, Office of Publications.

REFORESTATION. See FORESTRY.

REFRIGERATION. See AIR CONDITIONING AND REFRIGERATION.

REFUGEES AND DISPLACED PERSONS. Migration is one of the most important and powerful links between the nations of western Europe and the Americas. During the past year, the South American countries have benefited especially because of the migration from Europe of skilled workers and professional people. This movement, by and large, was better than that into the United States because of the partial failure of operations under the U.S. Refugee Relief Act of 1953.

No one knows accurately how many people there are in Europe who could be classed as refugees or displaced persons. It is a fact that many of the millions who remain are living in poverty



NEW YORK WORLD TELEGRAM AND SUN

Austrian woman and her grandchild are among 1,200 refugees arriving in the United States on July 12, 1955.

and are the objects of charity supplied by local agencies and church groups. The problem has never been confined to Europe, however. It continues to be worldwide. More than three million people in the Far East are victims of war and political upheavals. Wars in Asian colonies have increased the flow of refugees from Communist-controlled countries in Europe.

The immigrants to western European countries encounter a new nationalism created by the fear of communism in those countries. This results in serious tensions. There is a vicious circle in which areas of tension create the uprooting and dislocation, and by their very dislocation the people concerned create areas of tension in some areas where they are resettled.

The agencies which have operated in Europe and elsewhere, and cooperate with the United Nations high commissioner for refugees, are: the Intergovernmental Committee for European Migration (ICEM), the U.S. Committee for Refugees, the U.S. Escapee and Refugee Program, the Foreign Operations Administration (now the International Cooperation Administration), and private agencies such as the National Catholic Welfare Conference, the World Council of Churches, the United Hias Societies, the Lutheran Refugee Services, and committees from other religious and nationality groups. The work of church groups, through refugee programs of aid, education, and resettlement, has made a distinct contribution unhampered by political fights and fears which have slowed up some governmental operations.

The Office of the U.N. High Commissioner for Refugees has not been seriously handicapped by political confusion. That office continues to act with a minimum of resistance and interference from national governments, particularly in its program of emergency assistance. High Commissioner G. J. van Heuven Goedhart proposed a program directed at a permanent solution of the refugee problem. It will center on

special efforts to achieve repatriation and resettlement. This will be done in cooperation with the ICEM. In the year 1954, the ICEM assisted in the resettlement of 16,224 refugees within the mandate of the high commissioner's office.

In 1955, the ICEM's operational plan provided for the movement of 142,165 migrants, of which 25,000 would be within the mandate of the high commissioner's office. That office is also working with the U.S. Escapee and Refugee Program (1953); approximately 35,000 persons have been registered in Germany and Austria, of whom only 15,672 were resettled by July 1955.

The high commissioner reported that under the U.S. Refugee Relief Act of 1953, only 24,217 visas had been issued by April 1955. The majority of these were for close relatives of United States citizens, and only a small number of visas were granted to escapees and refugees. No visas under the act were issued for European refugees in the Far East.

The ICEM and religious groups are resettling European refugees in Australia, Canada, New Zealand, and 12 South American countries. It is estimated that the total resettlement during 1955 in these countries will exceed 200,000.

Repatriation is more difficult because of the lack of response to numerous appeals made to certain countries of origin of the refugees. Efforts to achieve repatriation will continue on behalf of any refugee who asks assistance in this respect.

As a part of the new program toward a permanent solution, the U.N. General Assembly has authorized the high commissioner to make appeals for funds for the purposes set forth. As a target for 1955 the sum was set at \$4,600,000, which consisted of \$3,350,000 for repatriation and resettlement, and \$1,250,000 for emergency assistance.

The geographical distribution of funds for a permanent solution of the problem would provide as follows: Austria, \$1,500,000; Greece, \$700,000; Italy, \$280,000; Germany, \$450,000; promotion in countries of resettlement, \$260,000. (The balance will go to other purposes for resettlement.) The funds for assistance would be distributed as follows: European refugees in China, \$321,000; Austria, Italy, and the Near East, \$210,000; difficult cases requiring special care, \$675,000. (The balance will be spent in other programs of assistance.)

This camp, near Jericho, Jordan, is one of four main camps maintained by UNRWA for 75,000 Palestine Arab refugees.

UNITED NATIONS RELIEF AND WORKS AGENCY



The U.N. Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) has a budget totaling \$26,800,000 for 1955-56. Of this amount, \$24,566,000 will be spent for operations including feeding, housing, medical care, etc., and \$2,210,000 will be allocated for construction and equipment. This total is an increase of \$3,600,000 over 1954-55 for operating costs, and is due to the increased number of beneficiaries, additional requirements for health care and social welfare services, and for cloth and special consumer goods and equipment, plus increased camp maintenance costs.

The United States refugee relief program has emphasized the great need for assurances, particularly in the Germany-Austria area. These are individual commitments on the need for special skills required in the work force. Assurances carry the "promise" of a job if the qualifications of the worker meet the needs set forth. There are 73,000 jobs certified—5,000 in clerical and professional work, 23,000 in services (domestic, hotels, restaurants, and hospitals), and 7,000 in agriculture. Others are in scattered fields such as engineering and other scientific work, and trades.

A conference of governor's committees (37 states represented) was held in Washington, Aug. 1-2, 1955, to stimulate efforts for securing assurances and to plan for resettlement of the future citizens. A total of 47,925 assurances came from 20 states led by New York with 12,421; Illinois, with 6,861; and California with 4,399.

State Department officials announced that visas were increased 62.5% since the beginning of 1955. As of August 12, a total of 45,418 visas were recorded as issued under the 1953 Refugee Relief Act. The State Department reported that 33,523 persons had entered the United States under the refugee relief program as of Sept. 2, 1955.

The general improvement in economic conditions in Europe has led to a change in the type of person available for migration—or rather the type of person whose emigration would be most advantageous to the European countries and would contribute most to relief of the excess population problems which they face. (See also CHILD WELFARE; IMMIGRATION, EMIGRATION, AND NATURALIZATION.)

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REHABILITATION, Vocational. See Index entry, *Vocational Guidance.*

RELIEF AND REHABILITATION. See Index entry.

RELIGION. Major developments among the principal religions of the world in 1955 are reviewed in this article under the following headings: (1) Introduction: A General Survey; (2) Protestantism; (3) Catholicism; (4) Oriental Religions, Islam, and the Eastern Orthodox Church; and (5) Judaism. The largest individual religious bodies in the United States and Canada are treated under separate headings—for example, BAPTIST CHURCHES, CHRISTIAN SCIENCE, CONGREGATIONAL CHRISTIAN CHURCHES, etc.; and membership figures are tabulated in the article, CHURCH MEMBERSHIP, U.S.

INTRODUCTION: A GENERAL SURVEY

Among contemporary primitive communities the age-old process of cultural change continued in 1955, bringing revolutionary changes in religious outlook. Some recent evidences of this

change have appeared in the conversion of hill tribes in India to Hinduism, in the extension of Semitic and Western cultures among the peoples of central and southern Africa where Moslems and Christians have been active, and in the pressure of Western culture and Christianity among Indians of the Americas, including primitive tribes in the United States.

Among advanced cultures, the year's developments included pronounced opposition to atheism, increased influences of socialism and nationalism, and efforts toward the promotion of religious freedom. These and other trends are reviewed below.

Atheism.—The tide of feeling in 1955 continued high on a wide front against Communistic atheism. Born and nurtured within the areas of Western and Semitic cultures, Communist atheism was condemned as heresy and was attacked on religious grounds by Moslems, Christians, and Jews. In India and China, deep-seated opposition to communism as a religion did not exist, in part because it represented a Western atheism, alien to the native cultures. Moreover, native religions in India tended to insulate the people against Communistic atheism.

Socialism and Nationalism.—In parts of Asia the drift more deeply into socialism affected the ideas and practices of the religious systems. Organized faiths took increased interest in the steps taken by reform governments to improve the fortunes of the lower social classes. More effort was expended in preserving the traditional religious customs than in initiating reforms. Religion in the various cultures became more deeply infused with the spirit of nationalism. In the national struggles for greater social justice, religious leaders became possessed of a new hope and a new fear: the new hope that social justice could be obtained within the cultural framework of the old established religions; and the new fear that if the religions did not bring social justice, a communist leadership, promising a new order of social justice, might take control.

The governments of India and Communist China have continued to pursue the policy of eliminating foreign missionaries on the ground that they are non-nationals who represent vestiges of the old imperialism and who are not in full unity with the new spirit of the country. In support of the contention that governments were not opposed to Christianity as such, however, the governments of India and Communist China recognized the native Christians in the status of national organizations.

Religious Freedom.—In the West, agitation for religious freedom was augmented on many fronts. There were numerous issues related to the principle of separation of church and state and its violation, and to the curbing of unequal privileges enjoyed by an established or state religion. In nations of non-Western culture, inspired governments of new national states have sought to insure equal treatment for all faiths in the hope of gaining the support of all religious groups in the causes of national freedom and social welfare. And in eastern and southern Europe an easing of some of the restrictions on religious freedom has been noted.

Faith and Practice.—At Rangoon, Burma, the two-year session of the Sixth Buddhist Great Council (convened May 18, 1954) continued in 1955. There the Buddhists set about the re-examination of their scriptures, the consideration of ways to strengthen spiritual ties among Buddhists, and the fostering of understanding be-

tween the East and West. In India, new attention has been directed to the study of world religions, through the lead of the Union for the Study of the Great Religions. With the sanction of the national government, steps have been taken to translate the teachings of Gandhi into all the languages of India, and to bring the study of Gandhian philosophy into the country's schools.

In the United States there was a marked increase in church membership. Large numbers voluntarily sought aid from religious tradition. Many seekers having no preference attached themselves to whatever religious society happened to be at hand in the community. This grass-roots movement pointed up acutely the common man's need for a more adequate integration of traditional faith with his culture of modern science.

Numerous declarations of faith by organized religion indicated the continued rejection of the assumption that all religious systems were valid for salvation, an assumption long accepted in the religious traditions of Indian and Chinese cultures.

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PROTESTANTISM

There are about 57,124,142 Protestants in the United States (1954) representing approximately 35.3 per cent of the population and 58.6 per cent of the church members in the country (*Yearbook of American Churches*, 1956 edition). There are over 200 religious bodies which can be called Protestant, but this figure is highly misleading because the vast majority are in less than 50 such denominations, and 85 per cent of all Protestants belong to nine large families of denominations such as Lutherans, Baptists, Presbyterians, etc. The statistics which have been released in the *Yearbook of American Churches* indicate that during the year 1954 the number of Protestants increased 2.3 per cent over the previous annual total, whereas the population of continental United States increased 1.7 per cent.

There are many external indexes that show the continuation of the upward trend in Protestantism that has been noted for several years. There has been a marked increase in church at-

tendance and church giving in recent years, and there is a general climate that is favorable to religion and to the churches. Much has been written about these evidences of religious revival, but a great deal of it has been critical of the types of religion that are most popular. Such leaders as Dr. Eugene Carson Blake, president of the National Council of the Churches of Christ in the U.S.A., Dean Liston Pope, and Dr. Reinhold Niebuhr have been forthright in their criticisms. They and many other religious leaders have emphasized the one-sidedness of popular religion with its emphasis on "peace of mind" and its neglect of the prophetic criticism of culture. The tendency for religion to be regarded as chiefly a support for the American way of life has been widely criticized in influential circles in the churches.

Evidences of religious revival are frequently compared with evidences of widespread religious illiteracy and with the increase in juvenile delinquency. The success of the Rev. Billy Graham in his mission in Scotland has been widely noted in the United States, and has greatly increased his influence in circles which had been highly critical of his emphasis and methods. For the first time the Protestant Council of New York City has invited Graham to conduct a mission in that city.

Several denominations have had to face conflicts over the issue of racial segregation on local and regional levels. The national bodies of the denominations and the National Council of Churches have consistently opposed segregation, but in many Southern states there is great resistance to this view, and in local situations there have been a number of ministers who have lost their jobs when they have supported the process of desegregation in the schools. It is noteworthy that the General Assembly of the Presbyterian Church in the U.S. (Southern) passed a resolution against segregation in the schools by a vote of 293-109, a larger majority than was the case the year before. The Protestant Episcopal Church decided to change its plan to hold its general convention in Houston, Texas, because it could not secure a guarantee against discrimination on racial grounds against some of its delegates in that city and, instead, held the convention in Honolulu.

One proposed union between denominations—that of the Presbyterian Church in the U.S.A. (Northern), the Presbyterian Church in the U.S. (Southern), and the United Presbyterian Church of North America—was defeated for the present by the failure of enough presbyteries in the Southern church to approve the union. (See PRESBYTERIAN CHURCHES.) Another proposed union between denominations was advanced as plans were made for the consummation of the union between the Congregational Christian Churches (q.v.) and the Evangelical and Reformed Church in June 1957.

It was announced, after years of controversy, that the permanent headquarters of the National Council of Churches will be located in New York City on Morningside Heights. This organization called the first National Conference on the Churches and Social Welfare in Cleveland, Ohio, on Nov. 1-4, 1955; it was attended by 700 delegates.

During 1955 the public began to become aware of the decisive importance of the discovery of the Dead Sea Scrolls* in furthering knowl-

* Of Jewish Essene origin, and dating from possibly as early as 200 B.C. to 70 A.D., the Dead Sea Scrolls are

Evangelist Billy Graham (r.), who toured Europe in 1955, begins his London Crusade at Wembley Stadium on May 15.



edge of the text of the Bible and in reconstructing the backgrounds of early Christianity.

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CATHOLICISM

At the end of 1954 and during the first months of 1955, anxiety gripped the world as Pope Pius XII suffered the recurrence of a serious ailment. On Jan. 3, 1955, his annual Christmas message was published unpronounced and broadcast by an anonymous voice. In this grave address he called on all nations to live in peace and harmony. This can be achieved, he wrote, if "a bridge of truth" between East and West is built on the principles of Bethlehem and founded "on the divine moral order" and on the human beings living in these two worlds.

On April 10, Easter Sunday, Pius XII, recovered at last, delivered his traditional message of hope. He urged international talks to achieve "progressive disarmament" and "lasting understanding" between the two power blocs. The main part of his message was devoted to the hope and terrors of the nuclear age.

A few days later, at the occasion of the seating of newly appointed scholars in the Pontifical Academy of Sciences, Pope Pius XII defined the mission of the scientist. "The mission confided to you," he said, "ranks among the most noble, for you should be in a sense the discoverers of the intentions of God. It pertains to you to interpret the book of nature, to describe its contents and to draw the consequences therefrom for the good of all."

On Oct. 3, 1955, Pius XII addressed mayors and representatives of many of the world's principal cities, including seven in the United States. He reminded them that even in the modern centralized state, the city remains the mother cell of civilization. The pope praised the growing movement in which cities in various countries seek to establish close ties of friendship and to promote cultural exchange and mutual help when needed.

Delegates attending a Rome congress of the International Union of Theater Owners and Film Distributors were received in audience by Pope Pius XII on Oct. 31, 1955. In the course of his address the pope emphasized that for the present generation the motion picture has become "a spiritual and moral problem of immense importance" that cannot be neglected by the church.

The 36th International Eucharistic Congress opened in Rio de Janeiro, Brazil, on July 17, 1955. More than a million persons attended this grandiose manifestation of fidelity to the Sacrament, including over 10,000 pilgrims from many countries. Francis Cardinal Spellman of New York and Samuel Cardinal Stritch of Chicago, followed by 12 United States archbishops and five bishops, participated in the ceremonies. One of the most memorable events of the congress took place when over 200,000 of the faithful joined in prayer for more than 60 million Catholics behind the Iron Curtain. They knelt before 14 black crosses erected in front of a monumental altar. Grouped at the foot of each cross stood delegations of the 14 countries where the church is suffering Communist-inspired persecution: Albania, East Germany, Bulgaria, Communist

a collection of manuscripts and fragments found during the years 1947-55 in ten caves in the region of Qumran on the northwest shore of the Dead Sea. (Consult Wilson, Edmund, *The Scrolls from the Dead Sea*, New York, 1955.)



UNITED PRESS

Pope Pius XII, who recovered from a serious ailment in 1955, participates in ceremony at St. Peter's on June 22.

China, Yugoslavia, Hungary, Lithuania, Latvia, Poland, Czechoslovakia, Estonia, the USSR, Ukraine, and North Viet-Nam.

On Sept. 5, 1955, Labor Day, before an estimated 120,000 pilgrims, Bishop Fulton J. Sheen, of New York, celebrated the first pontifical mass ever sung in English (except for the canon which was chanted in Old Slavonic) and the first in the Byzantine rite to be celebrated by a bishop of the Latin rite. The liturgy which Bishop Sheen celebrated was the concluding event of the 121st annual pilgrimage by members of the Pittsburgh Greek rite diocese to the Shrine of Our Lady of Perpetual Help at Mount Saint Macrina, mother house of the sisters of Saint Basil the Great. Before Bishop Sheen's mass, the liturgy was also celebrated in the Latin, Maronite, and Syro-Malankarese rites, and in forms of the Byzantine, Hungarian, Melchite, Rumanian, and Old Slavonic rites. (See also ROMAN CATHOLIC CHURCH.)

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ORIENTAL RELIGIONS, ISLAM, AND THE EASTERN ORTHODOX CHURCH

A conference of world religions, called by a committee representing various religious organizations in Japan, was held in Tokyo early in August 1955 in order to consider how the religions of the world might work together for world peace. Representatives of 11 faiths from 13 countries were present. A resolution was passed calling for the creation of an intercreedal council to "channel the energies of all religions toward permanent cooperation in the field of world peace and betterment of social conditions."

It is reported that the Communists, far from prohibiting Lamaism in Tibet, have sponsored something closely resembling a revival. A substantial sum has been spent by the Chinese government in repairing and refurbishing the great Lama Temple in Peking. At the same time, the Temple of Confucius is being used for a study room of the Marxist-Leninist Institute of China, and is falling into disrepair.

A thousand young Buddhists, men and women, met in San Francisco, Calif., for the 13th annual conference of the Western Young Buddhists League. The theme of the conference was "Oneness Through the Buddha, Dharma [the teaching], and the Sangha [the brotherhood]."

In spite of the vigorous opposition of several Hindu groups to continuing Christian missions in India, the *Christian Handbook of India* indicates that the number of missionaries has increased steadily during the last few years. Including missionaries on furlough, there are now 5,300. But the conditions of entry of new missionaries and the re-entry of furloughed workers have become increasingly strict. All Commonwealth missionaries must obtain annual renewals of their endorsements in order to remain in India.

A recent Moslem census published in the *Islamic Review* (vol. 42, no. 11, pp. 18-19) gives the total Moslem population of the world as 427,996,558, a much higher figure than that usually given. China is credited with 50,000,000 Moslems, although other estimates are as low as 12,000,000, and the claim of 28,500,000 for the USSR is more than double the latest estimate of non-Moslem authorities.

The *Islamic Review* reports that there are 80,000 Moslems and 12 mosques in the United States and Canada. The larger number of these Moslems are immigrants from Islamic lands, but it is claimed that there are at least 3,000 converts among the Negroes of New York City, 1,000 in Philadelphia, 2,000 in Detroit, and 2,000 in Chicago. The Federation of Islamic Associations in the United States and Canada was organized in 1954.

The rector of the University of al-Azhar in Cairo, Egypt, unhappy at the lack of uniformity existing with respect to the date of the observance of the principal Islamic festivals, and in particular the proper date of the beginning of the fast of Ramadan, has formed a committee of Moslem jurists and scientists to make a detailed investigation of the matter. On receipt of its findings, he will announce them and try to obtain agreement of all Moslems everywhere to observe these dates.

The *Islamic Review* calls polygamy one of the formidable reproaches with which Moslems contend when opponents criticize their social system, and advocates legislation in Moslem states placing legal restrictions on its practice. In no sense would such legislation run counter to the Koran, it asserts.

A four-man delegation from the Netherlands Ecumenical Council of Churches visited the Russian Orthodox Church recently and spoke in various churches to capacity crowds. The members of the delegation were cordially received by the patriarch of Moscow. They estimate that 30% of the Russian people are loyal to the church and contribute to its support. They found little awareness of ecumenicity among rank-and-file priests, but a great deal of interest among the top-ranking clergy. A little later a delegation of Russian churchmen, including Lutherans, Baptists, and Orthodox, made an official visit to the British Council of Churches. The Orthodox group included three theological professors, a fact which leads some observers to believe that the Russian Orthodox Church is prepared to assume its place in the area of theological learning.

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JUDAISM

Although there was no nationwide study of synagogue affiliation among Jews in the United States, the results of several sample polls taken during 1954-55, as well as other evidence,

tended to show a movement of Jews into the synagogue parallel to that of other Americans to the church. The principal synagogue bodies, representing the three branches of American Judaism (Orthodox, Conservative, Reform), reported the following numbers of affiliated congregations: Union of Orthodox Jewish Congregations, 700; United Synagogue of America (Conservative), 585; Union of American Hebrew Congregations (Reform), 520.

Each of the three religious groupings continued to maintain institutions of higher education. The enrollment figures for 1954-55 in the principal institutions were as follows: Yeshiva University (Orthodox), 2,672, of which 744 were in the theological seminary; Jewish Theological Seminary of America (Conservative), 1,970, of which 241 were in the Rabbinical School; and Hebrew Union College-Jewish Institute of Religion (Reform), 1,700, of which 150 were in the Rabbinical School. These institutions also conducted other schools for the training of Hebrew teachers, cantors, other religious functionaries, and an informed laity.

The Commission on Jewish Chaplaincy, on which were represented the Rabbinical Council of America (Orthodox), the Rabbinical Assembly of America (Conservative), and the Central Conference of American Rabbis (Reform), was the agency through which the National Jewish Welfare Board (JWB) was authorized by the U.S. Department of Defense to recruit and ecclesiastically endorse rabbis for service as chaplains in the various branches of the armed forces. In 1954 the commission recruited and processed 32 full-time chaplains. There was a total of 95 full-time Jewish chaplains in the armed services and in other federal governmental services at the end of 1954. In addition, 249 part-time chaplains served military posts and veterans facilities.

In addition to the ongoing program of research and scholarship, several institutions inaugurated new projects. At the close of 1954 arrangements were concluded with representative scholars of the Hebrew University for the joint production of a history of the Jewish people by the scholars of Israel and the United States, including also a number of European scholars. The final work would appear in 20 volumes in two editions: an English and a Hebrew version, published simultaneously.

In June 1955 the Jewish Theological Seminary of America launched an Institute for Ethical Studies in the Atomic Age, "on the premise that the most perplexing and urgent problems of our time lie in the neglected domains of ethics and theology." It would grant fellowships to exceptional students who would be enabled to devote all of their time to the study of ethics, theology, and philosophy.

Jewish religious institutions played a major role in the celebration of the American Jewish Tercentenary. This event was also the occasion for a tercentenary celebration by Congregation Shearith Israel in New York City.

Pending the completion of a nationwide survey of Jewish education, there were no new enrollment figures to report for 1955. In 1954 there were 400,000 children attending Jewish schools in the United States, compared with 240,000 in 1948. As part of the national survey, pilot studies were undertaken by the Jewish communities of Cleveland and Savannah. (See also JEWISH AFFAIRS.)

MORRIS FINE,

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RENT CONTROL. See Index entry, *Rent and Rent Control*.

REPRESENTATIVES, House of. For list of members, see UNITED STATES; and for legislation, see Index entry, *Congress, U.S.*

REPUBLICAN PARTY. In 1955, Republicans were in the minority in both houses of Congress, as a result of the elections of 1954. The year brought remarkably few serious conflicts between the Democratic Congress and the Republican administration. The Senate Republican leader, William F. Knowland of California, stated that Republicans supported the president "about three fourths of the time" on roll-call votes in the Senate and House on issues involving presidential proposals, while "Democrats supported the president only a little more than half of the time."

Republican leaders were virtually unanimous in their obvious desire that President Dwight D. Eisenhower should again be the party's candidate for president in 1956. On September 9 the 48 state chairmen, at the close of a three-day conference in Washington, telegraphed the president in Denver, "We are looking forward to supporting you again in 1956." When the chairmen visited the president at his Colorado headquarters the next day, he cautioned them not to depend too heavily on one man. Speculation over the president's intentions changed abruptly to party gloom when the president suffered a heart attack on September 24. Ensuing weeks, with the president's steady recovery, brought renewed but less confident speculation about his probable candidacy. Many party leaders clearly hoped, if the president should not run, that he would express his preference for a nominee and put the weight of the administration behind him in the campaign. Others, whose opinion was publicly voiced by Senator Knowland, believed that any presidential decision not to seek re-election should be followed by a free and uninfluenced nominating convention.

Other possible Republican candidates for the presidency necessarily withheld any public indication of candidacy pending the president's decision. Among leading possibilities were Vice President Richard M. Nixon (q.v.) of California, former Gov. Harold E. Stassen (q.v.) of Minnesota, and Senator Knowland. Gov. Goodwin J. Knight of California made it clear that he would be a "favorite son" candidate if the president should not seek re-election. Chief Justice Earl Warren (q.v.), also of California, announced that he would not leave the Supreme Court for any political purpose, but there were public comments that he ought to be drafted if the president should decline to run.

Developments in 1955 continued to give promise that Republicans could campaign in 1956 on a slogan of "Peace and Prosperity." This advantage might be marred, it appeared, by falling agricultural prices and political unrest among farmers. President Eisenhower indicated that he would continue to support Ezra T. Benson, secretary of agriculture, and his policy of flexible rather than rigid farm price supports. Because of support from such Democratic leaders as Walter F. George of Georgia, chairman of the Senate Committee on Foreign Relations, administration foreign policy was not a major political issue during the year.

The Republican National Committee, under Chairman Leonard W. Hall, chose San Francisco for the 1956 national convention, to convene

August 20. At their September conference, the state chairmen developed a plan to double the party's local organizational strength by recruiting men and women of ages 21-30 as alternate district leaders. Party leaders estimated that this program would provide an additional 200,000 young workers for the 1956 campaign.

State and local election returns in 1955, with a few scattered exceptions, did not bring Republicans encouraging signs of party voting strength. The loss, on April 4, of several statewide school and judicial posts in Michigan was unexpected. A net loss of 40 mayoralties in Indiana on November 8 was a major disappointment resulting partly from bitter party factionalism in the state. Elsewhere losses were not so apparent as was failure to make gains. (See also ELECTIONS; UNITED STATES—*The United States in 1954.*)

RESINS. See Index entry.

RESPIRATORY DISEASES. Acute upper respiratory tract infections, commonly considered to be minor diseases, account for approximately 50 per cent of all cases of total and disabling illness and continue to be the principal cause of absenteeism from work, school, military training, and play. The economic cost of these illnesses is staggering, and there is as yet no effective means of controlling them.

The majority of acute respiratory tract infections are nonbacterial (virus) in origin. In a study of their incidence in Cleveland families, only 3 per cent could be assigned a definite etiology. Likewise, only one half of the febrile respiratory infections during a six-year study at the Great Lakes Naval Training Center could be identified etiologically. The clinical characteristics of these so-called "virus" infections are not well defined and vary from the simple afebrile "common cold" on the one hand to severe debilitating bronchitis and pneumonia on the other. Various clinical syndromes designated as the common cold, nonstreptococcal pharyngitis, acute respiratory disease, epidemic influenza, and atypical pneumonia have been described.

During the past three years significant progress has been made in the development of methods for isolation and identification of nonbacterial respiratory disease agents. Recently, Dr. R. J. Huebner and his associates of the U.S. Public Health Service have isolated a number of viral agents "in tissue culture from adenoid and tonsillar tissue removed at surgery and from nasopharyngeal and conjunctival secretions and feces of persons with respiratory illness." They refer to these viruses as adenoidal-pharyngeal-conjunctival agents (APC viruses) and have divided them into at least eight immunologically distinct types. Thus far, types 3, 4, and 7 have been associated with reasonably well-defined clinical respiratory illnesses. The extent to which these viruses cause acute respiratory disease in different population groups is now under study by a number of different investigators.

HeLa cell (human cancer strain) and kidney cell (monkey) cultures are now routinely employed for the isolation and identification of respiratory disease agents. Recent studies indicate that the monkey kidney cell culture is also suitable for the isolation of influenza virus types A and B. Thus far there is no evidence that any of a number of agents isolated in tissue culture has an etiological relationship to the common cold or to primary atypical pneumonia associated with blood cold agglutinins.

Nonbacterial pneumonias have recently been

associated with influenza and APC Type 4 viruses. Psittacosis and Q fever are primarily pulmonary virus infections, and occur in individuals respectively associated with infected psittacine birds (parakeets) and infected cattle and sheep. During the past two years little has been published on Q fever, which was previously reported to be prevalent in California. Pneumonia caused by the psittacosis virus, however, appears to be on the increase. During 1954 a total of 445 cases was reported to the U.S. Public Health Service. These came from 29 states and the District of Columbia. The greatest number of cases were among psittacine (parakeet) bird handlers. In one state (Texas), 169 cases occurred among employees of turkey processing plants. Recent reports reveal that pigeons, chickens, ducks, and other domestic fowl may be infected and transmit their disease to man.

Since the fall and winter of 1953, epidemic influenza has occurred only sporadically in the United States. Reported cases have been due mainly to influenza virus types B and C. In the absence of annual vaccinations, the immune state of the population can be expected to be low. It was predicted, on the basis of our knowledge of the epidemiology of influenza, that the respiratory disease season of 1955-56 would witness an epidemic outbreak.

The acute nonbacterial respiratory tract infections are most prevalent in all age groups during the fall, winter, and spring months. Several studies have shown that the highest incidence is among children under six years of age, averaging approximately 6.5 infections per person per year. Respiratory illnesses become less frequent with increasing age but are more prevalent among mothers than fathers. These observations suggest that many infections among adults are acquired from their children and that the children in turn acquire their infections from intimate contact with others at school, at play, etc.

There is a great diversity of opinion concerning the mode of transmission of respiratory diseases. The respiratory disease viruses are found in the nose and throat secretions of ill and asymptomatic carriers, and presumably are dispersed during the course of coughing, sneezing, laughing, talking, blowing the nose, and hand-to-mouth activities. The virus-carrying droplets vary greatly in size. The large ones fall quickly to contaminate the immediate environment, while the smaller ones evaporate and remain suspended for longer periods of time in the air as "droplet nuclei." Some observers consider that the viruses causing acute respiratory disease are spread by means of the air from the inhalation of infectious droplet nuclei. Others consider the opportunities for spread by immediate contact to be more important. Individuals with respiratory tract infections undoubtedly contaminate themselves and their environments with the offending viruses and thus provide many opportunities for transfer of these agents to others. The available evidence indicates that the implantation of viral agents on the nasal and throat mucous membranes by the inhalation of contaminated dust or droplet nuclei, the direct implantation of infectious droplets on the conjunctivae, and the indirect contact with contaminated objects or with soiled hands all operate in the transmission of respiratory infections but vary in importance with different age groups, disease, environments, and seasons of the year.

The acute bacterial infections of the respiratory tract are now successfully treated with the sulfonamides and antibiotics, but psittacosis and

Q fever pneumonia are the only infections of viral etiology which respond to certain of the antibiotics. Although effective influenza vaccines are available for protection against this disease, successful control over the other respiratory infections of viral etiology awaits the further identification of the agents and the preparation of suitable vaccines. (See also MEDICINE.)

CLAYTON G. LOOSLI,
Professor of Preventive Medicine, University of Chicago.

RETAIL STORE SALES. Retail store sales of \$177 billion set an all-time record in the fiscal year ended June 30, 1955. Sales rose 5% above the previous fiscal year. Dollar volume was one fourth above the pre-Korean War level and two and one-third times the level at the termination of World War II, with about half of these gains attributable to price rises.

In February 1954 sales began to recover from the 1953 economic downturn. The rate of gain accelerated sharply in November 1954, and sales climbed steadily at the rate of \$100 million a month for the balance of the fiscal year. Sales gains persisted in the first half of the fiscal year 1956. With prices virtually unchanged since 1952, rising sales reflected an actual increase in units sold.

The steadily expanding flow of income to consumers was the primary factor stimulating buying in the fiscal year ended June 30, 1955. Consumers also showed less disposition to save. Expanding consumer credit furnished additional impetus for purchasing, particularly in the durable goods categories.

Consumers spent 68% of their disposable income at retail stores in the fiscal year ended June 30, 1955. The high level of prosperity resulted in a heavier flow of purchases into the durable goods stores. By the end of the fiscal year 1955 one fourth of consumer income was being expended in these outlets. Reflecting sustained interest in automobiles, this ratio has remained well above one fifth throughout the postwar period, compared with 17% in prewar years.

Nondurable goods stores received 44% of the consumer dollar. This ratio has been maintained over the long-term period largely because of the nonluxury, day-by-day buying represented by most of these outlets.

Sparked by the introduction of the 1955 models, automotive sales reached record volume at the close of the calendar year 1954 and climbed steadily in successive months (see AUTOMOBILES). With automobile registrations at 49 million, gasoline service station sales rose an ad-

SALES OF U.S. RETAIL STORES

(In millions of dollars)

	Fiscal year ended June 30	
	1954	1955
All retail stores.....	169,166	177,060
Durable goods stores*.....	58,714	62,124
Nondurable goods stores*.....	110,452	114,937
<i>Durable goods stores:</i>		
Automotive group.....	32,297	34,780
Furniture and appliance group...	9,097	9,430
Lumber, building, hardware group	10,155	10,575
<i>Nondurable goods stores:</i>		
Apparel group.....	9,997	10,352
Drug and proprietary stores.....	4,866	5,010
Eating and drinking places.....	13,023	13,278
Food group.....	40,792	42,544
Gasoline service stations.....	10,938	11,936
General merchandise group.....	18,771	19,336

* Includes estimates for other retail stores not shown separately. (Source: U.S. Department of Commerce: Bureau of the Census and Office of Business Economics.)

ditional 9% from the fiscal year 1954 to 1955. The remaining groups of retail stores each registered gains of from 2% to 4%.

Of every dollar spent at retail stores, food outlets received 24 cents; automotive stores, 20; general merchandise stores, 11; eating and drinking places and gasoline service stations, 7 each; apparel stores, 6; lumber, building, and hardware stores, 6; furniture and appliance stores, 5; drug stores, 3; and miscellaneous retail stores, 11.

Retailers' inventories totaled \$23 billion at the end of the fiscal year 1955. With high sales siphoning stocks from retailers' shelves, inventory accumulation was negligible and the stock-sales ratio fell slightly during the year.

MARIE P. HERTZBERG,

Office of Business Economics, U.S. Department of Commerce.

REUNION. An island in the Indian Ocean, 420 miles east of Madagascar, forming an overseas department of France. Area, 970 square miles; pop. (1954 census), 274,370, chiefly French Creole. Saint-Denis (41,863) is the capital. Réunion is governed by a prefect and an elected General Council of 36 members. The island has 241 primary schools (46,036 pupils) and 2 lycées (1,017).

Chief crops are sugarcane, manioc, tapioca, vanilla, and vegetable essences. The sugar crop for 1954 (prelim.) was estimated at 200,000 short tons (189,000 in 1953). Industry consists chiefly of the manufacture of industrial alcohol and rum, chocolate, flour, vegetable oils, cigarettes, canned goods, and fiber sacks. Exports in 1954 totaled 6,291 million francs CFA; imports, 6,473 million. Chief exports were: sugar, 169,210 metric tons (5,070 million francs CFA); rum, 49,551 hectoliters; essential oils, 149 metric tons; and vanilla, 51 metric tons. Réunion has a 78-mile coastal railway and 456 miles of roads. Air France maintains regular air services to the island. Telephones numbered 3,869 in 1955; motor vehicles, 7,000 (1954); licensed radio receivers, 3,000 (1952). In 1952 there were 3 daily newspapers with a total circulation of 17,000.

REVENUE. See Index entry, *Internal Revenue*.
RHEUMATIC DISEASES. See *ARTHRITIS*.

RHODE ISLAND (officially **RHODE ISLAND AND PROVIDENCE PLANTATIONS**). New England state, United States, one of the original 13 states. "Little Rhody" ranks last in area and 37th in population (1955) among the 48 states.

Area and Population.—Area: 1,214 square miles (land, 1,058; inland water, 156), divided into 5 counties. Population: (1950) 791,896; (est., July 1, 1955) 814,000. Towns (defining civil divisions) and incorporated places with 1950 populations above 10,000 are as follows:

Bristol town.....	12,320	N. Kingstown town.	14,810
Bristol.....	10,335	N. Providence town.	13,927
Central Falls.....	23,550	Pawtucket.....	81,436
Cranston.....	55,060	Providence.....	248,674
Cumberland town.....	12,842	S. Kingstown town.....	10,148
E. Providence town.....	35,871	Warwick.....	43,028
Johnston town.....	12,725	Westerly town.....	12,380
Lincoln town.....	11,270	West Warwick town.	19,096
Newport.....	37,564	Woonsocket.....	50,211

¹ Unincorporated place within town. ² Capital.

Executive.—Chief state officers in 1955:

Governor: Dennis J. Roberts (Democrat)
Lieutenant Governor: John S. McKiernan
Secretary of State: Armand H. Coté
Treasurer: Raymond H. Hawksley
Attorney General: William E. Powers

Commissioner of Education: Michael F. Walsh

Constitution and Judiciary.—The present constitution went into effect in 1843. The Supreme Court comprises five justices; chief justice in 1955 was Edmund W. Flynn.
Legislature.—The General Assembly (Senate, 44

members; House of Representatives, 100) meets annually commencing the first Tuesday in January.

In its regular 1955 session, the General Assembly appropriated about \$54 million for the 1955-56 fiscal year. Other enactments increased maximum unemployment insurance payments to \$30 a week, extended coverage to state employees and firms with one or more employees, and increased maximum sickness and disability benefits to \$30 a week; and created three local health districts to service the entire state. The legislature extended \$1.9 million in additional state aid to public schools; established a single salary schedule for teachers; and provided for the instruction of mentally retarded minors. It also revised the adoption laws; enacted penalties for illegal purveying of barbiturates; established arbitration procedure in labor disputes; set up an Atomic Energy Commission, a Water Resources Coordinating Board, and a commission to study misleading advertising; passed the Shore Development Act; set up state nursing scholarships; and amended state accounting procedures.

Of the three amendments proposed at the 1955 session, the voters in a special June election defeated a plan to raise legislative salaries from \$300 to \$1,500 and one to give permanent tenure to high court judges. They approved a third amendment proposing a slum clearance program.

Finances.—State treasury receipts (1954-55 fiscal year), \$74,007,731; expenditures, \$74,024,286.79; treasury balance, \$19,743,596.92; long-term indebtedness, \$46,689,909.52.

Taxation.—State tax revenue (1954-55 fiscal year); \$58,612,396, including \$18,212,523 from a 2% general sales tax and selective sales and gross receipt taxes, and \$5,841,505 from corporate business taxes. There are no individual income or poll taxes.

Banking.—As of June 30, 1955, the state's 5 national banks had \$499,532,000 in assets, \$253,489,000 in demand deposits, and \$199,519,000 in time deposits; the state's 7 other banks had \$372,314,018.72 in assets, \$231,160,526.23 in demand deposits, and \$104,357,993.73 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures comprised \$24,400,431 from local school districts, \$3,536,009 from the state, and \$95,878.70 from the federal government (totaling \$286 per pupil) for public elementary and secondary education in the 1954-55 fiscal year. Expenditures for construction and improvements totaled \$4,439,272.30. Teachers' salaries averaged \$4,085.33.

RHODE ISLAND SCHOOL STATISTICS, 1954-55

Type of school	No.	Teachers	Students
Public kindergarten.....	...	...	8,321
Public elementary (1-6; 1-8).....	...	...	68,873
Public junior high (7-9).....	...	...	18,941
Public senior high (9-12; 10-12).....	...	...	18,073
Private and parochial elementary and secondary.....	112	1,482	44,123
Universities.....	2	540	4,796

Social Welfare.—Public assistance expenditures from federal and state funds in the 1954-55 fiscal year totaled \$14,093,443, including \$5,623,451 for old-age assistance, \$4,482,259 for dependent children, \$152,112 for the needy blind, and \$1,162,369 for the disabled; a monthly average of 31,486 persons received public assistance including 10,319 who received \$2,673,252 in general public assistance from the state. Expendi-

RHODE ISLAND WELFARE INSTITUTIONS

(As of Sept. 1, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.....	1	863
Hospitals for the mentally ill.....	1	3,464
Sanatoriums for the tubercular.....	1	331
State infirmaries.....	1	724
Schools for the deaf.....	1	130
Homes for dependent children.....	1	125
Soldiers and sailors homes.....	1	138
Training schools for delinquent boys.....	1	129
Training schools for delinquent girls.....	1	27
Reformatories for males.....	1	101
Reformatories for females.....	1	23
Prisons.....	1	204

tures for health and welfare institutions totaled \$8,716,862; for correctional and penal institutions, \$1,240,774.

Labor Force.—The labor force (as of Sept. 15, 1955) numbered 375,000, including 4,000 agricultural workers. Nonagricultural employment on August 15, 1955, was 297,800, and for the full year 1954 averaged 288,800. There were 25,000 unemployed workers on Sept. 1, 1955, and \$22,880,986.34 was paid in unemployment insurance compensation claims to insured workers during 1954.

Manufacturing.—There were 152,019 employees in manufacturing establishments during 1953 who received \$529,587,000 in wages. Investment in new plant and equipment amounted to \$33,643,000, and value added by manufacture was \$824,482,000. Earnings of production workers in manufacturing averaged \$60.44 for an average work week of 39.5 hours in 1954, and for the first six months of 1955 averaged \$63.13 for 40.7 hours.

MAJOR RHODE ISLAND MANUFACTURES, 1953

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
Textile mill products	59,137	\$199,292	\$266,021
Miscellaneous manufactures ³	27,852	91,134	161,793
Nonelectrical machinery	19,223	74,860	123,758 ⁴
Primary metal industries	5,520	23,046	50,816
Rubber products	6,809	24,785	39,094
Electrical machinery	5,678	19,820	37,613
Fabricated metal products	7,139	24,985	34,752
Food and kindred products	4,471	14,115	25,712 ⁴

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work. ³ Includes privately owned and/or operated establishments manufacturing ordnance equipment and accessories, but excludes government-owned and operated ordnance establishments. ⁴ 1952 figures. (Source: *Annual Survey of Manufactures, 1953.*)

Mining.—Mineral production in Rhode Island is confined chiefly to building materials. Total output in 1953, valued at \$1,461,796, included 898,393 short tons of sand and gravel (\$775,700), 161,632 tons of stone (\$617,096), and other minerals valued at \$69,000. The state normally ranks 47th in value of mineral output. Production in 1955 was estimated at \$1.4 million.

Fisheries.—The commercial fish and shellfish catch in 1954 was valued at \$4,124,854. Poundages and values of major species were: hard clams, 4,494,792 (\$1,701,546); fish for reduction, 58,900,571 (\$508,760); fluke, 2,373,785 (\$388,395); and scup, 5,714,550 (\$249,755). Some 3,626 persons were engaged in commercial fisheries during 1954.

Agriculture.—Cash farm income in the first half of 1955 totaled \$11,531,000, and for the full year 1954 comprised \$17,540,000 from livestock and livestock products, \$7,318,000 from crops, and \$55,000 from government payments.

In 1954, receipts from principal crops and livestock products included: dairy products, \$9,742,000; eggs, \$4,154,000; greenhouse and nursery products, \$3,435,000; and potatoes, \$1,466,000.

The state's 2,004 farms (154,674 acres; harvested cropland, 34,980) in 1954 had an average of 77.2 acres and \$21,516 in value of land and buildings per farm. Livestock on farms (Jan. 1, 1955) included 29,000 cattle and 615,000 chickens (not including commercial broilers). During the week of Sept. 26—Oct. 2, 1954, there were 3,989 family and hired workers engaged in farming. There were 1,665 farms with telephones and 1,932 with electricity.

RHODE ISLAND CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	181	165	260
Corn (1,000 bu.)	310	231	258
Hay (1,000 tons)	48	51	53
Peaches (1,000 bu.)	16	17	19
Potatoes (1,000 bu.)	1,323	1,148	1,320

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$10,278,027, and newly completed construction and reconstruction aggregated 32.71 miles for 1954.

Highways and roads on Jan. 1, 1955 totaled 4,120 miles (3,080 surfaced). Registered *motor vehicles* numbered 299,404 on Aug. 31, 1955, including 246,506 passenger cars. There were 6 *railroads* (1954) operating 96.89 line miles, and in 1955, 4 regularly scheduled *airlines* and 9 *airports and airfields* (6 commercial and municipal, 2 military, and 1 private).

Communications media included (1955) 11 AM and 3 FM *radio stations* and 2 VHF operating *television outlets*; (1954) 7 daily *newspapers* (circulation, 280,190) and 19 other newspapers (circulation, 72,843); and (Jan. 1, 1955) 78,223 business and 195,160 residential *telephones*.

Principal Events, 1955.—Rhode Island was one of the six states which suffered extensive damage on August 19 and 20 from Hurricane Diane. Most seriously affected was the city of Woonsocket, an industrial center of the state, which was left in a crippled condition. More than 6,000 factory workers were idled by the floods, which caused one death and left \$18 million in damages.

President Dwight D. Eisenhower visited the area on August 23 and conferred with Governor Roberts and the governors of five other states on plans for relief and rehabilitation, promising that "everything possible" would be done. On August 26, Secretary of Commerce Sinclair Weeks also visited the area with the top men from his department to study conditions and plan restorative measures.

A second disaster struck on October 17, when drenching rains caused the Blackstone River to overflow into Woonsocket, flooding some low-lying industrial plants and causing three deaths.

The Rhode Island Development Council, following an analysis of the best potential sites for industry in the state, plans to foster the development of industrial parks or districts for the location of new industrial plants.

Results of a nationwide survey showed that Rhode Island led all other states in traffic safety during 1954, with a rate of 2.6 traffic deaths per 100 million vehicle miles of travel.

Dr. Henry M. Wriston resigned as president of Brown University on August 16, and was succeeded by Dr. Barnaby C. Keeney, former dean of the college. One month earlier, Dr. Wriston had been honored by John D. Rockefeller, Jr., who gave \$4 million to the university in recognition of Dr. Wriston's achievements as president.

GRACE M. SHERWOOD,
State Librarian, Rhode Island State University.

RHODES. See DODECANESE ISLANDS.

RHODESIA AND NYASALAND, Federation of. Occupying an area of 487,640 square miles extending from the Limpopo River to the Belgian Congo, this federation of British Central African

territories consists of the self-governing territory of Southern Rhodesia and the protectorates of Northern Rhodesia and Nyasaland. The population (see accompanying table), totaling 6,876,600 in 1954 (Africans, 6,630,000; Europeans, 220,200; Asians and Colored, 26,400), increased in that year by 195,000, and was estimated in 1955 at 7,071,600, including 6,810,000 Africans, 233,600 Europeans, and 28,000 Asians and Colored. During the year ending June 30, 1954, European immigrants entering the federation totaled 16,770, representing a net gain in this category of 2,270 over the previous year's total (14,500). Under federal legislation which went into operation on Nov. 1, 1954, Africans of the South African Union were declared to be undesirable immigrants.

FEDERATION OF RHODESIA AND NYASALAND

Component	Square miles	Population ¹	Capital
Northern Rhodesia.....	288,130	2,128,300	Lusaka
Southern Rhodesia.....	150,333	2,398,700	Salisbury
Nyasaland.....	49,177 ²	2,544,600	Zomba
Total.....	487,640	7,071,600	

¹ All estimated at June 30, 1955. ² Including 12,298 square miles of lakes.

Government.—The British government adheres to the maintenance in Central Africa of a federal constitution, which came fully into effect on Oct. 23, 1953, by proclamation of the governor general, Lord Llewellyn, who assumed office at Salisbury, the Federal capital, Southern Rhodesia, Sept. 4, 1953. At the first general election, held on Dec. 15, 1953, the Federal Party won 24 of the 26 generally elected seats in the 35-member Federal Assembly, which also includes 6 African members (2 elected in each territory), and 3 European members representing African interests. There is also an appointed Executive Council and an African Affairs Board, the latter consisting of 3 European members and 3 African elected members. The cabinet, whose members are chosen from the Federal Assembly, was headed after the first general election by Sir Godfrey Huggins (created Viscount Malvern Feb. 17, 1955), who serves both as prime minister and as minister of external affairs and defense. Under the constitution the federal government assumes responsibility for economic and financial functions, defense, external affairs, transport and communications, and immigration. The territorial governments have authority over local affairs, including native education and agriculture, industrial relations, mining, and highways (excluding federal roads).

Finance.—The budget for the fiscal year 1955-56 estimated revenue at £39 million, and expenditures at £41.5 million, including £15.2 million for administrative and development services, £11.6 million for social services, and £3.7 million for defense. A 4-year development plan, introduced in 1954, provided for expenditures of £58 million, including £38 million for communications and transport. The Kariba Gorge project (see below *Power Projects*) is being separately financed.

Education.—Education other than primary and secondary education for Africans is the responsibility of the federal government, which in 1954 conducted most of the 258 schools for the 52,440 pupils of European, Asian, and mixed stock. The great majority of African schools in the three territories are operated by missions with financial assistance from the various governments. African education was provided as follows in 1954: Southern Rhodesia, 2,348 schools (259,696 pupils); Northern Rhodesia, 1,581 (186,976); and Nyasaland Protectorate, 4,719 (239,918). Classes are to begin in 1957 at a multi-racial university, which is being established at Salisbury.

Production and Trade.—The external trade of the federation aggregated about £278 million in 1954, with £153 million representing exports and £125 million, imports. Four principal mines exploit the copper belt of Northern Rhodesia (largest in the British Commonwealth, and second, after the United States, among world sources). They produced an export tonnage valued in 1954 at £86,455,737. In Southern Rhodesia the export value of gold bullion and concentrates (£6,548,419) led mineral production in 1954. Asbestos was second (81,172 tons exported; value, £6,475,182), and chrome ore

ranked third (318,478 tons exported; value, £2,616,831).

Tobacco is the federation's principal cash crop, of which the export production of Northern Rhodesia and the Nyasaland Protectorate in 1954 aggregated 132,484,641 pounds of unmanufactured tobacco valued at £24,916,283. Corn is the most important food crop, and seasonal production on European farms in all three territories aggregates between 200,000 and 300,000 tons.

Industrial output is important to Northern and Southern Rhodesia, where tobacco, cotton, metal, and other manufactures are carried on in more than 1,000 factories. In 1954 exports of processed and manufactured goods (and their value) included: cattle hides, 17,362,327 pounds (£1,082,385); jute bags, 6,662,435 bags (£927,278); meats (fresh frozen or chilled), 15,996,613 pounds (£921,510); wood, 860,032 cubic feet (£543,056); preserved meats, 3,770,783 pounds (£505,957); cotton yarns, 2,042,506 pounds (£451,088); and cotton piece goods, 3,879,839 square yards (£439,332).

Power Projects.—Two major hydroelectric power projects have been under consideration: (1) the harnessing of the Zambesi River at the Kariba Gorge, at an estimated cost of £85.8 million, and (2) the construction of a dam at the Meshi-Teshi gap, to produce a continuous output of 300,000 kilowatts, at a total cost of £55,050,000. In March 1955 the government announced its decision to give priority to the Kariba Gorge project. (See also *DAMS*.)

Transportation.—Roads in the federation aggregate about 51,500 miles (Southern Rhodesia, 28,500 miles; Northern Rhodesia, 18,000; Nyasaland Protectorate, 5,000) with main roads totaling about 11,000 miles. Central African Airways, a joint enterprise of the three territories, provides daily services between major towns and from these points to Nairobi and Johannesburg, as well as a weekly service to London. Major overseas airlines use the airport at Livingstone, the largest in Africa.

SOUTHERN RHODESIA

In 1955 the population, estimated at 2,398,700, comprised 166,000 Europeans, 2,220,000 Africans, and 12,700 of other races.

Government.—The administration is headed by a governor, Vice-Admiral Sir Peveril William Powlett, responsible to a 30-member elected Legislative Assembly. The leader of the United Rhodesia Party, R.S. Garfield Todd, is prime minister and chief member of a 6-man cabinet. Native councils (59 in 1953) also exercise considerable authority in certain areas. Revenue was estimated for 1955-56 at £13,290,000, with ordinary expenditures from revenue funds at £14 million, and from loan funds at £6 million.

Transportation.—The government-owned Rhodesia Railways operates 1,544 miles of railways in Southern Rhodesia. A new line linking the midlands with Lourenço Marques in Portuguese East Africa was under construction in 1955. There are about 6,000 miles of main roads, and 22,500 miles of other roads. Major airports are at Belvedere (serving Salisbury), Kumalo (Bulawayo), and Grand Reef (Untali). Central African Airways serves the territory and connects with the major trans-African airlines.

NORTHERN RHODESIA

The population in 1955 was estimated at 2,128,300, comprising 62,000 Europeans, 2,060,000 Africans, and 6,300 of other races. The territory is divided into 7 provinces. The seat of

government is at Lusaka. Other important centers include Ndola, Luanshya, Mufulira, Kitwe, and Chingola.

Government.—The governor, Sir Arthur Benson (assumed office May 25, 1954), is assisted by an 11-member Executive Council and a Legislative Council (including 10 elected nonofficials, 2 nominated white nonofficial members representing African interests, and 2 African members elected by the African Representative Council). Revenue for 1955-56 was estimated at £13,800,000; expenditures, £13,700,000.

Transportation.—Rhodesia Railways operates 507 miles of main line from the Victoria Falls to the Belgian Congo, and 229 miles of branch lines. In 1955, highways totaled about 18,000 miles (first class, 4,300 miles). Internal and external services are operated by Central African Airways from the Livingstone airport.

NYASALAND PROTECTORATE

The territory includes Lake Nyasa (11,430 square miles), the third largest lake in Africa. The protectorate's estimated population of 2,544,600 in 1955 comprised 5,600 Europeans, 2,530,000 Africans, and 9,000 of other races.

Government.—A governor, Sir Geoffrey Colby (assumed office March 13, 1948), is assisted by a 7-member Executive Council and a 20-member Legislative Council (including 10 nonofficials, of whom 3 are African and 1 is Asian). An all-African Protectorate Council, composed of 20 representatives of three African provincial councils, advises on legislation affecting the African population. Estimated revenue was £5,700,000 for 1955-56; expenditures, £5,900,000.

Shire Valley Project.—The catchment area of Lake Nyasa is 48,850 square miles. The Shire Valley extending from the lake to the Zambesi River is the site of a development program whose target is the production of 2,100 million kilowatt-hours of hydroelectric power a year. Also planned is the recovery of 320,000 acres of land to productive agriculture and the opening up of an extensive inland water transport system. The estimated cost of the project is £77,910,000.

Transportation.—The protectorate is served by the Nyasaland railway system, which connects Lake Nyasa with Beira, 524 miles distant on the east coast, and crosses the Zambezi on the world's longest railway bridge (12,064 feet). Highways aggregate about 5,000 miles (all-weather, 1,700 miles). Central African Airways provides internal services and connections with all parts of Africa.

DONOVAN ROWSE,
Author and Publicist.

RICE. See GRAINS.

RIO DE ORO. See SPANISH COLONIES.

RIVERS. See Index entry.

ROADS. See HIGHWAYS.

ROBERTS, Owen J(osephus), American jurist: b. Philadelphia, Pa., May 2, 1875; d. Chester Springs, Pa., May 17, 1955. A conservative justice of the U.S. Supreme Court during the era of the New Deal, he often cast the decisive vote in the major cases of that period.

Roberts was educated at the University of Pennsylvania (B.A., 1895; LL.B., 1898), where he taught law from 1898 to 1918. Meanwhile he established a successful law practice in Philadelphia, numbering among his clients the Pennsylvania Railroad and other large corporations. He also served as a director of many companies. From 1901 to 1904 he was first assistant district attorney of Philadelphia County, and during World War I served as special deputy attorney general, representing the federal government in

the prosecution of cases under the Espionage Act in the Eastern District of Pennsylvania.

In 1924, President Calvin Coolidge appointed him one of two special United States attorneys general to prosecute persons involved in the Teapot Dome oil reserve scandals of the Harding administration. Though not completely successful, Roberts' meticulous investigation, which took six years, led at least to the conviction of former Secretary of the Interior Albert B. Fall. His prosecution of the case made him nationally prominent, and in 1930 he was appointed to the Supreme Court by President Herbert Hoover.

When Justice Roberts took his seat, the court was still dominated by conservatives, but by the time the New Deal got under way it was divided almost evenly between liberals and conservatives. Although Roberts was essentially conservative in his views, he did not permit his political opinions to enter into his judgments. He voted with the liberals of the court in the decisions that upheld the constitutionality of the National Labor Relations Act, the unemployment provisions of the

Owen J. Roberts
(d. May 17, 1955)



WIDE WORLD

Social Security Act, and the right of Congress to annul gold clauses in private contracts. On the other hand, he voted with the conservatives against the constitutionality of the National Industrial Recovery Act, the Agricultural Adjustment Act of 1933, and the Railroad Retirement Act of 1934. Later, when the Supreme Court had become predominantly liberal through the appointments of President Franklin D. Roosevelt, Roberts became more conservative and frequently dissented from opinions upholding the president's reform measures. In December 1941, however, aware of Roberts' integrity, Roosevelt named him chairman of the commission that investigated the Japanese attack on Pearl Harbor; its report was made in January 1942.

Justice Roberts, who advocated compulsory retirement of federal judges at the age of 70, retired from the Supreme Court in 1945 and returned to private law practice. From 1948 to 1951 he also served as dean of the University of Pennsylvania Law School. During his later years he devoted much of his time to the Atlantic Union Committee, an organization advocating federal union of the Western democracies, which he served as president from 1948 until his death.

ROCKETS. See Index entry.

RODEOS. See CIRCUSES AND RODEOS.

ROLLER SKATING. See SPORTS, GAMES, AND SHOWS.

ROMAN CATHOLIC CHURCH. In 1955 the Roman Catholic population of the world was estimated at 470,100,000. That of the United States, Alaska, and the Hawaiian Islands was 32,574,-

702, representing an increase of 1,098,441 over the previous year. In the last 10 years the Roman Catholic population of the United States has increased by 8,612,031. Roman Catholics in Canada numbered 6,069,496, and the total Roman Catholic population of the Americas is estimated at 191,424,000.

Guiding Roman Catholics throughout the world are 360,000 priests, a ratio close to one priest for 1,300 people. Of this number, 27,760 are missionaries working among a non-Catholic population of 2 billion, of whom 1.5 billion are non-Christian.

In the United States and its dependencies are 26 archdioceses and 106 dioceses. The hierarchy comprises 208 members—4 cardinals, 34 archbishops, and 170 bishops—the largest number in the history of the Catholic church in that country. A total of 13,362 parishes are reported, 673 being without resident clergy.

The United States Catholic Negro population is estimated at 477,000, served by 655 priests in 458 parishes, and helped by 1,800 nuns and 600 lay workers. Of the 345,000 persons of American Indian descent in the United States, 111,321 are Roman Catholics; 175 priests maintain 410 churches and chapels among the Indian tribes.

The 1,557 diocesan and parochial secondary schools in the United States reported 398,192 students, a gain of 23,093 over 1954; 842 private secondary schools reported 241,418 students, a gain of 13,518; and 8,843 parish elementary schools reported 3,253,208, a gain of 260,910. The number of children cared for in 328 protective institutions totaled 35,147. Catholic colleges and universities reported 219,705 students, a gain of 8,786 over the previous year. The 78 diocesan seminaries counted 9,539 students and 385 novitiates, and scholasticates of the various orders and congregations were preparing 16,493 candidates to the priesthood. Catholic schools of nursing accounted for 30% of all nurses graduated in the United States and its territories, with a total of 8,812 graduates.

At the end of 1955 the College of Cardinals comprised 60 members. Three of them in nations under Russian influence are restricted in their full liberty of action. The same tyranny has murdered, imprisoned, or expelled at least 185 bishops and other heads of sees. Communist China is held responsible for 99 names on the list of persecutions; among them are Cardinal Tien, archbishop of Peking, 18 archbishops, 56 bishops, and 24 monsignori. The Soviet Union, including Estonia, Latvia, and Lithuania, holds 29 victims. Other countries similarly guilty of persecutions are Albania, Bulgaria, Czechoslovakia, Hungary, North Korea, Poland, Rumania, and Yugoslavia.

The Third International Congress on Rural Life took place between April 17 and April 25 at Panama City. The theme of the congress was set in a message from Pope Pius XII, who called on both large landowners and governments to fulfill their duty towards those who live and work on the land they cultivate.

After a 3-day revolt had forced the resignation of Juan Perón, president of Argentina, in mid-September 1955, the Catholic Church regained all the privileges it had lost under the Perón dictatorship. (See also ARGENTINA.) Religious property again is exempt from taxation, subsidies to religious schools have been resumed, and nuns and priests have been reinstated to service in hospitals, schools, and prisons.

The Rev. Georges Bissonnette, an American

Assumptionist priest who was serving the religious needs of the Catholic American community in Moscow, was expelled from Russia on March 5 by the Soviet government. Charles E. Bohlen, the American ambassador to the USSR, immediately lodged a protest, based on the fact that Father Bissonnette's expulsion violated the Litvinov agreement of 1933 guaranteeing freedom of conscience and religious worship to United States citizens on Soviet soil. On November 3 it was announced that the Rev. Louis F. Dion, also an Assumptionist priest, had been granted a Soviet visa and would succeed Father Bissonnette in Moscow. (See also RELIGION—Catholicism.)

JOHN LAFARGE, S.J.,
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ROWING. See SPORTS, GAMES, AND SHOWS.

RUANDA-URUNDI. A United Nations trust territory in east-central Africa, administered by Belgium. Area, 20,916 square miles; pop. (est. Dec. 31, 1954), 4,269,905, including 5,559 Europeans. The natives are chiefly of the Bahutu and Batutsi tribes. Usumbura (27,294) is the capital.

The territory is united economically and administratively with the bordering Belgian Congo. The Belgian vice governor general is aided by an appointive council of 22 members. Elected local councils of natives have recently been instituted. In the report of the United Nations mission which toured the territory in August 1954, it was urged that the natives be given an increasing share of self-government. In the ordinary budget for 1954, revenue was estimated at 644.3 million francs; expenditure, 672 million; extraordinary expenditure, 505.6 million. In 1952 there were 1,697 primary schools (141,648 pupils), 4,693 chapel schools (325,552), and 36 secondary schools (1,114). About 45% of the population has been converted to Christianity.

The territory is densely populated and poor in resources. A 10-year development plan (1950-59) is under way and the government has inaugurated reforestation, soil conservation, drainage, and other agricultural projects. Chief food crops are corn, rice, and manioc. Output of coffee, the chief cash crop, was 13,600 metric tons in 1954. Other commercial products are cotton (7,227 metric tons in 1954), tobacco, kapok, and hides and skins. Minerals output in 1954 had a total value of 347.6 million francs, consisting chiefly of tin (2,253 metric tons) and wolframite (732). Imports in 1953 totaled 1,523 million francs; exports, 1,440.4 million. Ruanda-Urundi has no railroads. Main roads totaled 5,193 miles in 1952. Usumbura is connected by air service with the Belgian Congo.

RUBBER. New records in practically every branch of the rubber industry were achieved in 1955. World consumption totaled 2,880,000 long tons (1,860,000 natural, 1,020,000 synthetic) against 2,390,000 (1,680,000 natural, 710,000 synthetic) in 1954. World production amounted to 2,915,000 long tons (1,850,000 natural, 1,065,000 synthetic) against 2,411,000 (1,705,000 natural, 706,000 synthetic) in 1954.

Consumption in the United States reached 1,485,000 long tons (620,000 natural, 865,000 synthetic) as compared with 1,338,000 (553,000 natural, 775,000 synthetic) in 1953, the previous record year. The 1955 output of tires in the United States passed the 100 million mark for the first time, including an estimated 89 million passenger car tires and 14 million truck and bus tires.

The big news of 1955 in the rubber industry was the sale of the government-owned synthetic rubber plants to private industry for \$318,403,000. In all, 25 of 27 plants were sold (12 copolymer, 2 butyl rubber, 9 butadiene, 1 styrene, 1

RUBBER PRODUCTION IN 1954 AND 1955
(In 1,000 long tons)

Country	1954	1955*
NATURAL RUBBER		
Malaya.....	575	630
Indonesia.....	661	700
Ceylon.....	96	92½
Viet-Nam and Cambodia.....	78	90
Thailand.....	95	120
British Borneo.....	40	59
Burma.....	12	12
Liberia.....	37	37
British Africa.....	22	26
Belgian Africa.....	25	26
French Africa.....	3	3½
Other countries.....	61	54
Totals.....	1,705	1,850
SYNTHETIC RUBBER		
United States.....	615	955
Canada.....	85	100
Germany.....	6	10
Totals.....	706	1,065

* Estimates by International Rubber Study Group.

chemical). Of the two remaining plants, one (a copolymer unit) will be sold shortly after the end of 1955 and the other (an alcohol-butadiene unit) has been leased for a three-year period. Most of the take-over operations occurred in late April 1955.

During the tenure of the government, which started in 1942, approximately 7,200,000 long tons of synthetic rubber were produced, consisting of 6,329,200 tons of general-purpose synthetic, 670,500 tons of butyl rubber, 198,200 tons of neoprene, and 2,100 tons of nitrile rubber.

Synthetic Rubber Developments.—Major strides were taken in the synthetic rubber field in 1955. Goodrich, Firestone, and Goodyear, in that order, announced the development of new "natural-like" synthetics which match the molecular structure of natural rubber. These *cis*-isoprene rubbers can be used in the manufacture of heavy-duty truck tires, the first synthetics for such usage. Lithium and aluminum triethyl are the catalysts utilized.

Other new synthetic rubbers included: G-E 700, a silicone rubber which remains flexible at 600°F.; Vyram, an acrylate-type elastomer with unusual resistance to chemical hydraulic fluids; Nitrex 2615, a latex offering good color, high tensile strength, and "snappy" film; and a completely new line of silicone rubbers by the Linde Air Products Company.

Developments abroad included decisions to build a 50,000-ton GR-S type plant in England, a 30,000-ton plant in Italy, a new plant in Germany, which will raise production to over 100,000 tons a year, and a 20,000-ton butyl rubber plant in France.

Products and Materials.—New equipment included a latex foam mixer with a production range of 700 to 15,000 pounds an hour; a disc-impeller for rubber cement; a laboratory roller coating machine with a speed of one to three yards per minute; and a 20-disc grinder for hard rubber, with a speed of more than 18,000 feet a minute. New compounding materials included: Naugatuck MBTS, an improved nondusting powder form with fine particle size; Advastab 48-79, a cadmium stabilizer; Cabflex TCP, a tricresyl phosphate made from petroleum cresylic acid; Poly-Sperse 300, a processing aid designed to speed the mixing cycle; and Arcco C-1035, a plastisol said to provide outstanding adhesion to metal.

New products included the first six-inch latex

foam mattresses, steel cord passenger tires, an all-rubber washing tub, air-porous Koroseal upholstery, off-the-road tubeless tires, an all-rubber underground lawn-soaking hose system, a high-wall dish drainer, fishing boots weighing only 21 ounces, a combination tissue holder and vanity tray, and a cleated conveyor belt for carrying small machined parts up steep inclines. (See also CHEMISTRY.)

M. E. LERNER,
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RUGBY. See SPORTS, GAMES, AND SHOWS.

RUHR. An industrial valley of northwestern Germany, included within the State of North Rhine-Westphalia of the German Federal Republic (see GERMANY). The Ruhr has an area of about 2,000 square miles and a population of over 4 million. Chief Ruhr cities and populations (est. Dec. 31, 1953) are: Essen, 660,934; Düsseldorf, 594,481; Dortmund, 580,892; and Duisburg, 454,899. The Ruhr is one of the world's great centers of heavy industry and provides the bulk of West Germany's output of coal, steel, and pig iron. Other Ruhr industries are chemicals, pharmaceuticals, textiles, machinery, tools, apparatus, instruments, and numerous other manufactures. On Nov. 23, 1955, the European Coal and Steel Community (ECSC) announced plans to decentralize the Ruhr coal cartel, Gemeinschafts Organization Ruhrkohle (GEORG), and place it under the supervision of the High Authority of ECSC.

RUMANIA. A Communist-type people's democracy in southeastern Europe, Rumania is bounded on the south by Bulgaria, on the west by Yugoslavia and Hungary, on the north and northeast by the Soviet Union, and on the southeast by the Black Sea. It occupies an area of 91,700 square miles and has a population of 17,150,000 (est. 1953).

In 1952 the country was divided into 17 administrative regions (Baia-Mare, Oradea, Cluj, Suceava, Bacău, Iași, Bârlad, Galați, Constanța, București, Ploesti, Stalin, Pitești, Craiova, Hunedoara, Timișoara, and Arad) and the Hungarian (Magyar) Autonomous Region. The capital is Bucharest, with a 1953 population of 1,250,000; other principal cities (with 1948 populations) are: Cluj, 117,915; Timișoara, 111,987; Ploesti, 95,632; Brăila (with suburbs), 95,514; Iași, 94,075; Galați, 80,411; and Constanța, 78,586. Rumanians constitute 85.7% of the total population; Hungarians, 9.4%; Germans, 2.2%; Jews, 0.9%; and others 1.8%.

Government.—The Rumanian Constitution of Sept. 24, 1952, defines the Rumanian People's Republic as a socialist state in which the working people of town and country are the source of all political power. The Grand National Assembly, a 423-member parliament with only nominal functions, is defined as the supreme legislative body. When not in session, it is represented by the Presidium, which is elected by the assembly and whose 19-member body was headed in 1955 by Dr. Petru Groza. A 38-member Council of Ministers is headed by Chivu Stoica as premier.

The government relies for political support on the Democratic Popular Front, a Communist-controlled mass organization. The principal force within the front is the Rumanian Workers' (Communist) Party, founded in 1948 by the fusion of the Communist and Social Democratic parties, and headed at the close of 1955 by Gheorghe Gheorghiu-Dej, first secretary. The Democratic Popular Front also includes President Groza's Ploughmen's Front, the Hungarian People's Union, the Trade Unions of the Rumanian People's Republic, the Democratic Federation of Women, and the Federation of Democratic Youth, all of which recognize Communist leadership.

The constitution guarantees universal suffrage and the secret vote; however, only the names of the Popular

Front candidates are allowed on the ballots. In a similar fashion the members of regional and local people's councils are elected. Having no autonomous power, they are mere instrumentalities of the central authorities.

Education.—In 1952, Rumania had 15,546 elementary schools with 2,100,000 pupils. In the same year 208,000 students attended secondary schools, and 107,000 were enrolled in various trade schools. In 1953, 62,000 students attended the country's 6 universities and 50 specialized institutions of higher learning. The entire network of educational institutions has been secularized and subordinated to full state control. Rumanian authorities claim that by 1951 illiteracy had been reduced from a prewar figure of 45% of the population to 10.6%.

Religion.—Over 75% (13,670,000 in 1950) of Rumania's population belongs to the Rumanian Orthodox Church. The Uniate Church (Greek Catholic), which in 1947 included 9% of the population, ceased to exist in 1948. The Roman Catholic Church, which has been subject to violent governmental persecution, embraces approximately 8% of the population. Although the Law on Religious Cults, passed on Aug. 4, 1948, theoretically guarantees freedom of religion, in actuality it imposes full state control over all church administrative and educational activities.

Finance and Cost of Living.—The Rumanian budget for 1954 called for estimated revenues of 40,838 million lei, and for estimated expenditures of 39,338 million lei (1 lei = U.S. \$0.1667 and 1.5 lei = 1 Soviet ruble). Of expenditures, 24 million lei were for financing the national economy and 4.3 million were for defense.

On Dec. 26, 1954, most rationing was abolished, and the government announced that the prices of formerly rationed goods would be stabilized at the level of "free market" prices. In addition, the government promised to compensate partially for the resulting 50% price increase by granting wage increases of 20% or less. In April 1955, however, a reduction of prices on food, clothing, and household articles went into effect, and government experts estimated that these reductions would save consumers 650 million lei yearly.

Defense.—The peace treaty of 1947 limited Rumania's armed forces to 138,000 men. Estimates at the end of 1954, however, showed that 250,000 men were in the regular armed forces and 205,000 were in the security police, frontier guard, and other units. On Aug. 30, 1955, the government decreed that the armed forces would be cut by 40,000 men on December 1.

Agriculture.—The "socialist agricultural sector" consisted in 1955 of 5,600 collective farms (following the model of the Soviet kolkhozes) and agricultural associations for joint cultivation, 2,700 simple cultivating associations, and about 3,200 cooperative sheepfolds. Socialist agriculture embraced 26% of the country's total arable land. In August 1954, Rumania had 220 machine and tractor stations, although the original plan called for the establishment of 428 such enterprises. These stations had at their disposal a total of 29,500 tractors (in 15-hp. units).

The agricultural production plan for 1953-54 allocated 17.5 million acres of land for cereal grains and 1.15 million acres for potatoes and vegetables. In 1954, industrial crops (mostly sugar beets, cotton, flax, and tobacco) were raised on 2.5 million acres of land, and grain production in 1955 totaled 11.5 million tons.

Industry.—Since the spring of 1948 the Rumanian government has followed a policy of rapid socialization of the country's industrial resources. By the beginning of 1954 almost all industrial and mining establishments had been socialized and subordinated to the 11 economic ministries of the cabinet. Most of the heavy industry is owned by joint Soviet-Rumanian companies.

In September 1955, Gheorghiu-Dej announced that during the First Five-Year Plan (1951-55), 57.7% of the investment fund went to industry, instead of 51.4% as originally stipulated by the plan. He also stated that during this period almost 50% of the total capital investment went to heavy industry, not 42% as originally intended. It has been estimated that 75% of the 1955 output of oil was extracted from the new oilfields in Moldavia, the Prahova valley, Pitesti, and Altenia. Of the investment fund,

26.4% was poured into the oil industry during the last five years.

In 1955, according to an official report, total industrial production reached a value of 1,730,168,450,000 lei. It exceeded by 350% the value of the total industrial production in 1938, and by 200% that of 1950. An official spokesman announced in October 1955, that the production of steel for that year had reached 700,000 tons, and that a new plant, presently under construction, will double the current output. He also stated that the oil output for 1955 was expected to reach a total of 10,500,000 tons, the highest output in the country's history. While the government did not give any direct statistical data on the production of electrical power, a government expert made an announcement that the 1955 output (4 billion kw.-hr.) was twice as large as that of 1950.

Foreign Trade.—Slightly over 84% of Rumania's foreign trade in 1955 was with the Soviet Union and its satellites. The government, however, has never published any detailed data on the imports from and exports to the Soviet Union. During 1955 the Rumanian government continued to expand its relations with the countries outside the Soviet orbit. According to a barter agreement with Egypt, Rumania was to exchange kerosene and crude oil for cotton, the total value to be £E1.8 million.

Rumania's exports in 1955 consisted mostly of wood products, petroleum, grains, cattle, salt, fruit and vegetables. A less important part of exports consisted of foundry equipment, petroleum equipment, equipment for cement factories, and smaller agricultural machinery.

Transportation.—On June 20, 1954, a double-decked bridge for motor and rail traffic, connecting Ruse, Bulgaria, and Giurgiu, Rumania, was put into operation. This bridge, built under the supervision of Soviet technicians, is the first to connect the two countries. In 1949, Rumania had 7,363 miles of railway lines and 43,163 miles of roads, of which only 1,500 miles had been modernized. In 1950 the country had 9,608 trucks, 1,942 buses, and 14,500 automobiles. During the first five months of 1955 freight car loadings totaled 65,000,000 tons, as compared with 27,606,800 tons in 1938. According to official sources, during the First Five-Year Plan, freight car loading had increased 175%.

Principal Events, 1955.—Purges of individuals and groups accused of spying for various Western powers have dominated the internal political scene. Among the victims were many Socialists, Social Democrats, Independents, and prewar labor leaders. There were no important elections in 1955, and there was only one important reshuffling in the government. On October 3, Gheorghe Gheorghiu-Dej relinquished his post as premier and became the first secretary of the Communist Party, the most powerful office in the Communist hierarchy; Gheorghe Apostol, the former first secretary, became chairman of the Central Council of Trade Unions, an obvious demotion; and Chivu Stoica was appointed premier. This change in leadership may be interpreted as an effort to tighten up the party ranks and consolidate political power.

On December 24, Rumania disclosed its Second Five-Year Plan (1956-60), the first of the coordinated Soviet bloc plans for this period to be revealed. In line with Soviet policy, heavy industry will be emphasized, receiving 50% of planned investments, as compared with 6% for light industry. Annual production of steel is to be

increased to 1.6 million tons, and that of coal to 11 million tons. The socialist sector of agriculture is expected to furnish 60 to 70% of farm output.

Rumania's foreign policies during 1955 continued to be guided by Soviet interests. On March 22, 1955, the Soviet government issued a communiqué to the effect that the USSR and her European satellites, including Rumania, had agreed to discuss a treaty of friendship, cooperation, and mutual assistance. At the Warsaw Conference, May 11-14, 1955, such a treaty was formally signed. On August 12, Gheorghiu-Dej informed the press that the Soviet occupation forces would remain in Rumania as a result of the Warsaw treaty and "until the foreign troops withdraw from western Europe." The treaty was ratified by the Rumanian Grand National Assembly on May 30, 1955.

Rumania was also selected to be one of the beneficiaries of the Soviet government's decision to extend scientific and technical assistance to various countries in the building of experimental stations for research in nuclear physics and the industrial employment of atomic energy. On June 4, 1955, N. Khrushchev, first secretary of the Soviet Communist Party, and A. Mikoian, Soviet vice premier, visited Bucharest on their way home from Belgrade, Yugoslavia. The two Soviet officials met in Bucharest with the highest party officials from Rumania, Hungary, and Czechoslovakia and informed them of the Soviet-Yugoslav *rapprochement* and the Soviet's new official attitude toward Tito's Yugoslav government.

Rumania's strained relations with the West were not alleviated during 1955. Relations with Switzerland were particularly aggravated by the attack of a small group of heavily armed Rumanian refugees on the Rumanian legation in Berne on February 15. The Rumanian notes of February 15 and 16 complained that the Swiss authorities had done nothing to punish the attackers. In October, the U.S. Department of State announced that it would henceforth issue passports for travel to Rumania. On the retirement of Harold Shantz in the summer of 1955, Robert Thayer was named the new American minister in Bucharest.

On December 14, Rumania, along with 15 other countries, was elected to membership in the United Nations.

WAYNE S. VUCINICH,

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RURAL ELECTRIFICATION ADMINISTRATION.

Loans for rural electrification made by the REA during the fiscal year ended June 30, 1955, amounted to \$167,530,430, bringing the cumulative total of such loans to slightly over \$3 billion. One new electric distribution cooperative and two new generation and transmission cooperatives received loans during the year, bringing the number of active electrification borrowers to 999. These include 937 cooperatives, 40 public power districts, 17 other public bodies, and 5 electric

companies. Two cooperatives paid off all of their government loans during the year with earnings from farm service.

In 1935, when the REA was established, only one farm in ten was receiving electric service; now better than nine farms in ten have electricity. Of the farms connected to central station electric facilities, a little more than half are getting service from REA-financed systems.

Farmers and other rural consumers on REA-financed distribution lines increased their use of power more than 14% during the 1955 fiscal year. REA borrowers are distributing more than twice as much power as they did in 1950. The energy sales amount to about \$1,100,000 per day. Average annual use of power by farm consumers increased from 1,752 kw.-hr. in the 1950 calendar year to 2,712 kw.-hr. in 1954.

Less than 315,000 farms still were without central station electric service as of June 30, 1955. In addition, there were many unelectrified rural nonfarm dwellings, schools, churches, crossroads businesses, and other rural establishments. The REA had a backlog of \$97,127,000 in electric loan applications on June 30, 1955.

For the 1956 fiscal year, Congress authorized \$160,000,000 in new electrification loan funds, and reserve funds of \$100,000,000. REA loans bear interest at 2% and must be amortized within 35 years. The repayment record of the electrification borrowers continues to be good.

The following are cumulative statistics on the REA electrification program from its establishment in 1935 to June 30, 1955, unless otherwise noted:

Miles of line energized (Dec. 31, 1954).....	1,331,800
Number of consumers served (Dec. 31, 1954).....	4,165,219
Total congressional loan authorizations.....	\$3,102,928,288
Total loans.....	\$3,050,119,414
Total funds advanced.....	\$2,600,496,268
Principal and interest paid by borrowers.....	\$623,000,000
Principal repaid ahead of schedule.....	\$85,000,000
Payments overdue 30 days or more.....	\$400,000

In October 1949, Congress authorized the REA to make loans to improve and extend telephone service in rural areas. The first telephone loan was made in February 1950. For the 1956 fiscal year, Congress authorized \$75,000,000 in new telephone loan funds.

By June 30, 1955, the REA had approved \$234,180,542 in loans to 176 telephone companies and 175 telephone cooperative associations. These loans will provide facilities to bring modern dial telephone service to 515,600 farm families and other rural subscribers in 43 states and Alaska. Through the use of REA loan funds, 157 telephone systems already have placed in service 533 new dial exchanges.

ANCHER NELSEN,
Administrator.

RUSSIA. See UNION OF SOVIET SOCIALIST REPUBLICS.

RUSSIAN LITERATURE. See SOVIET LITERATURE.

RYE. See GRAINS.

RYUKYU ARCHIPELAGO. See PACIFIC ISLANDS.





SARR. An industrial district on the Franco-German border south of Luxembourg. Area, 991 square miles; pop. (Jan. 1, 1955), 987,650, predominantly German. Saarbrücken (119,-388) is the capital and chief city.

Government.—The Saar has autonomy in internal affairs but its foreign relations and defense are controlled by France, and it is linked to France in a monetary and customs union. The constitution of 1947 provides for an elected Landtag of 50 members and a ministry responsible to the Landtag. Premier Hubert Ney heads a coalition cabinet installed on Jan. 10, 1956.

Education and Religion.—In 1955 there were 758 elementary schools (93,696 pupils), 25 secondary schools (13,443), 39 vocational and technical schools (43,522), and 3 training colleges (743). The University of the Saar at Saarbrücken has 1,662 students. Roman Catholicism is the predominant faith.

Economy.—Coal mining and steel production are the Saar's two main industries. Output of coal in 1954 totaled 16,818,000 metric tons; steel, 2,805,000. Other industries include foodstuffs, chemicals, ceramics, glassware, and construction materials. The index of industrial production (1948 = 100) rose from 174 in 1953, to 186 in 1954, and 201 in the first half of 1955. About a third of Saar coal production is exported to France and about a fourth to Germany. France also takes the largest share of Saar steel exports.

Transportation and Communications.—The Saar has 1,056 miles of roads and 343 miles of railways (route length). Telephones numbered 49,-491 in 1955; radio receiver licenses, 213,853 (1953). There were 4 daily newspapers in 1952 with a total circulation of 250,000.

Principal Events, 1955.—The Franco-German agreement of Oct. 23, 1954, on a statute for the Saar came into force on May 5, 1955. The statute provided for an autonomous Saar under the Western European Union (WEU), economically linked with France. The 1954 agreement, however, required that the statute be approved by the Saar population in a special referendum.

The pre-referendum campaign in the Saar was marked by the virulent activity of hitherto banned pro-German parties which denounced the statute and assailed the existing Saar government as subservient to France. Against the vague concept of "Europeanization," these parties evoked the appeal of German nationalism. The referendum took place on October 23, supervised by a WEU-appointed commission aided by 1,005 neutral observers. The result was a rejection of the statute by the decisive margin of over 2 to 1 (67.7% to 32.3%), with 96.5% of the electorate casting ballots. Saar Premier Johannes Hoffmann, who had favored the statute, immediately resigned, and Heinrich Welsch was named on October 29 to head a caretaker cabinet pending parliamentary elections.

Elections for a new Landtag took place on December 18. The pro-German parties, which now officially demanded the return of the Saar to Germany, obtained 63.9% of the popular vote and 33 of the 50 seats in the Landtag. The three pro-German parties and the percentages of the popular vote received were: the Christian Democratic Union, 25.4%; the rightist Democratic Party, 24.2%; and the German Social Democrats, 14.3%. Hoffmann's Christian People's Party, which had obtained a 55% majority in the election of 1952 when the pro-German parties were banned, received only 21.8%. Hubert Ney, leader of the Christian Democratic Union, headed a new coalition government installed on Jan. 10, 1956. Heinrich Schneider, a former Nazi and the leader

of the Democratic Party, was chosen president of the Landtag.

At a conference in Bonn between West German Chancellor Konrad Adenauer and French Foreign Minister Antoine Pinay, April 29-30, it was agreed that the large Roehling steel works in the Saar would be purchased jointly by the French and German governments for about \$50 million (the shares to be resold to private interests), and that the company would be managed by a Franco-German consortium headed by a French chairman.

SAFETY. See INDUSTRIAL HEALTH AND SAFETY, and Index entry. *Safety.*

SAINT HELENA. This British crown colony, settled on widely separated volcanic islands in the South Atlantic, has an aggregate area of 126 square miles (pop., 5,345 in 1954). Saint Helena (47 square miles; pop., 4,878 in 1954) lies about 1,200 miles from the west coast of Africa. Dependent Tristan da Cunha (16 square miles; pop., 294 in 1954), is the chief island of a group lying 1,500 miles south-southwest of Saint Helena, which group includes the three small uninhabited islands of Gough, Nightingale, and Inaccessible. Ascension (34 square miles; pop., 173 in 1954), lies 750 miles northwest of Saint Helena. Jamestown (pop., 1,547) is the colony's capital and Saint Helena's chief port. A governor (J. D. Harford, appointed Jan. 11, 1954) is assisted by a 4-member Executive Council and a 6-member Advisory Council of nominated non-officials.

Saint Helena.—In 1954 revenue totaled £180,886; expenditure, £173,377; a grant of £200,000 has been made by the British Treasury for development projects. There were 12 schools (primary, 11; secondary, 1), with 1,260 pupils, in 1954. Cultivation of New Zealand flax is the major industry. In 1954, 3,250 acres yielded 505 tons of hemp, and 268 tons of tow. Rope, twine, and lace are made, and fishery products include mackerel, albacore, tuna, and bonito. Exports in 1954 were valued at £46,915 (flax fiber, £42,094); imports, £214,852. Roads total 65 miles. Restored by the French government, the apartments occupied by Napoleon in Longwood Old House were reopened to visitors early in 1955.

Ascension.—The inhabitants of Georgetown, the only settlement, are employees of the island's cable and wireless stations, and their families. A. R. Harrison is the resident magistrate.

Tristan da Cunha.—First settled by sailors and soldiers remaining after the garrison of Saint Helena was withdrawn in 1817, this extinct volcano (rising to a height of 7,640 feet) has a habitable area of 12 square miles, of which about 30 acres are cultivated. Tristan da Cunha became an important meteorological and signal station of the Royal Navy in 1942. Postal facilities were introduced in 1952. An administrator (P. R. Forsyth Thompson) is assisted by a 10-member Island Council (8 elected). A South African company, conducting crawfishing under an agreement with the government, has undertaken to maintain on the island a doctor, nurse, agriculturist, and schoolteacher, the latter appointed by the Society for the Propagation of the Gospel.

SAINT KITTS-NEVIS. See LEEWARD ISLANDS.

SAINT LAWRENCE SEAWAY. See CANALS; DAMS.

SAINT LOUIS. The largest city (in population) in the Mississippi River Valley, St. Louis, Mo. (pop. 868,000 in 1954) is the commercial heart of a metropolitan area with a population of 1,805,000. Continuing its dominance of city politics, the Democratic Party scored a victory of landslide proportions in 1955 local elections. On April 5, Democrats captured 12 of 14 contested aldermanic seats, and their candidate for president of the Board of Aldermen, Donald Gunn, carried 26 of the city's 28 wards. The Democratic majority became 24 to 4 in the Board of Aldermen. The city has a mayor-council type of government with Raymond R. Tucker (Democrat) serving as mayor in 1955.

Reflecting a somewhat more intense preoccupation with civic projects, voters approved two bond issues on May 26. The \$110,639,000 bond issue for general improvements, the largest in the city's history, includes provisions for hospitals, expressways, parks, slum clearance, and a planetarium. The accompanying \$16,395,000 bond issue authorizes public school improvements. The Third Street Interregional Highway, a 2-mile expressway built at a cost of \$13,037,292, was opened to traffic on October 15. A proposal to establish a metropolitan transit district, however, was defeated on January 25.

Reversing the trend of the previous year, economic indicators recorded an accelerated tempo of business activity in 1955. The index figure for department store sales climbed to 130 for the first nine months of 1955, compared with 119.5 for the first nine months of 1954 (1947-49 = 100). Unemployment declined to an average of 48,300 for the first six months of 1955, and on June 16 the city was removed from the list of "distressed labor areas" by the U.S. Department of Labor. With the rapid expansion of residential housing and shopping centers in suburban areas, construction activity achieved a very high level. Construction contracts, amounting to \$184,855,000 in the first five months of 1955, registered a 31% gain over the preceding year.

Leading industries include food products, transportation equipment, chemicals and allied products, and primary metals. Food and kindred products represent the leading industry on the basis of number employed, but thanks to the diversified nature of the local economy, no one class of industry accounts for more than 8% of the total employed in manufacturing in the St. Louis area.

Budget appropriations (1955-56 fiscal year): \$51,485,339. City tax rate (1955): \$3.09 per \$100 of assessed valuation. Cash tax receipts (April 11, 1955): \$49,467,339. Bonded debt (April 11, 1955): \$46,700,000. Public school enrollment (Sept. 12, 1955): 90,538 pupils, including 72,446 kindergarten and elementary and 18,092 senior and technical high. Tonnage shipped through port (1954): 5,926,958. Grain receipts (1954): 89,116,049 bushels. Total employment (average for first 6 months of 1955): 786,500 persons; manufacturing employment (July 1955): 270,700.

With the establishment of racially integrated classrooms in the elementary schools on Sept. 8, 1955, the Board of Education's 12-month plan for desegregation of the public schools was completed, except for the upper grades of technical high schools.

Two prominent figures in the annals of St. Louis journalism died during 1955: Joseph Pulitzer (q.v.), editor and publisher of the *Post-Dispatch*, on March 30; and E. Lansing Ray, editor and publisher of the *Globe-Democrat*, on August 30.

MERLE KLING,
Associate Professor of Political Science,
Washington University.

SAINT LUCIA. See WINDWARD ISLANDS.

SAINT PIERRE AND MIQUELON. Main islands of two groups of small French islands off the Grand Bank south of Newfoundland. Total area, 93 square miles; pop. (1951 census), 4,606. The town of Saint Pierre (pop. 1946, 3,636) is the capital. The governor is aided by a privy council and an elected General Council of 14 members. The 1954 budget totaled 369,534,500 francs. In 1954 there were 8 public schools (547 pupils) and 9 private schools (702). Cod fishing is the chief industry. Exports, chiefly fish products, totaled 169 million francs in 1954; imports, 506 million. The islands are linked by cable with the North American mainland and Europe, and by steamship service with North Sydney and Halifax, Nova Scotia.

SAINT VINCENT. See WINDWARD ISLANDS.

SALES, Retail and Wholesale. See RETAIL STORE SALES; WHOLESALING.

SALK, Jonas Edward, American medical research scientist: b. New York, N.Y., Oct. 28,

1914. His discovery of an antipoliomyelitis vaccine after three years of intensive research promised the termination of the search for a weapon against paralytic poliomyelitis.

Salk received his B.S. degree in 1934 from the College of the City of New York, and his M.D. degree in 1939 from the New York University College of Medicine. Following an internship at Mount Sinai Hospital, New York City, he was awarded in 1942 a National Research Council fellowship at the University of Michigan School of Public Health. In 1946 he was made an assistant professor in the school's department of epidemiology. During this period he assisted Dr. Thomas Francis, Jr., in the development of commercial vaccines against influenza. In 1947 he was chosen by the University of Pittsburgh to establish and direct its virus research laboratory, and two years later was raised to the rank of full professor.

While continuing his work on influenza, Salk began searching for an antipoliomyelitis vaccine in 1949, when the National Foundation for Infantile Paralysis commissioned him and others to investigate the discovery of three distinct strains of poliomyelitis virus by Drs. David Bodian and Howard Howe. The project corroborated their findings and revealed that an effective vaccine must immunize all three types. Employing a discovery, made by Dr. John F. Enders in 1949, that the poliomyelitis viruses could be grown in nonnervous as well as nervous tissue cultures (which are unacceptable in human injection), Dr. Salk found monkeys' kidneys to be a suitable medium. He used a formalin solution to kill the virus, thus preventing it from becoming infectious when applied to the human system, and a whipping technique, discovered by Dr. Jules Freund in 1942, to enhance the inactive virus' power to stimulate the production of antibodies.

In 1952, Dr. Salk tested the vaccine on 40 volunteers who had had polio, and in 1953 he inoculated 7,500 children, his family, and himself. When these tests proved successful, the National Foundation launched large-scale tests in 1954 on 1,800,000 children (440,000 inoculated) at a cost of over \$7,500,000. A year later, on April 12, 1955, Dr. Francis, as director of the Poliomyelitis Vaccine Evaluation Center at the University of Michigan, announced that the vaccine was 60% to 90% effective against paralytic poliomyelitis.

Dr. Salk has been a member of the commission on influenza of the U.S. Army Epidemiological Board since 1944, and he is a consultant on virus diseases to the World Health Organization. The recipient of many awards and prizes, he was given a presidential citation on April 22, 1955, and a congressional gold medal on Aug. 9, 1955. (See also POLIOMYELITIS.)

SALT. Production of common salt (sodium chloride) in the United States declined from 20,789,003 short tons in 1953 to 20,403,229 tons in 1954. The 1954 output comprised 3,731,087 tons of evaporated salt, 4,848,417 tons of rock salt, and 11,823,725 tons of salt in brine. Exports in 1954 increased to 380,609 tons (249,521 in 1953), and apparent consumption declined from 20,676,790 tons in 1953 to 20,183,388 tons in 1954. While the best known uses of salt are for food seasoning and preserving, relatively small quantities are so used. Chemical and industrial uses consume about 75% of the total output. (See MINERAL PRODUCTION for table showing output of major countries.)

SALVADOR. See EL SALVADOR.

SALVATION ARMY. The Salvation Army maintains its operations in 85 countries and colonies scattered over the world. During the calendar year 1953, there were 26,775 officers and cadets in its service, augmented by several hundred thousand volunteer lay members. On July 1, 1954, Gen. Wilfred Kitching succeeded Gen. Albert Orsborn as international leader. International headquarters are in London, England.

Throughout the world, according to most recent figures, The Salvation Army operated and maintained 109 hospitals, clinics, and dispensaries; 141 children's homes, 886 day schools, 194 residences for various age groups, 39 industrial homes for women, 88 maternity homes and hospitals, 6 training schools for girls, 152 goodwill centers and slum posts, 8 prison gate homes, 198 shelters and work shops for men, 64 employment bureaus, and a number of miscellaneous services geared to special needs in various localities.

The United States command of The Salvation Army is under Commissioner Donald McMillan, national commander, and four other commissioners, each in command of a number of states, as follows: for the Eastern states, Commissioner Norman Marshall, New York City; for the Central states, Commissioner Claude Bates, Chicago; for the Southern states, Commissioner William Dray, Atlanta; for the Western states, Lieut.-Commissioner Holland French, San Francisco. Its 1,118 local corps, 263 institutions, and various other centers of work are commanded by 5,138 commissioned officers.

Among The Salvation Army's social institutions in the United States are 110 men's social service centers, which in 1953 provided shelter and work for 45,470 homeless men; 34 maternity homes and hospitals, which cared for 13,769 women and infants; 3 general hospitals, which admitted 11,349 patients; 13 Evangeline residences for young business women; and 100 homes and lodges for men, women, and children. In addition, 34,891 mothers and children were sent to summer camps, 1,476 missing relatives and friends were located through efforts of the four missing persons bureaus, and 77,909 persons were assisted in finding jobs in other than Salvation Army institutions. In the field of prison work, 7,954 inmates and their families were given assistance or service, and 2,734 prisoners were paroled in care of The Salvation Army, whose officers visited 12,988 inmates in prisons during the year.

Emergencies of disastrous proportions, particularly during tornadoes in the South and Southwest in 1955, have found Salvation Army officers and workers ready to meet situations with the equipment which is being acquired for each unit. Closer working arrangements with civilian defense authorities and the American Red Cross have increased the effectiveness of this type of emergency service. In New York City a mobile feeding unit has been developed to meet the most stringent requirements of providing for emergencies, including atomic attack.

DONALD McMILLAN,
National Commander.

SAMOA. Lying about 2,700 miles east of Australia and 4,200 miles southwest of San Francisco, Samoa comprises a group of Polynesian islands in the South Pacific. It covers an area of 1,205.3 square miles and contains a population of 115,628 (based on 1954-55 estimates). Amer-

ican Samoa lies east of longitude 171°, and Western Samoa lies west of that line.

AMERICAN SAMOA

American Samoa, an unincorporated insular possession of the United States lying between 13° and 15° south latitude and between 167° and 171° west longitude, has an area of 75.3 square miles and an estimated population of 21,500 (1955). It consists of 7 islands divided into 3 groups: (1) Tutuila (on which is the excellent harbor and capital, Pago Pago) and Aunu'u; (2) Manu'a (includes Ofu, Olosega, and Ta'u); and (3) Swains Island and the uninhabited Rose Island. The United States obtained jurisdiction over Tutuila and Aunu'u in 1900 and over the Manu'a group in 1904. Swains Island became part of American Samoa by joint congressional resolution in 1925.

Government.—After 51 years of naval administration, American Samoa was placed under the jurisdiction of the Department of the Interior in 1951. Richard Barrett Lowe was appointed governor in 1953 by the secretary of the interior, with the approval of the president. Alan Mills MacQuarrie was appointed territorial secretary in February 1954. The executive branch also comprises departments of Legal Affairs and Public Safety, Agriculture, Communications, Education, Budget and Finance, Information and Adult Education, Personnel, Medical Services, Public Works, and Local Government, the last agency having been established in an effort to familiarize Samoan leaders with the more detailed procedures of government. The organization of government is defined in the Code of American Samoa, which contains all local laws. Citizens of American Samoa are nationals of the United States.

The advisory Legislature (Fono) is composed of a Senate of 15 members, elected in accordance with Samoan custom from among the chiefs, and a House of Representatives of 18 members, elected by secret ballot. A territorial constitution was being drafted in 1955, and will be presented to a constitutional convention.

The judicial branch includes a high court of three divisions—appellate, trial, and probate—presided over by Judge A. A. Morrow, as well as five district courts.

Finances.—During the fiscal year ending June 30, 1955, American Samoa operated under a direct federal appropriation of \$116,000 and a grant-in-aid of \$1,159,000, supplemented by local revenue of \$591,316.50. The Bank of American Samoa, owned and operated by the government, showed resources totaling \$1,669,158.53 at the end of the fiscal year.

Education.—School attendance is compulsory for all children aged 7 through 15 years. Illiteracy in the territory is approximately 1% of the total population of 10 years of age and over. An appropriation of \$273,639 was allotted to public education for the year, not including funds for the construction and maintenance of village schools.

Seventy students are selected yearly for the high school, 35 for the vocational school, and 10 for nurses' training. Above the high school level there are one-year courses in teacher training, in college preparatory work, and in commercial subjects. Four religious organizations maintain six private schools approved by the Department of Education.

SCHOOL STATISTICS, FISCAL YEAR 1955

Type of school	Number	Teachers	Pupils
Primary schools (1-6).....	47	170	3,875
Junior high schools.....	5	27	829
High schools.....	1	10	161
Vocational schools.....	1	2	46
Teacher education.....	1	1	13
Private and parochial elementary.....	6	31	1,133

Public Health and Social Welfare.—Appropriations for the fiscal year 1955 totaled \$368,257.32. Institutions include a 225-bed hospital, a 25-bed cottage hospital, 4 dispensaries, and a leprosarium. All services for tubercular and leprosy patients are free, but a nominal charge is made for other hospitalization. Vigorous immunization programs, preventive measures, and sanitation did much to advance public health in 1955.

Production and Trade.—Nearly all the population is engaged in agricultural activity on 1,500 farms averaging about 10 acres. Subsistence crops are taro, breadfruit, bananas, papayas, and pineapples. Swine, poultry, and some cattle are

the principal livestock. Copra (dried coconut) has been the largest source of income for many years; however, cocoa is now being raised as a money crop, and experiments are being made in coffee growing.

While much individual fishing is done, the establishment of a fresh fish market in 1955 made it possible for the Samoan people to supplement their protein diet at a nominal cost.

Copra and handicraft items are the principal exports. During the fiscal year 1955, 1,485 tons of copra, and handicrafts valued at \$47,794.14 were exported. A cannery, providing income to approximately 350 Samoans, exports processed tuna and fish meal.

Transportation and Communications.—American Samoa is served by a New Zealand vessel calling monthly and by occasional southbound Matson freighters, northbound ships calling only when freight shipments warrant. The government operates one small interisland vessel and three launches for intransit use, and a privately owned schooner operates regular intransit travel. Limited shipping facilities have proved detrimental to the export of local products to the United States. The Matson Navigation Company, however, was planning in 1955 to re-establish regular passenger and freight service to American Samoa late in 1956.

Tafuna Airport, was undergoing improvements in 1955 in order to receive nonscheduled commercial flights direct from Honolulu. During the year the Civil Aeronautics Board approved the petition of the Pan-American World Airways to make American Samoa a stopping point between Honolulu, New Zealand, and Australia.

There are 69.2 miles of road, 40 miles of which are considered main roads, with 4 miles surfaced. Of 185 registered motor vehicles, 70 are passenger cars. The government has 212 telephones for official and public use, and operates a local radio station and a small broadcasting station (WVUV), which presents programs in English and Samoan.

ALAN M. MACQUARRIE,
Acting Governor, American Samoa.

WESTERN SAMOA

Mandated to Great Britain in 1919, this former German territory has been continuously administered by New Zealand (since 1946 under a trusteeship agreement with the United Nations). Its area of 1,130 square miles comprises the islands of Savai'i (700 square miles) and Upolu (with Manono, Apolima, and other small islands, 430 square miles). At the 1951 census the population of 84,909 comprised 79,600 Samoans; 4,141 part-Samoans; 501 other Polynesians; 450 Europeans; 164 Chinese; and 52 Melanesians. The estimated total population in 1954 was 94,128. Apia (pop., 16,000), on Upolu, is the capital and chief port.

The executive government is under a high commissioner (G. R. Powles, assumed office March 1, 1949). He is president of the Council of State, comprising 2 Samoan *fautua* (high advisers), and of the Executive Council, comprising the 2 *fautua*, 3 officials, and 4 members (3 Samoan, and 1 European) of the Legislative Assembly, the latter consisting of the 2 *fautua*, 6 officials, 12 Samoans, and 5 elected Europeans. The 12 Samoans are elected by the Fono of Faipule, a body of representatives meeting semiannually at Mulinu'u, the traditional capital.

Representing all sections of the population, a constitutional convention, comprising 170 delegates, was held during November and December 1954. Resolutions were passed for the creation of a single-chamber legislature composed of 41 Samoan, 5 European, and 2 official members (the ministers of justice and finance). A premier and cabinet, responsible to the legislature, would control

the executive government, and the present two *fautua* would constitute a head of state. It was also decided to increase the present 41 Samoan constituencies to 45.

The Samoan and New Zealand pound have the same value and are at parity with sterling; government revenue in the calendar year 1954 totaled £NZ1,128,870; expenditure, £NZ1,145,810.

Five Christian missionary bodies cooperate with the government in operating the educational system. In 1954 there were 113 government schools (21,564 pupils) and 364 denominational mission schools (about 32,000 pupils). Samoa College at Apia has primary and secondary departments.

Food crops are principally taro, ta'amu, and bananas. Copra, cacao, and bananas are major exports. The New Zealand government operates the New Zealand Reparation Estates, comprising former German-owned areas, and devotes the profits to social and economic development. In 1954 such expenditure totaled £NZ54,000, allocated principally to education and public works.

In 1954 imports were valued at £NZ1,710,494 (from New Zealand, £NZ544,796; United Kingdom, £NZ398,279; and Australia, £NZ314,366). Exports totaled £NZ2,211,847 (to the United Kingdom, £NZ1,377,569; New Zealand, £NZ558,165; and Australia, £NZ165,276). Major items exported were bananas (276,135 cases), copra (13,664 tons), and cacao (2,399 tons).

There are approximately 339 miles of road. Steamships and services of Tasman Empire Airways link Western Samoa with Australia, New Zealand, Fiji, Tahiti, and the United States.

SAN FRANCISCO. The city and county of San Francisco, Calif., has an area of but 44.8 square miles, which makes it one of the most compact major cities of the United States. It occupies the northern tip of the San Francisco peninsula, bordered on the west by the Pacific, on the east by San Francisco Bay, and on the north by the Golden Gate. Possessing the most commodious harbor on the entire west coast of the continent, it has for over a century handled a great part of the maritime trade between the United States and the countries of the Orient. Shipments through the port totaled 4,694,629 revenue tons during the first ten months of 1955. In addition it has long served as the major financial, industrial, and distribution center for the rapidly expanding economy of northern and central California.

San Francisco's population, estimated at 805,000 on Oct 1, 1955 (1950 census: 775,357; national rank, 11th), has in recent years shown a steady increase, though at a slower rate than some of the adjacent communities, with many newcomers to the area making their homes elsewhere and commuting to the city. Thus in the first nine months of 1955, approximately 150,000 workers entered the city daily.

The city's bonded debt (June 30, 1955) was \$179,792,283, as against the legal limit of \$245,554,000. The city tax rate (1955-56 fiscal year) was \$7.02 per \$100 assessed valuation. During the same period, municipal revenue was estimated at \$197,312,174, of which \$89,092,566 was to be derived from taxes. Building permits for the first ten months of 1955 totaled \$53 million, some \$3¼ million more than for the same period in 1954. Average daily school attendance (1954-55 fiscal year) was 84,720.

San Francisco is governed by a mayor and a board of 11 supervisors. At the municipal election held on Nov. 8, 1955, a new mayor, George E. Christopher, was chosen to serve from Jan. 8, 1956, until 1960, and bond issues totaling \$61 million were approved by the voters. These included \$7 million for new park and recreation facilities, and \$54 million for the building of hydroelectric plants in the Hetch Hetchy Valley, thereby assuring an ample supply of electric power for the future domestic and industrial needs of the city.

Throughout 1955, building continued on the

extensive system of freeways, designed both to afford easier access to the city from outlying communities and to divert traffic from the crowded downtown streets. The section connecting the Bayshore Highway with the San Francisco-Oakland Bay Bridge was completed, and plans went forward for the construction of an elevated causeway paralleling the docks of the waterfront and tying in to the Golden Gate Bridge. (See also BRIDGES.)

Plans for other civic improvements moved closer to realization. These included the rehabilitation of blighted areas, provision for badly needed facilities for off-street parking, and the construction of an exhibit hall beneath the civic center plaza to serve as an annex to the Municipal Auditorium. A proposal to erect a building for the local courts, now housed in the city hall, was defeated by the voters in the November election.

OSCAR LEWIS,
Editor (with L. F. Byington) of *"A History of San Francisco"* (1932); Author of *"The Big Four"* (1938), *"High Sierra Country"* (1955), and other books.

SAN MARINO. The world's smallest republic, located in the Apennine Mountains of Italy, 140 miles north of Rome. Area, 23 square miles; pop. (1954), 14,545. The capital is San Marino (2,481). Language and currency are Italian, and a customs union exists with Italy. A 60-member Grand and General Council is elected every 4 years by male suffrage. Two members are appointed to act as regents for six-month periods. A coalition of Communists and leftwing Socialists has been in power since World War II. The republic has 35 elementary schools, a technical school, and a high school. Wine, woolen goods, hides, and building stone are exported. Tourism is important. In the elections of Aug. 14, 1955, the leftist coalition increased its majority in the council from 31 to 35 seats.

SAND AND GRAVEL. Sand and gravel production in 1953 reached 440,089,225 short tons, of which 160,426,217 tons were sand and 279,663,008 tons were gravel. Corresponding figures for 1952 were: total production, 435,511,233; sand, 156,092,506; and gravel, 279,418,727. About 90% of these products are used in building construction and road paving. Other important uses of sand are in glassmaking, in molding and filtering, and in railroad engines and ballast.

SANITATION. See Index entry.

SANTO DOMINGO. See HISPANIOLA.

SÃO TOME. See PORTUGUESE TERRITORIES.

SARAWAK. See BORNEO.

SARDINIA. An island in the Mediterranean west of the Italian Peninsula; area, 9,196 square miles. Together with small neighboring islands, Sardinia forms an autonomous region of Italy. Regional area, 9,301 square miles; resident population (1951), 1,273,850. Cagliari (137,032) is the capital and chief city. Agriculture, livestock raising, and fishing are the chief occupations. Lead and zinc are mined. Exports include wine, olive oil, and oranges.

SASKATCHEWAN. Located between Manitoba and Alberta, Saskatchewan is bounded on the north by the Northwest Territories, and on the south by North Dakota and Montana. The province has an area of 251,700 square miles, including 13,727 square miles of fresh water. The federal census of 1951 indicated it had a population of 831,728. A June 1955 estimate (Dominion



Flags of United Nations members line San Francisco City Center Plaza on June 20, 1955, during the tenth anniversary celebration of the signing of the U.N. Charter.

Bureau of Statistics) placed the province's population at 889,000. Saskatchewan's principal cities and their 1951 census populations are: Regina (the capital city), 71,319; Saskatoon, 53,268; Moose Jaw, 24,355; Prince Albert, 17,149; North Battleford, 7,489; Swift Current, 7,430; Weyburn, 7,138; and Yorkton, 7,054.

Government.—The province is administered by a lieutenant governor and a Legislative Assembly, the latter elected every five years. In the provincial election of June, 1944, the first Socialist government in Canada was elected. This government was returned in 1948 with a reduced majority, and again in June 1952 with a greatly increased majority. Following this election the representation in the legislature was: Co-operative Commonwealth Federation (Socialist), 42 members; Liberal Party, 11. In a 1953 by-election, a Progressive Conservative candidate was elected, reducing Liberal representation to 10. In the Canadian Parliament, the province is represented in the House of Commons by 17 members.

Finance.—Estimated revenues for the fiscal year 1955-56 (April 1 to March 31) were \$79,992,920; estimated expenditures, \$79,971,810. Net debt at the end of December 1954 stood at \$78,485,976.

Education.—In 1954, a total of 140,115 pupils were enrolled in elementary schools, and 33,275 in high schools. The University of Saskatchewan, at Saskatoon, had an enrolment of 2,674 in 1955. There are two teachers colleges, one at Saskatoon (354 students), and the other at Moose Jaw (232 students).

Agriculture.—Saskatchewan has approximately 112,000 farm units, occupying some 61 million acres. The chief agricultural products were wheat, oats, barley, rye, and flax. Cash income from the sale of farm products in 1954 was \$473,094,000. In 1954, Saskatchewan produced 151 million bushels of wheat, 86 million bushels of oats, 53 million bushels of barley, 4,800,000 bushels of flax, and 6,700,000 bushels of rye. Also in 1954, the province had 1,387,000 cattle, 539,000 hogs, 156,000 sheep, 229,000 horses, and 704,000 poultry.

Minerals.—Since 1925, mineral production has risen in annual value from \$1,075,000 to \$57,032,000 in 1954, excluding uranium. Metals yielded \$40,219,253; sodium sulfate, \$2,547,586; clay products, \$838,000; and salt, \$891,000. Coal production was valued at \$4,229,864. Production of natural gas in 1954 totaled 4,824,266,000 cubic feet, while oil production was 5,422,899 barrels. For the first eight months of 1955, oil output was 6,505,264 barrels, and natural gas 6,398,266,100 cubic feet. Interest in Saskatchewan's uranium was sparked in August 1952 by Canada's first large-scale uranium claim-staking rush, during which about 300 claims were filed within 24 hours. In 1954, a total of 7,290 claims

were filed, and approximately 10,985 were filed in the first 11 months of 1955.

Other Production.—Total value of forest products in 1954-55 was \$9,640,857. Commercial fish production for 1954-55 was valued at \$1,644,000, and fur production at \$3,715,011.

Gross value of manufacturing production for 1954 was estimated at \$282 million. In 1954 Saskatchewan had 1,200 manufacturing establishments, employing 11,800 persons. Retail sales in 1954 reached a total of \$755,195,000, and capital expenditure intentions were listed at \$474 million. Personal income in 1954 totaled \$761 million.

Communications.—In 1954 Saskatchewan had approximately 7,100 miles of railways and 8,280 miles of highways. There were 164,404 telephones, 1,600 post offices, and 10 radio broadcasting and 2 television stations.

Principal Events, 1955.—During 1955 Saskatchewan, which became a Canadian province in 1905, observed its Golden Jubilee by province-wide celebrations. Permanent memorials to the province's pioneers included opening of a million-dollar Museum of Natural History at Regina and the publication of histories of Saskatchewan.

In July 1955 the South Saskatchewan pipeline, final link in the line which carries medium-grade oil from the southwestern part of the province via Regina through Interprovincial and Minnesota pipelines to the Minneapolis-St. Paul market, was placed in operation. In August a 110-mile gas pipeline was completed from Coleville via Saskatoon, as a new loop to extend natural gas service to the city of Prince Albert in the north. Another pipeline completed later in the southwest, from the Success field, was slated to serve the city of Swift Current early in 1956. Feeder pipelines for oil were also under construction at the end of 1955 to take light oil from the province's southeastern oil fields (at Midale, Frobisher and Alida) through the Interprovincial line to market outlets.

A new 1,250-tons-per-day uranium plant, opened in October 1955 by a private company, Gunnar Mines Ltd., in the Beaverlodge area of northern Saskatchewan, will approximately double the province's uranium production potential. The Potash Company of America began a multi-million dollar potash development program in the Saskatoon area late in 1955, with at least nine other companies conducting initial explorative or developmental programs.

Late in 1955 plans were announced for several new kinds of manufacturing. These included Saskatchewan's first cement plant, an \$8 million project scheduled to be in production in the fall of 1956; and the construction of the province's first steel pipe plant, initially estimated to cost \$3 million, with production to start early in 1956.

During 1955 construction was begun on a series of microwave towers for the Saskatchewan section of a cross-Canada system which will increase telephone and television circuits.

O. R. GREEN,
*News Editor, Saskatchewan Bureau
of Publications.*

SATELLITE, Earth. See SPACE FLIGHT.

SAUDI ARABIA. This kingdom (area, approximately 900,000 square miles; pop., 1952 est., 7,000,000), lying between the Red Sea and the Persian Gulf, and covering the greater part of the Arabian Peninsula, comprises Nejd, al-Hasa, Asir, and Hejaz. Among the leading cities are

Mecca (100,000) and Medina (45,000), the holy places of Islam, both in Hejaz; Riyadh (60,000), in Nejd, and Mecca are capitals, although the main seat of government is at the former. Jidda (80,000) on the Red Sea is the principal port. Dhahran, in al-Hasa on the Persian Gulf, is the center of the oil industry.

Government.—All Saudi Arabia is under a single administration with one Legislative Assembly. The kingdom is a member of the Arab League (q.v.) and the United Nations. King Saud ibn Abdul-Aziz al-Faisal al-Saud succeeded to the throne in 1953. A Council of Ministers appointed in 1954 includes ministers of finance, agriculture, education, commerce, interior, health, and foreign affairs. In 1955 a Ministry of Information and National Guidance was created. The king's brother, Emir Faisal, is crown prince, prime minister, and foreign minister.

Education and Religion.—Primary, secondary, and higher education are free, though not compulsory. Night schools have been established for illiterate adults. At Mecca there are several religious colleges, and there is one at Medina for religious law. In 1955 King Saud turned over old palaces in Jidda, Medina, and Riyadh to be used as schools. In 1955 a royal decree was issued abolishing elementary and secondary education in foreign schools for all Saudi Arabian students and imposing restrictions on those wishing to enroll in foreign universities. Aramco maintains schools for technical training and in 1955 built two new primary schools and started eight others for the use of the children of its Arab employees. The great majority of Saudi Arabians are Wahhabis, a puritanical sect of Islam founded in the 18th century.

Defense.—The United States maintains military and air bases at Dhahran, and a United States military mission is aiding in the modernization of defense forces. Five regimental combat teams of 3,500 men each are being trained for desert warfare, and there is an officer-training base at Taif. A new military school has been founded at Buraidah, and a new military academy, the King Abd al-Aziz Royal Academy, was established at Riyadh. In April 1955, the first air force cadets were graduated from the Saudi Aviation Academy at Jiddah.

Finance.—All money of Saudi Arabia is coin, and the standard coins are the Saudi silver riyal (SR), equal to U.S.\$0.27, and a Saudi gold sovereign (SS), equal to SR40 and having a gold content of U.S.\$8.24. The budget for the fiscal year of 1374 (September 1954-August 1955) showed revenues of SR1,143 million and expenditures of SR1,355 million. The income tax on and royalties from oil provide about 85% of the national income. Other sources of revenue were customs, and airline, railway, and port incomes. There were large expenditures for defense, public works projects, and communications. Since 1946 the Export-Import Bank of Washington has loaned \$14,767,516 for development projects, \$6 million of which has already been repaid.

Petroleum Resources.—Rights for the development of oil resources for most of Saudi Arabia are held by Aramco, the Arabian American Oil Company, which is owned 30% each by the Standard Oil Company of California, the Texas Company, and the Standard Oil Company of New Jersey, and 10% by Socony-Vacuum Oil Company. Saudi Arabia receives a royalty of 50% of the profit before United States taxes, and the percentage is to be increased if any oil company pays a higher figure to any other Middle Eastern government. A similar arrangement exists with Pacific Western Oil Company, which holds the rights to Saudi Arabia's share in the Neutral Zone with Kuwait.

Oil revenues accruing to the state in 1955 were over \$250 million. Over 347 million barrels were produced in 1954 by Aramco, and Pacific Western Oil Company exported 5.7 million barrels of crude oil from the Neutral Zone. By the middle of 1955 production of crude oil amounted to 23 million metric tons. The great bulk of the oil is pumped through Aramco's TAPline (Trans-Arabian Pipeline), 1,068 miles to Lebanon, although some is piped to Bahrain, some is loaded on tankers, and 79.8 million barrels were refined at the Ras Tanura plant.

Agriculture.—Nejd is famous for well-bred camels and horses; coffee is produced in Asir; dates, barley, rice, sorghum, and fruits are grown in Hejaz; dates are grown in al-Hasa; and in al-

Kharj various crops are produced on 3,000 acres of irrigated land.

Foreign Trade.—There are no official statistics on foreign trade. Exports, which consist almost exclusively of oil, were estimated at £235 million in 1953. Exports to the United States in 1953 were valued at \$66,575 million, of which oil accounted for \$66,102 million. Exports to Great Britain in 1953 amounted to £2,107 million. Imports from the United States in 1953 were valued at \$76,317 million, of which metals and manufactures constituted \$49,109 million. Imports from Great Britain in 1953 were valued at £5,920.

Transportation and Communications.—The railroad from Dammam on the Persian Gulf to Riyadh (357 miles) is being extended, and bids were opened in December 1955 for the construction of a line from Riyadh to Medina and Jidda, with 4 branch lines, to connect with the Hejaz Railway. Meetings of the Hejaz Railway Executive Committee (Syria, Jordan, and Saudi Arabia) were held, and King Saud in October 1955 contributed SR2 million to finance a study of necessary repairs. Bids for repair work were submitted by 24 international companies. An asphalt highway is under construction between Dammam and Jidda, connecting Mecca, Taif, Riyadh, and Hofuf. In 1955 radiotelephone service was inaugurated with Egypt and Syria, and an automatic telephone exchange was installed in Jidda. The main airports are at Jidda, Dhahran, and Riyadh. There is air service to Cairo and Beirut.

Principal Events, 1955.—In 1954 an agreement was signed with the shipping magnate, A. S. Onassis, giving certain priorities in marketing oil to the Saudi Arabian Tanker Company, which he controlled. After Aramco protested that this agreement contravened its concession, the dispute was submitted to international arbitration at Geneva.

Several attempted coups made against King Saud and his brothers were suppressed. H. St. John B. Philby, the noted English author and Islamic scholar, who has been living in Riyadh and Mecca for a number of years and advising the Saudi Arabian government, was forced to leave the country in 1955. A German became the king's political adviser. Also in 1955 a joint committee was formed with Jordan to demarcate the common frontier.

The Baraimi Oasis dispute with Britain continued in 1955. The five-man arbitration council in Geneva investigating the dispute was composed of Sir Reader Bullard of Great Britain, Sheik Usuf Yasin of Saudi Arabia, and one member each from Belgium, Cuba, and Pakistan. In September 1955 the council broke up when Sir Reader Bullard resigned, charging that Saudi Arabia was bribing the council. Saudi Arabia claimed he resigned when he understood that the council's decision would be in favor of Saudi Arabia. In October 1955, British officers with troops from Muscat and Abu Dhabi occupied Baraimi in force and drove out the Saudi Arabian police, some of whom were wounded and killed.

On Oct. 27, 1955, Saudi Arabia entered into a pact with Egypt, in which the two countries agreed to stay out of the Baghdad Pact (Middle East Treaty Organization) and to contribute instead to joint Arab defense and economic cooperation. King Saud assured Egypt of full military and financial support in the event of an Israeli attack on the Gaza strip. On December 24 it was announced in Cairo that Maj. Gen. Abdel Hakim

Amer, Egyptian minister of war, would command the joint Egyptian-Saudi forces.

SYDNEY N. FISHER,
Professor of History, Ohio State University.

SAVINGS. Liquid savings of individuals in the United States totaled approximately \$176 billion at the beginning of 1955. During 1954 these savings, which include currency, checking and savings accounts, and United States government securities, increased by \$6 billion, one of the largest gains in the postwar period. Saving in these liquid forms appeared to have continued at a high rate in the first three quarters of 1955.

Growth in savings accounts (including shares in savings and loan associations) continued to account for most of the increase in total liquid assets, as is shown in Table 1. Savings accounts amounted to about \$91 billion at the end of 1954. Demand deposits increased during the year by about \$2 billion, while individual holdings of United States government securities and currency had a combined decrease of about \$4 billion. At year's end, personal holdings of these three assets totaled \$84 billion.

TABLE 1—ESTIMATED LIQUID ASSET HOLDINGS OF INDIVIDUALS IN THE UNITED STATES
(In billions of dollars)

Assets	1952 ¹	1953 ¹	1954 ¹
Currency.....	20.4	20.9	20.7
Demand deposits.....	33.0	32.7	34.7
Time deposits.....	58.6	62.7	66.5
Savings and loan shares.....	17.6	20.8	24.9
U.S. government securities.....	34.0	32.4	28.7
Totals ²	163.6	169.5	175.5

¹ End of the year. ² Includes holdings of farmers and professional persons, but not trust funds administered by corporate trustees. (Source: *Federal Reserve Bulletin*, July 1955, p. 750.)

The increase in total personal liquid assets in 1954 appeared to be primarily due to an increase in the average amount of holding rather than to expansion of the number of spending units that had such holdings. Large amounts of liquid assets (\$5,000 and over) were held by roughly 5.5 million consumer spending units at the end of 1954, compared with 5 million a year earlier, according to the Federal Reserve Board's Survey of Consumer Finances. The number of consumer units with no liquid assets increased, as has been the case in most postwar years. Approximately 25

TABLE 2—SIZE OF LIQUID ASSET HOLDINGS WITHIN VARIOUS INCOME GROUPS, EARLY 1955

Amounts of total liquid assets held ¹	Percentage distribution of spending units within income groups ²			
	All spending units	Under \$1,000	\$1,000-2,999	\$5,000 and over
None.....	29	61	46	26
\$1-\$499.....	29	21	24	37
\$500-\$1,999.....	21	8	17	20
\$2,000-\$4,999.....	11	5	8	10
\$5,000 and over.....	10	5	5	7

¹ Includes all types of U.S. government securities, checking accounts, and savings accounts in banks and savings and loan associations and postal savings; excludes currency holdings. ² Liquid assets data are based on interviews in January through March 1955. (Source: 1955 Survey of Consumer Finances, *Federal Reserve Bulletin*, June 1955.)

million of the 54 million spending units had no liquid assets at the end of 1954, compared with 22 million a year earlier. Liquid assets of \$2,000 or more were held by 21% of spending units, while smaller amounts were owned by 50%, as is shown in Table 2.

The higher the income, the more likely a spending unit was to have liquid assets. These

assets were nevertheless broadly distributed. Consumers in the lower half of the income distribution increased their share of total liquid assets (excluding currency) from 23% in early 1947 to 28% in early 1955. The rise in large holdings of liquid assets during 1954 appeared to take place among consumers with incomes between \$1,000 and \$5,000.

IRVING SCHWEIGER,
Associate Professor of Marketing, University
of Chicago.

SCHOOLS. See COLLEGES AND UNIVERSITIES; EDUCATION; OFFICE OF EDUCATION, U.S.; and the section on *Education* in articles on countries and states.

SCOTLAND. Including its 186 islands, Scotland has an area of 31,400 square miles (divided administratively into 33 civil counties on the main island of Great Britain north of the Tweed), and a population estimated in December 1954 at 5,123,300 (principal cities: Glasgow, 1,083,400; Edinburgh, 469,300; Aberdeen, 185,700; and Dundee, 176,800). Scotland is represented by 74 members in the House of Commons and by 16 Scottish peers in the House of Lords.

In 1953-54 there were 2,862 primary departments (590,577 pupils; 18,210 teachers); 817 secondary schools (average registration, 232,845), and 203,703 students at 1,112 centers for further education. Expenditure on education in 1954-55 was estimated at £49,076,968. University enrollment, aggregating 14,954 in 1954-55, comprised: St. Andrew's, 1,831; Glasgow, 5,789; Aberdeen, 1,836; Edinburgh, 5,498.

Agricultural production in 1954, on 10,392 farms occupying 4,388,879 acres, included wheat, oats, barley, and rye; there were 1,206,000 acres of permanent pasture. Fisheries produced 298,812 tons, valued at £11,236,022. An overall increase of 5% was recorded for industrial production in 1954, including exports of hosiery and knitwear valued at about £4 million. By 1955, United States interests had set up more than 20 varied industrial projects in Scotland. There were 305,000 overseas visitors to Scotland (a record figure) in 1954. (See also GREAT BRITAIN.)

SCOTT, Walter Dill, American educator; b. Cooksville, Ill., May 1, 1869; d. Evanston, Ill., Sept. 23, 1955. A pioneer in applying psychological knowledge and techniques to advertising and to personnel work, he also served as president of Northwestern University during a period of unprecedented expansion.

After receiving his B.A. degree from Northwestern in 1895, he prepared for missionary work at McCormick Theological Seminary. On being graduated in 1898, he instead went to study psychology at the University of Leipzig, where he earned a Ph.D. in 1900. In the following year he joined the psychology department at Northwestern, becoming a full professor in 1908 and president of the university in 1920. By 1939, when he became president emeritus, the university's endowments had been increased fivefold, its plant greatly enlarged, and many of its graduate schools gathered in a separate Chicago campus. From 1948 until his death he was chairman of the editorial board of *The American People's Encyclopedia*.

Early in his teaching career, Scott took the then novel course of applying psychological testing to business. In World War I he drew up the system of classification used by the U.S. Army to assign enlisted men to duty and the aptitude

tests used for officer candidates, for which he received the D.S.M. Of his many books on applied psychology, the best known is *Personnel Management* (with R. C. Clothier, 1923).

SCULPTURE. See PAINTING, SCULPTURE, AND PRINTS.

SECRET SERVICE, U.S. The Secret Service was established July 5, 1865, as a branch of the Treasury Department. Its powers and duties are defined in Title 18, U.S. Code, Section 3056.

Secret Service agents made advance security arrangements for President Eisenhower's participation in the historic "meeting at the summit" in Geneva, Switzerland, in July, and protected the president abroad. They also made security arrangements for the visit of Vice President Nixon to Central America and safeguarded him throughout the trip.

During the fiscal year ended June 30, 1955, Secret Service agents captured 16 plants for the manufacture of counterfeit money, and \$1,021,916 in counterfeit bills. Of that total, only \$102,462 was successfully passed on storekeepers and cashiers. The balance was captured before it could be put into circulation. Seizures of counterfeit coins totaled \$5,262.76, of which \$4,975.32 was passed. There were 124 new counterfeit note issues and variations thereof during the fiscal year, and 186 persons were arrested for violating the counterfeiting laws.

There were 33,260 forged government checks received for investigation. Agents completed investigations of 30,177 forged checks worth \$2,609,335.91, but on June 30 there was a growing backlog of 15,222 forged checks awaiting investigation. There were 2,825 check forgers arrested. Agents also received 5,607 forged U.S. Savings Bond cases for investigation, completed investigations of 4,961 forged bonds worth \$437,103.54, and arrested 86 persons for bond forgery.

Arrests for all offenses totaled 3,269, an increase of 5% over the previous year. There were 2,979 convictions, representing 98.1% of convictions in all cases prosecuted, some of which were pending from the previous year.

Cases of all types received for investigation totaled 43,990, an increase of 2,627 over 1954. Although 40,627 cases were closed during the year, there were 18,585 cases awaiting investigation and 956 pending prosecution as of June 30, 1955.

U. E. BAUGHMAN,
Chief, U.S. Secret Service.

SECURITIES. See STOCKS AND BONDS.

SECURITIES AND EXCHANGE COMMISSION. This bipartisan, quasijudicial agency of the United States government administers laws in the general field of securities and finance.

Securities Act of 1933.—This law seeks to protect investors by: (1) requiring (with certain exceptions) that securities offered for public sale be registered with the SEC; and (2) prohibiting fraud in the sale of securities.

By June 30, 1955, \$103 billion of securities had been registered, including \$10.9 billion during the 1955 fiscal year. Registration of securities is no guarantee against loss in their purchase, but disclosures should enable investors to make informed investment decisions. Although there is no warranty of the accuracy of the disclosures, investors who suffer losses in the purchase of registered securities have important recovery rights if the facts have been misrepresented.

Securities Exchange Act of 1934.—This law con-

tains similar registration and disclosure requirements applicable to outstanding securities listed for public trading on the national securities exchanges. Issuers must file periodic reports with the SEC and the exchanges containing data essential to informed investment analyses. Similarly, in the solicitation of proxies (votes), factual disclosures must be made so that stockholders' votes may be cast intelligently. In addition, management officials and large stockholders must report their holdings of, and transactions in, listed equity securities; and their short-term trading profits in such securities are recoverable by the issuer. This is designed to curb misuse of "inside" information. At the end of the fiscal year, 3,658 security issues of 2,219 issuing companies were so listed and registered; and exchange trading volume therein was approximately \$38 billion for the year. During the fiscal year, 1,934 proxy statements and 28,975 insiders' reports were filed.

The law also contains provisions designed to eliminate misrepresentation, manipulation, and other fraudulent and deceptive practices in the purchase and sale of securities. Exchanges and over-the-counter brokers and dealers must register with the commission. Associations of the latter organized under the law for self-policing purposes also may register. All must make their rules and trading practices conform to prescribed standards designed to establish and maintain free and open markets. At the fiscal year's end, 15 exchanges, 4,334 brokers and dealers, and one broker-dealer association were registered.

This law also contains important sanctions against violations. It gives the SEC investigatory and enforcement powers and provides for court injunctions against securities violations, as well as for criminal prosecution where fraud or other willful violations are indicated. In addition, it provides for revocation of the registration of brokers and dealers, and their suspension or expulsion from membership in exchanges or the broker-dealer association, for any such willful violations.

Public Utility Holding Company Act of 1935.—

This law provides for regulation of holding company systems of electric and gas utility companies to protect against certain abuses in their financing and operation, including improper financial and related practices and the extension of systems without regard to economies of operation. The law also requires a major overhauling of such systems to delimit their operations to integrated groups of utility properties, simplify corporate and capital structures, and redistribute voting power equitably among security holders.

The integration and simplification program is virtually complete. It has resulted in the release from the act's jurisdiction, by means of sales, distributions and other divestments, reorganizations, mergers and consolidations, liquidations, and other actions, of 1,958 of the 2,200 companies previously subject to the law. A prerequisite to approval of all such actions, involving several billion dollars of securities and properties, was a finding by the commission (and frequently by a federal district court) that the proposals were fair to security holders. Important byproducts have been the elimination of absentee control over many utility-operating companies and removal of obstacles to effective state regulation. Ultimately, some 18 integrated and simplified holding company systems with aggregate assets of about \$6.5 billion are expected to remain subject to continuing SEC regulation under the act.

This regulation has its primary impact on the purchase and sale of utility securities and properties, mergers and consolidations, intercompany transactions, and similar matters. Principal among these is the sale of securities to finance the business of system companies, including their plant expansion programs, with respect to which the commission must apply statutory standards designed to protect investors and consumers. Annual financings by registered holding company systems in recent years have approximated \$1 billion, including intrasystem sales.

The commission also administers the Trust Indenture Act of 1939, the Investment Company Act of 1940, and the Investment Advisers Act of 1940, and serves as adviser to federal courts in corporate reorganization proceedings under Chapter X of the Bankruptcy Act.

ORVAL L. DuBois,
Secretary.

SECURITY, National. See NATIONAL SECURITY.

SECURITY COUNCIL (U.N.). See UNITED NATIONS.

SECURITY COUNCIL, National. See Index entry, *National Security Council.*

SEGNI, Antonio, premier of Italy; b. Sassari, Sardinia, Italy, Feb. 2, 1891. A left-of-center Christian Democrat, he succeeded Mario Scelba as premier on July 6, 1955.

A graduate of the University of Rome (1913), he served as an artillery sergeant in World War I and began his long career as a teacher of law in 1920, when he was appointed to the faculty of the University of Perugia. Subsequently he taught at the University of Cagliari (1925-29); the University of Pavia (1929-31); the University of Sassari (1931-54), of which he became rector in 1944; and the University of Rome (1954-55).

Professor Segni was active in the Italian Popular Party, the predecessor of the Christian Democratic Party that was founded in 1919, and strongly opposed fascism. In 1924, Benito Mussolini dissolved the Popular Party, and Segni retired from politics until 1942, when he joined the Sardinian Clandestine Committee for Liberation, an anti-Fascist organization.

After the liberation of Italy, Segni played a major role in the nation's political reconstruction. In 1946 he was elected to the Constituent Assembly, which drafted the Constitution of the Italian Republic, and in 1948 he became a member of the Chamber of Deputies. From 1946 to 1951 he was minister of agriculture, and from then until 1954 minister of public instruction. As minister of agriculture, he played a prominent part in drafting the land reform legislation of 1950, which has done much to improve conditions in southern Italy and the islands and so to prevent the spread of communism.

After Mario Scelba resigned as premier on June 22, 1955, President Giovanni Gronchi (q.v.) asked Segni to form a new government. His coalition cabinet, much like that of his predecessor, was sworn in by the president on July 6, and was confirmed by the Chamber of Deputies on July 18 and by the Senate on July 22. Segni continued Scelba's firm support of the West and the North Atlantic Treaty Organization but, in talks with U.S. Secretary of State John Foster Dulles on October 22-23, urged a more equitable voice for Italy in Western policymaking, particularly in the Mediterranean area. He also pressed for greater United States support of the admission of Italy to the United Nations (with 15 other nations, Italy was admitted on December 14).

SEGREGATION, Racial. See EDUCATION; NEGROES, AMERICAN.

SEISMOLOGY. The year 1955 was very mild from the seismologist's viewpoint. While the number of earthquakes was about average, the number of quakes above magnitude 7 (on a scale of 0 = 10) was very small, and the damage done was much below average.

The most disastrous quake of the year occurred in the Philippine Islands on April 1. Northwestern Mindanao seems to have been hardest hit. Some 432 people lost their lives, damage to crops was estimated at \$5,000,000, and damage to buildings and bridges ran into many millions more. On one 35-mile stretch of highway alone, 9 bridges were destroyed.

Later, on April 19, 21, and 24, Greece was again badly shaken (severe earthquakes have shaken Greece annually for the last few years). Most hard hit was Volos, where many people were killed and property damage ran into the millions of dollars; it is estimated that 45,000 people out of Volos' population of 55,000 were rendered homeless. On September 12, Egypt experienced the worst earthquake in its history. While it was not large as quakes go, 16 people were killed and over 30 buildings in Cairo were destroyed.

San Francisco, Calif., received a scare on October 23 when, at 8:11 P.M., buildings in the Bay area shook perceptibly. However, little damage beyond broken windows and statues was caused. The quake was barely recorded in New York. Earlier in the year, on January 25, Long Beach, Calif., experienced what to residents seemed like a mild shock. It caused no loss of life and no damage to buildings, but some 43 oil wells were ruined by having their casings sheared, the damage amounting to \$3 million to \$4 million.

Quetta, Pakistan, near the Afghanistan border, scene of serious quakes in the recent past, was subjected to a mild quake on February 19, which killed 14 people and destroyed some 100 homes.

On February 28, a series of quakes shook the town of Pahoa, Hawaii (q.v.). However, the quakes and the damage were due to the eruption of the Puulena volcano, which had not erupted in over 180 years. No lives were lost, and the damage was volcanic rather than seismic.

The official news agency of Communist China reported severe earth tremors on April 14 which

shook Sikang Province and killed 39 persons and injured 113 others.

A recent development in seismology which deserves attention is a new instrument designed and named after Professor Willmore at the University of Cambridge in England. The instrument, a seismometer, is extremely small and compact, but gives the same order of magnification as larger and more expensive instruments. Moreover it can be used equally well as a vertical or as a horizontal instrument. (For a complete record of the earth motion at any observatory, three instruments have in the past been needed: one instrument to record the vertical component of the ground motion, and two devices to record the north-south and east-west components of the horizontal ground motion.)

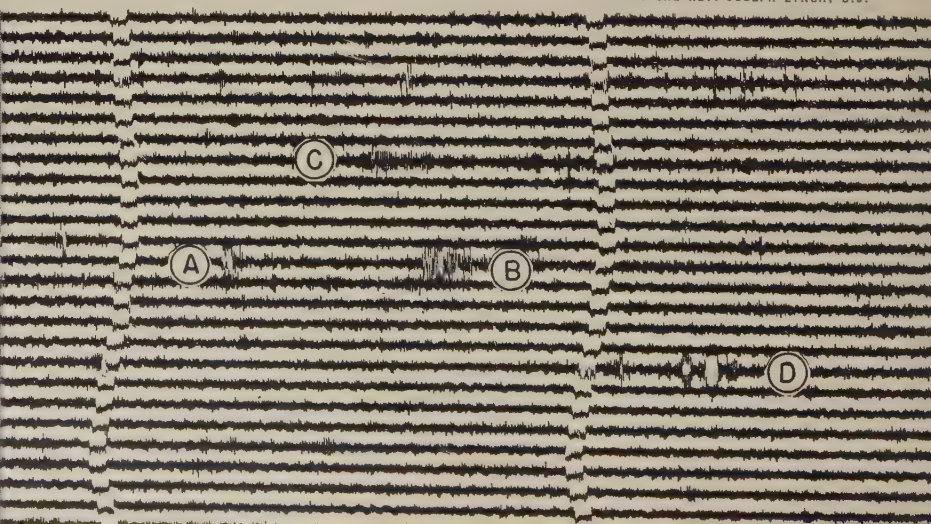
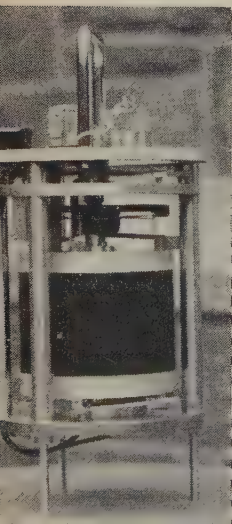
The seismometer consists of a cylindrical Alnico magnet, suspended by springs so as to oscillate over a cylindrical coil attached to the base. The motion of the magnet across the coil generates a current which is led off to a recording galvanometer. If the instrument is placed upright the magnet oscillates vertically; if the instrument is laid on its side, the magnet oscillates horizontally. The magnet can be clamped for transportation.

The instrument has a period of one second and is therefore especially suitable for recording ground oscillations of short duration. Some of the typical oscillations recorded by this instrument in the Fordham University Observatory are shown in the accompanying reproduction of a portion of a day's record. The length of time along any one line of the record is just short of two minutes—the minute marks put on the record by the observatory clock can be seen as slight indentations of the line. Each line represents motion 15 minutes earlier than that of the line below; the reproduction is of a small portion of a 24-hour record taken from a recording drum that revolves once in 15 minutes. If the whole record were reproduced on a single page there would be 15 minute markings per line and 96 lines to the page.

At "A" on the record is a tracing made by a quarry blast about 140 miles to the west of New York. A second disturbance has been recorded at "B." These two disturbances represent two waves which started out from the quarry together, but which, traveling at different speeds, reached the observatory 24 seconds apart. The first wave is a compression or sound wave which pushes the earth particles ahead of it and gives a strong

Seismometer (at left) produced the record shown at right, during part of one day in 1955 at Fordham Seismic Observatory. For an explanation of the letter symbols, see the accompanying article, *Seismology*.

COURTESY OF THE REV. JOSEPH LYNCH, S.J.



vertical push to the ground wherever it strikes the surface. The second wave is a shear wave or shape wave caused by the shape of the earth's particles being disturbed by the blast. The compression wave travels a little less than 4 miles per second and reaches the observatory in 37 seconds. The shear wave, traveling more slowly at about $2\frac{1}{2}$ miles per second, reached the observatory in 61 seconds. The time interval between arrivals made it possible to compute the distance as 140 miles. The direction was determined by making use of three such instruments oriented north-south, east-west, and vertically.

Above this blast record, at point "C," is the record of a New York Central passenger train passing about a quarter of a mile away. Below, at "D," is the record of a freight train passing about a quarter of a mile away. The other disturbances shown in this record represent New York traffic of various types.

JOSEPH LYNCH, S.J.

Director, Fordham Seismic Observatory.

SELECTIVE SERVICE. The first session of the 84th Congress amended the Universal Military Training and Service Act of 1948 in several respects, including a four-year extension until July 1, 1959, of the Selective Service System's authority to induct regular registrants, and a two-year extension until July 1, 1957, of the so-called doctor draft. Other important amendments provided:

(1) Exemption from training and service, but not from registration, of certain aliens who, subsequent to July 24, 1948, served for not less than 18 months in the armed forces of nations with which the United States is associated in mutual defense activities.

(2) Exemption from training and service, "except after a declaration of war or national emergency made by the Congress subsequent to the date of enactment" of the amendment, of persons who after Sept. 16, 1940, served honorably on active duty for not less than one year in one of the armed forces; those who subsequent to Sept. 16, 1940, were discharged for the convenience of the government after having served on active duty for a period of not less than 6 months; and those who served for a period of not less than 24 months as commissioned officers in the Public Health Service, or in the Coast and Geodetic Survey.

(3) Exemption from induction for training and service of any person in the medical, dental, and allied specialist categories after he has attained the 35th anniversary of his birth, if he applies or has applied for a commission in the armed forces in any such category and is or has been rejected on the sole ground of physical disqualification.

(4) Lowering from 50 to 46 years of age the maximum age for induction of doctors, dentists, and allied specialists.

During 1955, Selective Service received calls from the armed forces for delivery of 153,000 men—133,000 for the army and 20,000 for the navy. The navy, for the first time since December 1945, asked for 10,000 men in November and 10,000 in December.

Congress, in enacting the Reserve Forces Act of 1955, made it clear that Selective Service would have definite responsibilities in the administration of the Reserve program. Accordingly, the system, immediately following the enactment of the bill, took steps to implement the part it would play in carrying out the program. Possible mobilization of the Standby Reserve will require that the Selective Service System establish individual records for each Standby Reservist. Such records must be complete enough at all times to permit a current classification to be available so that if a mobilization should come at any time, the system would be able to indicate to the Department of Defense which Standby Reservists are immediately available for mobilization. The system will also be involved in the en-

trance of the registrant into the Ready Reserve unit. It will be concerned with his performance in the Reserve, because it must be prepared to take action based on complete and accurate information should he be charged with failure to meet his obligation.

Likewise, in the use of the shorter period of service to permit greater use of registrants with critical skills for the furtherance of the national interest, Selective Service must play a part in the selection of such registrants. It must be prepared to observe the employment of the registrant after completion of his active duty period and his transfer to the Standby Reserve. This observation must be such as to guarantee that the registrant is making the contribution to the national interest required to ensure his continuance in the Standby Reserve.

The make-up of the Selective Service System remained materially the same throughout 1955. There were approximately 4,000 local boards, 92 appeal boards (one in each federal judicial district in each state), 28 appeal board panels, 56 "state" headquarters (one in each state, New York City, the District of Columbia, Alaska, Hawaii, Puerto Rico, the Virgin Islands, the Canal Zone, and Guam), and a national headquarters in Washington, D.C. Uncompensated personnel of the system, including local board members, appeal board members, government appeal agents, advisers to registrants, and medical and scientific advisers to local boards, totaled approximately 40,000, as against 8,000 paid personnel. In April 1955, the director established a National Selective Service Scientific Advisory Group to furnish him, when called upon, with advice regarding scientific problems which might confront him in the administration of the agency.

LEWIS B. HERSHEY,

Major General, USA; Director, Selective Service System.

SENATE, U.S. For list of members, see UNITED STATES; and for legislation, see Index entry, Congress, U.S.

SENEGAL. See FRENCH WEST AFRICA.

SEYCHELLES. This group of 92 islands in the Indian Ocean (area, $156\frac{1}{4}$ square miles; est. pop., 37,400 at mid-1954) constitutes a British crown colony. On Mahé, the largest island (56 square miles), is Victoria, the capital and chief port. Other principal islands are Praslin, Silhouette, La Digue, Curieuse, and Félicité; dependent islands include the Amirantes, Alphonse, Bijoutier, St. François, St. Pierre, and the Cosmoledo group.

A governor (Sir William Addis, assumed office Oct. 18, 1953) presides over the Executive Council and the 13-member Legislative Council (including 6 nonofficials—4 elected, 2 nominated). Revenue in 1954 was Rs.4,650,265 (the Seychelles rupee equals U.S.\$0.21); expenditure, Rs.4,705,324. In 1954 primary education was provided in 26 church schools and in 2 private schools; secondary education was given free at 2 modern coeducational government schools. Pupil enrollment totaled 5,256 in 1954.

The colony's chief exports in 1954 were copra (6,471 tons); cinnamon leaf oil (98,989 kilograms); guano (11,863 tons); salt fish (86 tons); patchouli leaves (67.1 tons); cinnamon bark (475.5 tons); patchouli oil (273 kilograms); and vanilla (1,370 kilograms). Imports were valued at Rs.8,086,860; exports at Rs.9,081,859. Trading is principally with the United Kingdom (exports, Rs.1,191,732; imports, Rs.2,951,852, in 1954).

There are 120 miles of earth roads (84 miles suitable for motor vehicles). Steamships on the Bombay-Mombasa-Durban run call at Victoria.

SHERWOOD, Robert Emmet, American author: b. New Rochelle, N.Y., April 4, 1896; d. New York, N.Y., Nov. 14, 1955. The winner of four Pulitzer prizes (three in the drama and one in biography), he was an ardent liberal whose most important plays reflect his outlook on society.

Educated at Harvard (1914-17), he left college to serve with the 42d Battalion, Black Watch, of the Canadian Expeditionary Force in France during World War I. He was gassed and wounded twice in combat. On his return to civilian life in 1919 he became dramatic editor of *Vanity Fair*, and subsequently associate editor (1920-24) and editor (1924-28) of the humor magazine, *Life*.

Sherwood's first Broadway play, *The Road to*



Robert E. Sherwood
(d. Nov. 14, 1955)

WIDE WORLD

Rome (1927), a pseudohistorical comedy dealing with Hannibal's expedition against Rome, was favorably received by the public, but it was not until the buoyant *Reunion in Vienna* (1931) that his comic talent was fully revealed. *The Petrified Forest* (1935), a melodrama dealing with frustrated lives in a decadent civilization, was followed by his first Pulitzer Prize play, *Idiot's Delight* (1936), a dramatic and subtle indictment of the forces that cause war. In 1938 (with Maxwell Anderson, S. N. Behrman, the late Sidney Howard, and Elmer Rice) he founded the Playwrights' Company in an attempt to preserve artistic integrity in the American theater by producing plays without commercial assistance.

With *Abe Lincoln in Illinois* (1938), Sherwood laid aside his penchant for sophisticated comedy to dramatize in the person of the young Lincoln the growth and "solidification of the American ideal." This play, which won him his second Pulitzer Prize, and *There Shall Be No Night* (1940; awarded the Pulitzer Prize in 1941), a powerful and timely appeal for action against contemporary threats to democratic principles, established him as a serious and significant dramatist.

Prior to the United States entry into World War II, Sherwood was one of the most vigorous spokesmen for aid to Britain. During the war years he headed the Overseas Branch of the Office of War Information (1941-44) and was an intimate adviser of President Franklin D. Roosevelt, some of whose speeches he helped write. From the experiences of these years emerged *Roosevelt and Hopkins: An Intimate History* (1948), which won him his fourth Pulitzer Prize.

Other plays by Sherwood include *The Love Nest* (1927); *The Queen's Husband* (1928); *Waterloo Bridge* (1930); *This Is New York* (1930); *Acropolis* (1933); *Tovarich* (1935; adapted from the French of Jacques

Deval); *The Rugged Path* (1945); and *Miss Liberty* (1949; a musical with lyrics and music by Irving Berlin). He was also the author of a number of screen plays, including *The Best Years of Our Lives* (1946), which received nine Academy awards. At the time of his death he had completed a new play, *Small War in Manhattan*, and the script for a film, *Main Street to Broadway*. A member of the National Institute of Arts and Letters, he received its gold medal for drama in 1941.

SHETLAND ISLANDS. Lying northeast of the Orkney Islands (q.v.), this archipelago constitutes a Scottish county (area, 551 square miles), known also as Zetland. Principal among the 28 inhabited islands are Mainland, on which is Lerwick (the county town), Yell, Unst, Fetlar, Bressay, Whalsey, and Foula. Tweed is woven, and the Shetland breed of small ponies is famous. The population (18,700 in December 1954; 18,900 in 1953) is declining; unemployment nevertheless has risen, and in 1955 the County Council recommended 10 measures to rebuild the economy, including reorganization of the wool industry and investigation of mineral resources. The annual income from visitors is estimated at £180,000.

SHIPBUILDING. In 1955 the shipbuilding and ship repairing industry experienced high hopes, some orders, and many delays. The long-range shipbuilding program, which was expected to begin in 1955, only partly materialized. New orders for commercial shipbuilding were not forthcoming either soon enough or in sufficient volume to check the continuing decline in shipyard employment.

By Jan. 1, 1955, 15 merchant vessels (of 1,000 tons or over), aggregating 212,660 gross tons, were on order, under construction, or awaiting delivery in domestic shipyards. These represented 10 tankers, 3 cargo vessels, 1 Great Lakes ore carrier, and 1 new cargo vessel undergoing conversion and completion as an auxiliary cargo attack vessel. By Oct. 1, 1955, of the 15 ships, 8 were delivered, consisting of 4 tankers, 3 Mariner-type cargo vessels, and 1 Great Lakes ore carrier. By the same date, 3 ships had been launched, consisting of 2 tankers and the last of the Mariner-type cargo vessels. These figures compared with 31 delivered and 27 launched during the same period in 1954.

On Oct. 1, 1955, there were 21 merchant vessels (including 13 tankers) of 1,000 gross tons or over, aggregating roughly 258,000 gross tons, either under construction or on order. Of the 21 vessels, 17 were authorized by Congress in 1954, as a part of a program to build 41 commercial ships. During 1955 Congress enacted additional legislation sponsored by the Maritime Administration, which raised the total of vessels authorized for construction to 59. As of Oct. 1, 1955, no contracts had been let for the additional 18 vessels.

Traffic on the inland waterways continued to increase during 1955 (see INLAND WATERWAYS), and the construction of smaller craft used along coastal and inland waterways, including barges, scows, tugboats, and trawlers increased markedly. A new development in 1955 was the renewal of interest in the operation of roll-on roll-off vessels, one of which was being constructed by the U.S. Navy in 1955.

Employment in private shipyards increased from 98,200 persons in January 1955 to 102,000 in July, compared with 123,600 persons employed in January 1954. The average hourly earnings in the shipbuilding, boatbuilding, and repairing industry during June 1955, according to the Bureau of Labor Statistics, was \$2.18, as

compared with \$2.13 in 1954. The average weekly hours worked were 39.3 in 1955, compared with 38.8 in 1954.

In contrast with the dark picture of commercial vessel construction, the navy's program of construction in 1955 was extensive. As of Oct. 1, 1955, the contracts let by the Navy Department totaled approximately \$115 million, one third the value of those let during 1954. The 1955 awards were for 6 LST's, a nuclear submarine, a cable ship conversion, and a number of small craft. The fiscal 1956 navy construction program, authorized by Congress in Public Law 157, includes the construction of 28 vessels, ranging in size from an attack aircraft carrier to an inshore minesweeper, as well as over 1,000 service craft.

WORLD SHIP CONSTRUCTION

(Vessels of 1,000 gross tons or more, under contract for construction as of July 1, 1955; excluding the USSR)

Nation	No. of ships	Gross tons	Nation	No. of ships	Gross tons
<i>World total</i>	1,437	12,596,534 ¹	Italy ²	58	630,000
Great Britain.....	418	3,857,362	Norway.....	62	544,773
Germany.....	270	1,783,265	Denmark.....	55	286,260
Japan.....	104	1,355,700	United States.....	14	214,060
Sweden.....	142	1,360,100	Belgium.....	25	194,600
Netherlands.....	127	1,083,691	Spain.....	22	170,320
France.....	91	853,826	Other ³	49	252,577

¹ Comprising 50 passenger vessels (487,180 gross tons), 384 tankers (6,180,173 tons), and 1,003 cargo vessels (5,929,181 gross tons). ² Excluding Trieste. ³ Comprising Australia, Canada, East Germany, the Republic of Ireland, Hong Kong, India, Poland, and Trieste, each having less than 1% of the world's tonnage.

Shipbuilding in Other Countries.—As of July 1, 1955, the gross tonnage of ships under construction throughout the world had increased by almost 6% over the figure for 1954, and the number of ships had also increased (1,437 in 1955, compared with 1,305 in 1954). Higher British labor costs have heightened the competition among Great Britain, Germany, and Japan.

Great Britain remained the leading shipbuilding nation, as of July 1, with 30.6% of current world construction. Germany assumed second place with 14.1% of world construction; Japan, third (10.8%); Sweden, fourth (10%); and the Netherlands, fifth (8.6%). The United States dropped to tenth place with 1.7%, as against eighth place with 3% of world construction in 1954.

The world shipbuilding gross tonnage of 12,596,534 in 1955 is an increase of 721,217 gross tons since July 1954. Germany, Japan, France, Italy, Trieste, Hong Kong, and Ireland have all increased the amount of tonnage under construction or on order. All other countries showed decreases in 1955. (See also **MERCHANT MARINE**.)

H. GERRISH SMITH,

Chairman of the Board, Shipbuilders Council of America.

SHIPPING. See Index entry.

SHOE INDUSTRY. United States Production.—

Footwear output in the United States in 1955 was estimated at 578 million pairs. This represented an increase of approximately 10% over the 523 million pairs produced in 1954, and exceeded by 45 million the previous yearly high of 533 million pairs produced in 1952. Of all shoes produced, 46% were women's shoes and only about 20% were men's shoes.

Retail sales of shoes in 1955 ran about 5% above 1954 levels. Shoe prices and the prices of

hides and other basic raw materials used in shoes were relatively stable during 1955.

The year 1955 may have proved to be one of the most important years in the history of the shoe industry. The United Shoe Machinery Corporation, on direction of the U.S. Federal District Court of Boston, placed into effect a plan to sell its machinery as well as to lease it. Up to this time, shoe machinery in the United States had been predominantly leased by manufacturers. The opportunity to buy machinery, as well as to lease it, may have a very significant future effect on the capital structure of the shoe industry.

WORLD PRODUCTION OF LEATHER FOOTWEAR (In estimated thousands of pairs)

Production area	1930	1940	1949	1954
North America.....	333,839	444,383	521,759	603,815
South America.....	40,414	51,892	88,797	75,742
Europe.....	457,011	455,131	471,209	502,368
Asia & Oceania.....	51,652	63,088	101,924	98,171
Africa.....	13,260	18,136	25,228	37,814
Total.....	896,176	1,032,630	1,208,917	1,317,910

(Source: Shoe, Leather, and Leather Products Division, U.S. Department of Commerce.)

World Production.—Based on data released in 1954, the United States continued to be the best-shod nation in the world. It is the only country which has an annual consumption of leather footwear in excess of 3 pairs per capita. In 1954, the United States produced almost 40% of the total world output of footwear. Per capita production of shoes by continent in 1954 was: North America, 2.77; South America, 0.65; Europe, 1.01; Asia and Oceania, 0.60; and Africa, 0.41. The world average was 0.60.

MERRILL A. WATSON,
Executive Vice President, National Shoe Manufacturers Association.

SHOOTING. See **SPORTS, GAMES, AND SHOWS. SHOWS.** See **CIRCUSES AND RODEOS; SPORTS, GAMES, AND SHOWS;** for musical and theatrical shows, see **DANCE; MOTION PICTURES; MUSIC; THEATER;** and for art shows, see **PAINTING, SCULPTURE, AND PRINTS.**

SHULMAN, Harry, American educator and labor arbitrator: b. Krugloye, Russia, May 14, 1903; d. Hamden, Conn., March 20, 1955. One of the leading authorities on labor law in the United States, he gained national prominence as an arbitrator in major labor-management disputes.

Shulman went to the United States with his parents in 1912, grew up in Providence, R.I., and became a naturalized citizen in 1921. Enrolling at Brown University in 1920, he completed the requirements for the B.A. degree in three years and proceeded to the Harvard Law School where he took his LL.B. in 1926 and an S.J.D. in 1927. After a year of law practice in New York City, he was appointed law secretary to Associate Justice Louis D. Brandeis of the U.S. Supreme Court (1929-30). In 1930 he joined the faculty of the Yale School of Law as an instructor, and by 1937 he had become a full professor. In 1939 he was named Lines professor of law, and in 1940, Sterling professor of law, a position he held until his death. He had become dean of the law school on July 1, 1954.

In addition to his teaching duties, Professor Shulman was active in a variety of fields related to law. One of the most sought-after arbitrators of labor-management disputes, he served as an umpire in negotiations between the Ford Motor Company and the United Automobile Workers

(UAW) from 1943 until his death. He was also arbitrator in disputes involving the UAW and the Bendix Aviation and Curtiss-Wright corporations. For the federal government he served as special counsel for the U.S. Railroad Retirement Board (1934-36) and as a member of the U.S. Attorney General's Committee on Administrative Procedure (1940-41). During World War II he functioned as an associate member of the National War Labor Board, acting as director of disputes in 1942-43.

Professor Shulman was the author and editor of a number of books on jurisprudence, including *Cases and Other Authorities on Federal Jurisdiction and Procedure* (co-editor with Felix Frankfurter, 1937); *Cases and Materials on the Law of Torts* (co-editor with Fleming James, Jr., 1942; 2d ed., 1952); *A Study of Law Administration in Connecticut* (co-author with Charles E. Clark, 1937); and *Opinions of the Umpire* (author, 1945).

SIAM. See THAILAND.

SICILY. The largest island of the Mediterranean, lying off the southwest tip of the Italian Peninsula. Area, 9,831 square miles. Together with small adjacent islands, Sicily forms a region of Italy with local autonomy. Regional area, 9,926 square miles; resident population (1951), 4,462,220. Chief cities: Palermo, the capital, 483,777, Catania, 297,531, and Messina, 218,906. Chief exports are citrus fruits, wine, grapes, olives, wheat, and sulfur. In the elections for the 90-member regional parliament on June 5, 1955, the Christian Democrats obtained 38.6% of the popular vote (31.2% in 1951) and increased their seating from 31 to 37. The combined Communist and left-wing Socialist vote was 30.5%, about the same as in 1951.

SIERRA LEONE. See BRITISH WEST AFRICA.

SIKKIM. See Index entry.

SILK. United States.—During the first ten months of 1955, according to the American Silk Council, United States consumption of raw silk was 44,008 standard bales of 132.275 pounds, approximately 13% higher than for the same period in 1954. Imports (46,321 bales) were about 14% higher than for the same ten-month period in 1954 (40,680 bales). Consumption for the full year 1954 was 48,546 bales, and imports totaled 48,609 bales.

World Production.—World raw silk output, which showed no important changes in 1954, is indicated in the accompanying table.

RAW SILK PRODUCTION, BY MAJOR COUNTRIES, 1954

Country	Short tons	Country	Short tons
Belgian Congo.....	91.5	Japan.....	17,063.5 ⁴
Brazil.....	198.4	Korea.....	363.8
Bulgaria.....	33.1	Lebanon.....	27.6
China.....	4,629.7	Poland.....	14.3
France.....	39.0 ¹	Rumania.....	11.0
Greece.....	44.1	Spain.....	49.6
Hungary.....	33.1	Syria.....	11.0
India.....	1,115.3 ²	Turkey.....	297.6
Indochina.....	22.0	USSR.....	2,425.1
Iran.....	82.7	Yugoslavia.....	63.9
Italy.....	1,411.2 ³		

¹ Production in 1955, 1st 8 months, 21.5; ² 1st 6 months, 470.8; ³ 1st 6 months, 582.7; ⁴ 1st 9 months, 13,540.6. (Source: International Silk Association.)

World Consumption.—Reported raw silk consumption in 1954 totaled 19,180.2 short tons, with Japan and the United States the leading users. In the accompanying table, figures are given for the full year 1954 and for varying periods, by countries, in 1955.

RAW SILK CONSUMPTION, BY MAJOR COUNTRIES (In short tons)

	1954 (12 months)	1955 (for period specified)
France.....	795.8	604.1 (8 months)
Germany.....	215.4	...
Great Britain.....	304.3	127.0 (6 months)
India.....	1,297.4	539.6 (6 months)
Italy.....	1,071.4	613.5 (6 months)
Japan.....	11,891.0	9,575.2 (9 months)
Switzerland.....	400.1	321.9 (9 months)
United States.....	3,204.8	2,561.2 (9 months)

Marketing.—Raw silk prices in New York remained steady within narrow limits during 1955. They fluctuated between \$4.55-\$4.60 and \$4.85-\$4.90 per pound for 20/22 denier, grade 2A.

ALVIN BARBER,
Vice President, American Silk Council, Inc.

SILVER. The accompanying table shows silver production throughout the world, in millions of fine ounces.

Year	World	U.S.	% U.S.	Year	World	U.S.	% U.S.
1945.....	162.0	29.05	17.9	1950.....	203.3	42.31	20.8
1946.....	135.0	21.10	15.6	1951.....	199.6	39.91	20.0
1947.....	167.7	38.59	23.0	1952.....	215.1	39.84	18.5
1948.....	173.4	39.23	22.7	1953.....	221.6	37.74	17.0
1949.....	174.0	39.94	22.9	1954.....	213.4	35.58	16.7

(Source: U.S. Bureau of Mines.)

United States.—Mine production declined from 37,570,838 ounces in 1953 to 36,582,288 ounces in 1954, but the production of 30,835,581 ounces during the first 10 months of 1955 indicated a small recovery.

Canada.—Production increased from 28,424,795 ounces in 1953 to 31,117,949 ounces in 1954. The output of the first 7 months of 1955 reached 15,758,540 ounces.

Mexico.—The world's leading producer of silver reported an output of 47,873,677 ounces in 1953, and a decline to 39,896,467 ounces in 1954. Production during the first 8 months of 1955 was 33,480,000 ounces, as compared with 26,240,000 ounces during the same period of 1954.

(See MINERAL PRODUCTION for table showing output of major silver-producing countries.)

SINGAPORE. Situated at the southern end of the Malay Peninsula, the British crown colony of Singapore comprises Singapore Island (area, 224½ square miles, with adjacent islets) and the Christmas Island (q.v.) dependency. The British Parliament has ratified the transfer to the Australian government of authority over the Cocos (or Keeling) Islands, previously administered by Singapore. The estimated population of Singapore proper, as of July 1, 1955, was 1,210,695, of which 76.5% was Chinese, 12.2% Malaysian, and 1.2% European. Christmas Island had an estimated population in 1955 of 2,054, of which some 74% was Chinese.

Singapore is a separate governmental unit under a governor (Sir Robert Black, installed June 30, 1955). A new constitution giving a large measure of internal self-government came into force in 1955. It provides for a Legislative Assembly of 32 members (25 elected from 25 constituencies, 3 ex officio members, and 4 nominated members). A Council of Ministers, collectively responsible to the assembly, consists of 6 nonofficial members (including 5 elected members of the assembly), and 3 ex officio members. The first elections on the basis of adult suffrage (the electorate numbering 300,000) were held on April 2, 1955. The Labor Front won 10 seats, resulting in the formation of a coalition government, with David Marshall as chief minister.

The Malayan dollar equals 32.66 U.S. cents. Revenue in 1954 was M\$207,297,524; expenditure, M\$248,919,571. The net cost of education in 1954 was M\$28,400,000. In the colony's 563 schools there were almost 180,000 students, of whom 84,000 are taught in English schools, the remainder, in vernacular language schools (Chinese, Malay, and Tamil); 6,307 teachers are employed. The University of Malaya, in Singapore, had 1,220 students in the academic year 1955-56.

In 1954 the value of external trade was M\$4,506,458,915 (exports, M\$2,176,317,874; imports, M\$2,330,141,041). Trade with the United States comprised imports of M\$132,639,225, and exports of M\$259,885,443. Singapore is a free port; in 1954 it handled 74% of Malaya's imports, and 70% of Malaya's exports, including rubber (555,298 tons, valued at M\$785,100,000) and tin exports (valued at M\$195,900,000). There are 302 miles of metaled and bitumenized roads, and 8 principal air services; air passengers in 1954 numbered 123,399.

SINKIANG. Largest and westernmost province of China. Area, about 700,000 square miles; pop. (1953), 4,873,608, chiefly Uigurs, a Turkic-speaking Moslem people. Urumchi is the capital. In 1955 the Peking government decided to establish a Sinkiang-Uigur Autonomous Region. Farming and livestock raising are the chief occupations. Considerable industrialization has taken place in recent years with Soviet aid, particularly in mining and electric power output. Minerals are believed to include gold, tungsten, zinc, molybdenum, coal, oil, copper, and possibly uranium. Foreign trade is mostly with the USSR and consists of the exchange of animal products and minerals for Soviet industrial goods. Construction on the 1,700-mile Lanchow-Alma Ata railway, which will link China and Soviet Kazakhstan via Sinkiang, had pushed west of Changyeh by late 1955.

SKATING. See SPORTS, GAMES, AND SHOWS.

SKIING. See SPORTS, GAMES, AND SHOWS.

SKIN DISEASES. See DERMATOLOGY.

SLATE. Production of slate in the United States increased from 698,589 tons in 1953 to 749,436 tons in 1954, including 42,700 tons of roofing slate, 17,896 tons of mill stock, 69,866 tons of flagstones, and 565,083 tons of granules and flour. Production of both roofing slate and flagging declined substantially in 1954, the overall gain being confined chiefly to output of granules and flour.

SMALL BUSINESS ADMINISTRATION. Created by an act of Congress of July 30, 1953, the SBA was the first peacetime independent government agency set up solely to advise and assist small business enterprises. In July 1955, Congress amended the Small Business Act to provide new and expanded authorities and responsibilities for the agency.

SBA's major responsibilities are: to assist small firms to obtain a fair share of the government's contracts for supplies and services; to help them obtain adequate capital and credit on reasonable terms; and to assist them in overcoming management and production problems. Another important SBA function is to make loans to help victims of storms, floods, and other natural disasters rehabilitate their businesses and homes, or to aid business concerns which have suffered substantial economic injury because of major drought conditions. The SBA has made 3,200 disaster loans approximating \$37,000,000.

Through a cooperative program with the Department of Defense, SBA has had more than \$800,000,000 in military contracts reserved for exclusive award to small firms on a competitive basis. The agency also has arranged programs with other major government purchasing agencies to increase the small firm's share of their purchases. In a little more than two years of operation, SBA had made approximately 290,000 notifications of government contract opportunities to small firms.

The agency also certifies as to the financial and technical competency of small firms to fulfill government contracts on which they are low bidders; maintains an inventory of small plant productive facilities; advises small firms of subcontracting opportunities with prime contractors; and helps small firms to obtain data needed to bid on government contracts.

SBA makes business loans to small firms which cannot otherwise obtain financing on reasonable terms. The agency's general loan policies are developed by a Loan Policy Board consisting of the SBA administrator as chairman, the secretary of the treasury, and the secretary of commerce. SBA's direct business loans are limited to \$250,000 to any one borrower. The same limitation applies to the agency's share of a loan in which a private lender participates. Approximately 2,200 business loans, totaling about \$112,000,000, have been made to small firms.

SBA also provides a wide variety of management and technical assistance, including helpful publications and evening courses in administrative management for owners and managers.

WENDELL B. BARNES,
Administrator.

SMITHSONIAN INSTITUTION. This institution was created by act of Congress in 1846, under the will of James Smithson, English chemist. Its purposes are carried out by research, exploration, publication, and museum and art gallery exhibits. In addition to the original and later endowments, the Smithsonian Institution administers ten "bureaus" supported wholly or in part by federal appropriation.

The most important event of 1955 was the authorization by Congress of a \$36 million Museum of History and Technology, to be erected in Washington for the national collections that record and illustrate the political, cultural, industrial, and military development of the United States. Subsequently Congress appropriated \$2,288,000 for the immediate planning of this museum.

During 1955, the institution continued its scientific investigations, chiefly in the fields of anthropology, astrophysics, biology, and geology. The year's recorded visitors to the various buildings of the Smithsonian Institution reached a total of 8,186,533.

The National Museum collections were increased by approximately 7,600,000 specimens, bringing the total catalogue entries to 42,864,645. Outstanding among the year's accretions were a large number of Foraminifera and an important collection of ants. Two new halls were formally opened to the public—a hall exhibiting the gowns of the first ladies of the White House in period settings, and the American Indian Hall.

The National Gallery of Art received 842 accessions and held 6 special exhibitions. The National Collection of Fine Arts sponsored 14 special exhibitions, and the Smithsonian Traveling Exhibition Service circulated 63 exhibitions: 52

in the United States and 11 abroad. The Freer Gallery of Art acquired choice specimens of oriental art and handicraft.

Anthropologists on the staff of the Bureau of American Ethnology continued their researches, particularly in Panamanian and Mexican archaeology and Arctic anthropology. The River Basin Surveys, a unit of the bureau, continued its archaeological work at sites threatened by dam and reservoir construction, principally in the Missouri Valley. (See also *ARCHAEOLOGY*.)

Solar radiation studies of the Astrophysical Observatory were continued at the observatory's two field stations—Montezuma in northern Chile and Table Mountain in southern California. In the division of radiation and organisms, studies were made on the photocontrol of the processes of plant growth and on the mechanism of action of the plant hormone, auxin, in the control of growth. Effective July 1, 1955, Dr. Fred L. Whipple of Harvard University was appointed to succeed L. B. Aldrich as director of the Astrophysical Observatory, the headquarters of which were moved to Cambridge, Mass.

The National Air Museum completed moving its stored materials from Park Ridge, Ill., to Suitland, Md. Included in the year's 117 added specimens for the museum's aeronautical collections was the midget racing plane, *Buster*, built in 1931 and flown in more than 50 races.

The collection of animals in the National Zoological Park numbered 3,410. Noteworthy among the year's accessions were a domestic donkey; a pair of baby gorillas; several young chimpanzees; two Goeldi's marmosets; emperor, Adélie, and Humboldt penguins; two rare Mona Island iguanas; and a horn-nosed iguana. In all, 280 creatures were born or hatched at the zoo during the year.

The International Exchange Service, serving as the United States agency for the interchange of scientific and governmental publications with other countries, handled 1,146,972 packages of such material.

At the Canal Zone Biological Area, Barro Colorado Island, Panama, 43 visiting scientists used the station's facilities for research.

Outstanding among the institution's publications during the year were the following: *The Material Culture of Pueblo Bonito*, by Neil M. Judd; *The Black Flies of Guatemala and Their Role as Vectors of Onchocerciasis*, by Herbert T. Dalmat; *Checklist of North American Recent Mammals*, by Gerrit S. Miller, Jr., and Remington Kellogg; *Frogs of Southeastern Brazil*, by Doris M. Cochran; *The Horse in Blackfoot Indian Culture*, by John C. Ewers; *A Ceramic Study of Virginia Archaeology*, by Clifford Evans; Volume 7, *Annals of the Astrophysical Observatory*; *Masters of the Air*, by Glenn O. Blough; and Volume 1, *Ars Orientalis*. The Smithsonian Library and its branches now contain approximately 951,400 volumes.

PAUL H. OEHSER,
Chief, Editorial and Publications Division.

SOAP AND SYNTHETIC DETERGENTS. The Association of American Soap and Glycerine Producers estimates production of soaps and comparable synthetic detergents in recent years as follows:

Year	Soaps*	Synthetic detergents	Total
	(Amounts in million pounds)		
1951.....	2,488	1,434	3,922
1952.....	2,247	1,749	3,996
1953.....	1,984	2,134	4,118
1954.....	1,751	2,358	4,109

* Includes washing powders and exports, but excludes scouring cleansers and liquids.

The estimated production of synthetic detergents has continued to gain, as compared with soaps, and at the end of 1954 amounted to 57%

of the total market. The increase in synthetic detergent consumption in recent years is mainly due to its use for household laundering, housecleaning, dishwashing, and miscellaneous cleaning purposes. Synthetic detergents have not yet been sold in large volume for toilet soap uses.

The intense competition which characterizes the soap industry has stimulated scientific research, higher manufacturing standards, improved labor conditions, and better products. The increased availability of new home appliances, such as the automatic washing machine and dishwasher, especially since 1925, has created a tremendous change in consumer preference from the bar type laundry soaps to the more soluble, quicker sudsing, packaged chips and granulated soaps, and more recently in turn, to the increased use of synthetic detergents.

From 1951 through 1954, the annual per capita consumption of soaps and synthetic detergents in the United States has averaged approximately 25½ pounds. Compared with other nations, the United States ranks among the highest in the world.

Glycerine is largely a co-product of soap manufacture, although in recent years there has been a sizable production of synthetic glycerine from petroleum, due to the increased demand for glycerine and declining soap production. Total production in 1954 was 207 million pounds, of which, it is estimated, approximately 60 million pounds was synthetic glycerine. Glycerine has wide application in alkyd resins for paints, as a humectant for tobaccos, in industrial explosives, pharmaceutical products, and in many other fields vital to the national economy.

ROY W. PEET,
Manager, Association of American Soap
and Glycerine Producers, Inc.

SOCCER. See SPORTS, GAMES, AND SHOWS.

SOCIAL SECURITY. The Social Security Administration has the responsibility for three major programs under the Social Security Act—federal old-age and survivors insurance, the federal aspects of the public assistance program, and the maternal and child health and child welfare programs; it also administers operations under the Federal Credit Union Act.* (Another Social Security Act program—federal-state unemployment insurance—is the responsibility of the Department of Labor.) The administration is a unit of the Department of Health, Education, and Welfare (q.v.).

Old-Age and Survivors Insurance.—The 1954 amendments to the Social Security Act made coverage under old-age and survivors insurance almost universal, about 9 in 10 of the nation's jobs are covered. The largest groups not covered are self-employed lawyers, physicians, and dentists, members of the armed forces (except for specified periods of service), and most federal civilian employees.

Under the amended law, workers who meet certain requirements may have up to 5 years of lowest earnings ignored in the determination of their benefit. Persons who have a prolonged total disability and who meet specified conditions may have their wage record frozen for the period of disability. Old-age beneficiaries who apply for the "freeze" before July 1957 will receive any increase retroactively to July 1955—the first month

* These programs are administered by the Bureau of Old-Age and Survivors Insurance, the Bureau of Public Assistance, the Children's Bureau, and the Bureau of Federal Credit Unions.

for which increased benefits could be paid. Beneficiaries may earn up to \$1,200 a year without loss of benefits; those aged 72 or over receive benefits regardless of the amount they earn.

The contributions paid by the worker and his employer and by the self-employed to finance the program are based on taxable earnings up to a maximum of \$4,200. For employer and employee the contribution rate was 2% each in 1955; it is scheduled to rise to 2½% in 1960, 3% in 1965, and 3½% in 1970, and it will be 4% from 1975 on. For the self-employed the rate is 1.5 times that for employees; it was 3% in 1955.

About 69.8 million persons were fully insured under the program on Jan. 1, 1955. This group included 29.6 million permanently insured persons, of whom 5.2 million were aged 65 or over; about 3.8 million of these older persons were receiving benefits.

In June 1955, almost 7.6 million persons were receiving benefits totaling \$384 million. The average benefit to a retired worker was \$61.03, and to an aged widow or widower, \$46.61. The 1954 amendments set the minimum old-age benefit at \$30 and the maximum at \$108.50; the maximum family benefit is \$200. Lump sums ranging from \$90 to \$255 are paid when an insured worker dies.

Public Assistance.—The federal government makes grants to help individual states finance their assistance programs for dependent children, the aged, the blind, and (since October 1950) the permanently and totally disabled.

In June 1955, federal funds were being used for old-age assistance and aid to the blind in all states and for aid to dependent children in all states but Nevada. (In July 1955, Nevada's plan for aid to dependent children became effective.) Programs of aid to the permanently and totally disabled were in operation in 43 states. In June, 2,239,500 persons, including 1,691,700 children in 620,300 families, were receiving aid to dependent children. Old-age assistance payments were going to 2,548,600 persons; about 103,900 persons were receiving aid to the blind; and 236,800 persons were receiving aid to the permanently and totally disabled. Average payments were \$52.30 per aged recipient, \$57.41 per blind recipient, \$86.78 for families receiving aid to dependent children, and \$54.93 for aid to the disabled. These figures include payments made by the states directly to doctors or others supplying medical care to recipients, and cases receiving only such payments.

State and local governments administer a fifth assistance program (general assistance) without federal aid. In June 1955 an estimated 310,000 cases (about 720,000 persons) were receiving general assistance; the average payment per case was \$53.78.

The total spent for assistance and administration during the calendar year 1954 was about \$2,861 million—\$2,562 million for the federal-state programs and \$299 million for general assistance.

Maternal and Child Health and Child Welfare.—The Social Security Act authorizes federal grants to the states to extend and improve their health and welfare services for mothers and children. The grants are administered by the Children's Bureau.

Federal payments to the states for maternal and child health services totaled \$11,919,292 in the fiscal year 1954-55. Typical services were prenatal clinics, child-health conferences, immunizations, public health nursing services, and

health services for children of school age by physicians and dentists.

Federal grants of \$10,613,701 were made to the states for services for crippled children. Locating these children, diagnosing their condition, providing or locating skilled care for them, and working with private and public agencies and professional groups concerned with their care and training are among the services provided.

The federal government paid \$6,725,553 for child welfare services to help the states protect and care for homeless, dependent, and neglected children, and children in danger of becoming delinquent. These services include strengthening and preserving family life; planning for foster-home care or care in institutions for children who cannot be cared for in their own homes; protecting neglected or abused children; helping children with physical, mental, and emotional handicaps; placing children for adoption; safeguarding unmarried mothers and children born out of wedlock; finding day-care for children; cooperating with courts and schools in handling children's cases and with state institutions caring for children; and working with communities in building better community conditions for children. (See also CHILD WELFARE.)

Federal Credit Unions.—The Social Security Administration is responsible for the chartering and supervision of credit unions organized under the Federal Credit Union Act. These are cooperative organizations designed to promote thrift among their members and to create a source of loans for provident and productive purposes. Membership is limited to groups of persons having a common bond of association, occupation, or residence. On June 30, 1955, 7,563 of these credit unions were in operation; their total membership was 3.7 million.

(See also BUREAU OF EMPLOYMENT SECURITY.)

CHARLES I. SCHOTTLAND,
*Commissioner, Social Security
Administration.*

SOCIAL WELFARE. In its broadest sense, social welfare is the combined efforts of society to see that opportunities for employment, adequate income, congenial family relationships, enjoyment of civil rights, education, recreation, health and mental health, decent housing, constructive community relationships, opportunities for community service, and similar advantages of society are available to all. Within the meaning of social welfare, such opportunities should be open to all persons without respect to race, creed, nationality, economic status, or other extraneous circumstance, so that insofar as possible individuals may achieve for themselves the level of well-being essential both to them and the larger community.

More particularly, however, social welfare's concern is that the elements of a population which at any given time are most "disadvantaged" (whether by inadequate earnings, unemployment, old age, unprotected childhood, physical or mental disability, poor social relationships, or similar causes) are assured of access to the economic, social, and health services essential to their well-being. Such services may be public assistance (relief); unemployment, disability, old-age or survivors insurance; protective services for children; child welfare and family service; school social work (which aids children whose social problems interfere with their educational pursuits); foster home and institutional care of children, aging persons, chronically ill persons or oth-

ers without suitable homes of their own; social work service in hospitals and clinics; probation and parole; group work with children, adolescents, or adults (to help them enjoy constructive interpersonal relationships); and community planning for health, recreation, and social services—to name only some of the most typical of social welfare services.

Social Workers.—Although administration of these services requires the skills of various professional groups, the one profession most characteristic of the social welfare field is social work. Typically, social workers (of whom there were probably 100,000 in the United States in 1955) are employed in social welfare agencies rather than engaging in private practice. Such agencies may be either voluntary (nongovernmental) organizations, supported by individuals, community solicitation, foundations, and the like, or governmental agencies supported by tax funds.

The most critical problem confronting the social welfare field in 1955–56 continued to be the acute shortage of professional social workers. All appearances in 1955 indicated that this shortage would continue to be a critical one for many years. Consequently, the social welfare field offered exceedingly rich opportunities as a career.

Because of the urgent need for greatly increased numbers of professional social workers (the educational requirements for whom are two years of graduate education in an accredited school of social work), employing agencies, professional social work organizations, and colleges and universities in 1955 increased their efforts to recruit young people into the field, and planned in 1956 to expand these efforts still further (see also SOCIOLOGY). An important step in this direction was the agreement of all concerned that the organization to coordinate recruitment programs should be the Council on Social Work Education (345 East 46th Street, New York City).

A second result of the increased emphasis on recruitment was the wide range of scholarships, traineeships, and fellowships offered by various social welfare agencies to help qualified candidates secure the requisite professional education. In 1955, for the first time, social work traineeships were made available by the federal Office of Vocational Rehabilitation, thus expanding similar aids previously available from the National Institute for Mental Health, the U.S. Children's

Bureau, and other governmental and voluntary agencies.

Fortunately for the success of increased emphasis on recruitment, salaries in the social welfare field by 1954 had increased materially over what they had been in 1950, and showed every sign of continuing to increase. In public welfare agencies in 37 states, Puerto Rico, and Hawaii, social work salaries in 1954 were about 30% higher on the average than they had been four years before.¹

A historic event which occurred in 1955 was the merging of seven previously existing organizations of professional social workers into the National Association of Social Workers. The first president of the new association, with a membership of approximately 20,000, is Dr. Nathan E. Cohen, associate dean of the New York School of Social Work.

Government Activities.—The most important single governmental agency in the social welfare field, the federal Department of Health, Education, and Welfare (q.v.), had a change of leadership in 1955 when its first secretary, Mrs. Oveta Culp Hobby, submitted her resignation, and was succeeded by Marion B. Folsom (q.v.). Before the year's end, Secretary Folsom had outlined social welfare advances which again evidenced the fact that strengthening and improving the nation's social welfare services was no longer a partisan issue, although political parties might differ on the degree and direction of change. This fact was further underlined in 1955 by the nonpartisan nature of celebrations of the 20th anniversary of the federal Social Security Act.

Social welfare expenditures in the United States in 1954 (exclusive of industry-labor union health and welfare programs) probably neared \$21 billion, of which almost \$19 billion came from tax funds and more than \$1.5 billion was derived from voluntary funds. The nation's social security program in 1953–54 (the latest period for which comparable data are available) accounted for over \$8 billion of the total public expenditures for social welfare; public aid (relief), which represented so large a proportion of the total in 1934–35, by 1954 had been greatly reduced to about \$2.8 billion. This reduction, which was in accordance with the original intent

¹ Council on Social Work Education, *Social Work Education*, Vol. III, No. 3, June 1955.

(Left) A paraplegic victim is undergoing treatment at the U.S. Department of Health, Education, and Welfare's Woodrow Wilson Rehabilitation Center, Fishersville, Va. (Right) An aged Korean is examined at a United Nations Korean Reconstruction Agency clinic operated by the Maryknoll Sisters in Pusan.



of the Social Security Act, was both absolute and in proportion to total expenditures.

Further governmental expenditures for social welfare in 1953-54 were: \$2.9 billion for health and medical services; \$4.1 billion for veterans services, and \$729 million for other welfare services.

Governmental welfare expenditures in 1953-54 represented about \$119 for every man, woman, and child in the United States, as compared with a per capita cost of \$44.54 in 1934-35. When adjustments are made for the change in price levels, however, the increase between 1934-35 and 1953-54 was only about 34%, although those for veterans services increased 271%, and those for social insurance, 767%. Of the total expended, \$10.9 billion was from federal funds and \$7.8 billion from state and local governmental funds. During this period the national economy expanded so tremendously that governmental expenditures for social welfare, although increasing markedly, actually represented a smaller percentage (7.7) of the total national product in 1953-54 than had been the case in 1934-35 (11.3). (See also SOCIAL SECURITY; VETERANS ADMINISTRATION.)

Vital Statistics.—The population of the United States increased from 127.5 million in 1934 to 166 million on Oct. 1, 1955. Its labor force rose from 52.5 million to 70.7 million in August 1955. Between 1934 and July 1955, persons under 18 years of age increased from 42.4 million to 55.6 million, and those 65 years of age and over, from 7.7 million to 14.1 million.

Unemployment.—Happily, the number of unemployed persons fell from a monthly average of 11.3 million in 1934 to 3.2 million in 1954. In October 1955, the number of workers unemployed was 2.1 million. When viewed in proportion to the nation's fantastically high-level employment, the rate of unemployment seems insignificant. By any human standard, however, 2.1 million workers is a vast number of human beings, many of whom have additional human beings dependent upon them. Seen in the aggregate, too, unemployment takes a heavy toll from an economy.²

Moreover, such unemployment as does persist is unevenly distributed, so that pockets of unemployment are found in particular localities, thus causing acute distress, for example, in various Pennsylvania coal-mining and Northeastern manufacturing areas in 1955. In fact, because of the economic problems in chronically depressed areas, President Eisenhower in October 1955 was reported as favoring a domestic Point Four program to "extend the good times" to every section of the nation. (See also BUREAU OF EMPLOYMENT SECURITY.)

Population Growth.—While the population of the United States as a whole rose by some 9.9 per cent between 1950 and 1955, the gains in different parts of the country were quite uneven. Seven states suffered actual reductions in population over this period. At the other extreme, population increases in Delaware, Florida, Arizona, Nevada, and California were at least double the national rate. (See also CENSUS DATA, U.S.)

² In December 1954, for example, Walter P. Reuther estimated that unemployment in the previous year had cost the United States \$30 billion and that abolition of unemployment "would have provided sufficient additional income to permit federal Social Security payments of \$200 a month; the construction of 500,000 more homes, and hospitals with 250,000 beds; a doubling of public outlays for education, and 'a lot of money left over to help fight communism by fighting poverty and hunger in the world.'" (New York Times, Dec. 7, 1954.)

Implications for social welfare of population increases are clear. Additional schools, expanded health services, more housing, new recreational areas, extended social services, and heightened community planning and organization are all needed lest serious problems, such as juvenile delinquency, short school sessions, and impaired family living, result.

National Income.—By the June quarter of 1955 the nation's economy was operating at the unprecedented rate of a \$321 billion national income annually (see also INCOME). All elements in the population were not, however, sharing proportionately in this increase. Farm income, for example, seemed likely to fall below the previous year's level of net income by about 10 per cent, and the number of low-income families still receiving less than \$2,000 a year was of national concern.

Voluntary Philanthropic Programs.—Over and above government-supplied social welfare services the American people generously contribute an unknown amount, probably in excess of \$5 billion in 1955, for philanthropic purposes. In 1952, according to a reasonable estimate, "living donors gave 89 per cent of the total, corporations gave 8 per cent, and 3 per cent came from bequests."³ Of the total given for philanthropic purposes, including education and religion, perhaps \$1.5 billion went for the more specific types of social welfare services.

Preliminary reports of Community Chest and United Fund campaigns for funds for 1956 indicated that contributions to these campaigns were running 9.1 per cent larger than in the previous year. The first 110 cities reporting had collected slightly more than the goals they had set. For 1956 some 1,900 communities were hoping to raise approximately \$300 million through these campaigns. The multiplicity of appeals continued to draw criticism in 1955 as they had previously. (See also COMMUNITY TRUSTS; PHILANTHROPY.)

Industry-Labor Welfare Plans.—Supplementing the governmental and voluntary welfare services, there is, of course, an expanding series of industry-labor union health, pension, and welfare services whose dollar values are not fully known but which certainly run into hundreds of millions of dollars annually. In New York it was reported in 1955 that 75 per cent of the industrial workers in the state were covered by employer-financed welfare plans. Life and hospital insurance were the most common benefits, but pensions, medical insurance, and accidental death insurance were each available to at least a third of the workers.

Attacks directed in 1954 against labor unions and their administration of health and welfare funds subsequently seemed to have tapered off with announcement by both the CIO and AFL of stricter rules for the regulation of such funds.

(See also STANDARDS OF LIVING; UNITED STATES—*The United States in 1955*; and for further references, see the Index entry, *Social Welfare*.)

DONALD S. HOWARD,
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of California at Los Angeles.

SOCIALISM. Socialist and Labor parties during 1955 dominated the governments of Denmark, Norway, and Sweden in Europe; Israel in the Middle East; Burma in Asia; Jamaica in the British West Indies; Saskatchewan in Canada;

³ Division of Research and Statistics, Social Security Administration, U.S. Department of Health, Education, and Welfare, Research and Statistics Note No. 51-1955, Oct. 17, 1955.

and Costa Rica in Latin America. Socialists likewise headed the coalition governments of Belgium, the Netherlands, and Singapore, and were represented in the cabinets of Austria, Finland, Switzerland, and Italy. Their parties constituted the chief opposition groups in Great Britain, West Germany, Australia, New Zealand, and Japan. In France, the party led in the number of representatives in the National Assembly. And in India, Premier Nehru's National Congress Party declared itself in favor of a "socialistic pattern of society."

Europe. Scandinavia.—An all-Social Democratic cabinet and an all-Labor cabinet administered the governments of Denmark and Norway, respectively, during 1955, and a cabinet dominated by Socialists directed the government of Sweden. Einar Gerhardsen, Socialist, replaced Oscar Torp on Jan. 22, 1955, as Labor prime minister of Norway, following the latter's resignation, and H. C. Hansen, Social Democrat, took office as prime minister of Denmark on February 1, following the death of Hans Hedtoft (q.v.).

Finland.—The Social Democrats of Finland, with the largest parliamentary representation (54 seats out of 200), continued during 1955 to participate with the Agrarians in the coalition government.

Great Britain.—The two largest Socialist parties in Europe in 1955 were the British Labour and the German Social Democratic parties. The chief event in the life of the British Labour Party during 1955 was the parliamentary elections held on May 26. The balloting led to the election of 277 Labour representatives in Parliament, as compared with 345 seats won by the Conservatives and their associates. Labour's popular vote dropped by 1½ million from 1951 to a 1955 count of 12,405,130, representing a reduction in the percentage of the total vote from 48.8 to 46.4. Labour had won 295 seats in 1951. Many observers attributed the victory of the Conservatives to the comparative prosperity of Britain, the Conservatives' claim to liberalism, and dissensions within the Labour Party and the trade union movement.

At the Annual Conference of the Labour Party in October, Aneurin Bevan, leader of the left wing of the party, was defeated for party treasurer by Hugh Gaitskell in a card vote of 5,475,000 to 1,225,000. On December 7, Clement R. Attlee resigned as leader of the Labour Party at the age of 72, and was succeeded to that post on December 14 by Hugh Gaitskell, former chancellor of the exchequer.

During 1955 the Labour Party lost, by death, Arthur Deakin, former general secretary of the Trades Union Congress; Hector McNeil, former minister of state; William Whiteley, chief Labour whip in Commons; and Edward Pease, a founder and historian of the Fabian Society.

Germany.—The Social Democratic Party, with 600,000 members and a parliamentary representation of 151, remained the chief opposition party to the Adenauer government during 1955.

On January 11, Dr. Otto Suhr, Socialist, was elected mayor of Berlin and formed a coalition cabinet composed of Socialists and Christian Democrats. In the elections in Lower Saxony on April 24, Social Democrats polled 35.2% of the votes against 30% in 1953, and in coalition with the Refugee Party won 76 seats in the Landtag, against 43 for the Christian Democrats. The latter, however, led a coalition to take control of the government from the Socialists. In Bremen, on October 9, Socialists polled 47.8% of the popular

vote and won 52 of the 100 seats in the Parliament, against 48 for the opposition parties. In the Rhineland-Palatinate, a stronghold of Dr. Adenauer's Christian Democratic Party, Socialist representation in the Landtag was reduced in the election of May 15 from 38 to 36 out of 100. In these election campaigns, Social Democrats opposed the immediate rearmament of Germany out of fear that it would strengthen Nazi-minded forces in Western Germany and increase obstacles to German reunification.

Austria.—The Socialist Party in Austria continued in a coalition government with the People's Party and cooperated in the passage of a General Social Insurance law which covered the entire field of sickness, accidents, and old age.

France.—The French Socialist Party, with the largest parliamentary representation of any party—104 seats—remained outside the cabinet throughout 1955. In late February, Christian Pineau, Socialist, was asked to form a coalition government, but the National Assembly, after hearing his program of economic reform and his views on the need for a more liberal policy in North Africa, refused to give its approval. Late in 1955 the party gave much attention to the election of Jan. 2, 1956, which resulted in the election of 97 Socialists.

Belgium and the Netherlands.—In both these countries the Socialists and the Catholic Church continued their dispute over subsidies to Catholic schools. In the Netherlands, Dr. Willem Drees, Socialist, was premier in a coalition Labor-Catholic government. At the party conference on February 22, Catholic and non-Catholic members of the Labor Party joined in a demonstration "of solidarity" against the 1954 decree of the Roman Catholic bishops which forbade Catholics to join the Labor Party, attend its meetings, or read its literature. In Belgium, Socialist Premier Achille Van Acker led the Liberal-Socialist coalition.

Italy.—Giuseppe Saragat, leader of the right-wing Democratic Socialist Party, remained deputy premier in Italy during the year. In July the Socialists obtained four seats out of 21 in the coalition cabinet of Antonio Segni. The right-wing group, however, was weak in comparison with the left-wing Socialists led by Nenni. In the Sicilian elections in June, the Saragat Socialists obtained but 3.1% of the votes and two parliamentary seats, as compared with 9.7% and 10 seats for the Nenni followers. Socialists, however, won many workers away from the Communist-controlled unions.

Middle East. Israel.—The Socialist-dominated cabinet in Israel administered the government throughout 1955. In the July 26 parliamentary elections the socialist Mapai or Labor Party received 32% of the votes (37% in 1951) and remained the country's largest party. Following the election, former Premier David Ben-Gurion was confirmed on November 2 as the head of a new coalition cabinet.

Lebanon and Syria.—In adjoining Lebanon, Socialists were the majority force during 1955 in many municipal councils in rural districts. In Syria, Socialists won majority control of the country's trade unions during 1955.

Australasia.—In Australia and New Zealand the Labour parties remained the chief opposition parties under the respective leadership of Dr. Herbert V. Evatt and Walter Nash. In the Australian Labour Party there was wide division of opinion regarding the so-called "Movement," a Catholic anti-Communist organization which had

sought to rid the trade unions of Communist elements. Many Labourites accused this organization of seeking to further Catholic domination of the labor movement, while others held that Dr. Evatt was "soft" toward Communists. The election of December 10 resulted in the reduction of Labour seats in the House of Representatives from 57 to 47, the Liberal-Country coalition increasing its representatives from 64 to 75.

Asia. India.—The Socialist Party in India, under the leadership of Ashoka Mehta, decided on a policy of "discriminating cooperation" with the National Congress Party, led by Prime Minister Nehru. In its January 21-23 convention, the Congress Party had favored social and economic planning "with a view to the establishment of a socialist pattern of society, where the principal means of production are under social ownership and control, production is progressively speeded up and there is an equitable distribution of the national wealth."

Burma.—U Nu, leader of the Burmese Anti-Fascist People's Freedom League, controlled by Socialists, remained the prime minister of Burma during 1955 and continued the enactment of advanced social legislation.

Japan.—In Japan, the two wings of the Socialist Party cooperated closely in the February 27 elections, and on October 14 merged into one party. Both wings opposed the proposal to change the constitution with a view to rearming Japan. In the elections, Socialists elected 156 out of 467 representatives in the Diet. On Nov. 14, the controlling Liberals and Democrats merged as a means of solidifying the conservative forces of the country in their fight against socialism.

Singapore.—On April 2 the Labour Front, a Socialist party, won 28% of the total vote cast in the Singapore elections and 10 of the 25 elected seats in the assembly. David Marshall, leader of the Labour Front, was chosen chief minister.

North and Latin America. Canada.—The Co-operative Commonwealth Federation controlled the government of the Province of Saskatchewan, under the premiership of T. C. Douglas. The CCF also held 24 seats in the Canadian House of Commons, where the party was led by M. J. Coldwell.

United States.—The Socialist Party in the United States functioned primarily as an educational society, entering candidates for office in only a few states and cities. The Union for Democratic Socialism, of which Norman Thomas was chairman in 1955, the Social Democratic Federation, the Socialist Verband, and other Socialist groups were also active in Socialist education. Mayor Frank P. Zeidler, Socialist, continued as mayor of Milwaukee, and Jasper McLevy of the Socialist Party of Connecticut, unaffiliated with the Socialist Party, U.S.A., was re-elected mayor of Bridgeport for his 12th term.

Jamaica.—In this country of the British West Indies the socialistic People's National Party won 18 seats in the January 12 election for the House of Representatives. This compared with 14 for the Labour Party led by William A. Bustamante. Norman Washington Manley, leader of the PNP, became the new chief minister.

Costa Rica.—In Costa Rica, President José Figueres, leader of the National Liberation Party, a democratic Socialist party, continued his regime as president of the country.

Argentina.—Socialists were active in Argentina in the overthrow of the Perón government and in the substitution of President Pedro Aram-

buro for President Eduardo Lonardi. They held a number of offices in the post-Perón governments and assisted in ridding the labor movement of Perónist control.

Brazil.—In Brazil the Socialist Party was represented in the government of the State of São Paulo. It unsuccessfully supported Gen. Juarez Távora for the national presidency in the election of October 3. The party continuously urged a program of land reform.

Internationals.—The Socialist International and the Asian Socialist Conference were active during 1955 as informational and consultative bureaus for the Socialists in the West and in Asian countries, respectively. Delegates and consultants from 30 countries in four continents attended the Fourth Congress of the Socialist International in London on July 12.

(See also articles on the countries named in this article.)

HARRY W. LAIDLER,
Executive Director, League for Industrial Democracy; and

NORMAN THOMAS,
Socialist Leader.

SOCIETIES AND ORGANIZATIONS. The following pages contain a selected list of some of the principal associations, societies, foundations, and trusts of the United States and Canada. In each case, the information has been supplied by the organization concerned. Additional related material may be found in the articles on the principal government agencies, religious bodies, etc.

Academy of Motion Picture Arts and Sciences.—Established to advance the arts and sciences of motion pictures and to foster cooperation among the creative leadership of the motion picture industry for cultural, educational, and technological progress. Membership, 1,600. Publications: *Academy Players Directory*; *Screen Achievement Bulletins*. The 27th annual presentation of the academy awards took place on March 30, 1955. (See the article PRIZES AND AWARDS.) President, George Seaton; exec. director, Margaret Herrick. Headquarters: 9038 Melrose Ave., Los Angeles 46, Calif.

Academy of Natural Sciences of Philadelphia.—Founded in 1812, the Academy is the country's oldest natural history museum and research organization. Notable for its great collections of specimens, many expeditions, and famous library, it is supported by gift, membership dues, and a city appropriation. Many foundations make grants for special research, and numerous industries sponsor water contamination studies through the Department of Linnology. In 1955, a new Hall of Pennsylvania was opened. Membership: 2,500. Publications: *Frontiers*, a natural history magazine; *The Proceedings*, a scientific annual. President, M. Albert Linton; director, H. Radcliffe Roberts. Address: 19th and the Parkway, Philadelphia 3, Pa.

Academy of Political Science.—Devoted to impartial investigation in the fields of economics, politics, and public law. Membership: 8,444 persons; 1,820 organizations. Publications: *Political Science Quarterly*; *Proceedings* (semi-annual). Meetings are held in April and November of each year in New York City. President, Lewis W. Douglas; director, Mary M. Anger. Headquarters: 413 Fayerweather Hall, Columbia University, New York 27, N.Y.

Adult Education Association of the United States of America.—Founded in 1951 to further the idea of education as a process continuing throughout life (successor to the American Association for Adult Education and the Department of Adult Education of the National Education Association). Membership: 14,000. Publications: *Adult Education* (quarterly); *Adult Leadership* (monthly). President, Kenneth Benne; administrator, Malcolm S. Knowles. Headquarters: 743 N. Wabash Ave., Chicago 11, Ill.

Alcoholics Anonymous (The General Service Board of A.A., Inc.).—Self-supporting, nonsectarian lay-society of ex-problem drinkers, banded together for the purpose of helping the sick alcoholic recover if he wishes. Membership: approx. 150,000 in 5,927 affiliated international groups. Publication: *The A.A. Grapevine* (monthly). Headquarters: P.O. Box 459, Grand Central Annex, New York 17, N.Y.

Allied Youth, Inc.—A nonsectarian, nonpolitical organization working in the high schools of the U.S. and Canada since 1936 with a program of alcohol education and alcohol-free recreation aimed at building well ad-

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justed personalities, citizenship, character, and leadership. Membership: 25,000; member organizations, 264. Publication: *The Allied Youth* (monthly except July and August). The annual conference is held at Buck Hill Falls, Pa., the third week in November. Chairman of the board, J. C. Penney. Headquarters: 1709 M St. NW, Washington 6, D.C.

American Academy of Arts and Letters.—Founded in 1904 by the National Institute of Arts and Letters for the furtherance of literature and the fine arts in the United States. Membership limited to 50. Publications: *Catalogue of The Great Decade in American Writing Exhibition*, Dec. 3-30, 1954; *Catalogues of art and manuscript exhibitions* May 25-June 26, 1955; *Proceedings*, 2d Series, No. 5; *Yearbook* 1955. On May 25, 1955 a special meeting of the Academy was held, followed by a public ceremonial given jointly with the National Institute of Arts and Letters. New members were inducted, medals and honors awarded, and 16 arts and letters grants of \$1,000 each were given. An exhibition of the works of newly-elected art members, grantees in art, and the recipient of The Gold Medal for Painting, Edward Hopper, as well as a manuscript exhibition of works by newly-elected literature and music members, grantees in literature, recipient of Fellowship of the Academy, Ralph Ellison; recipient of The Gold Medal for Essays and Criticism, Edmund Wilson; the Howells Medal for the Novel, Eudora Welty; and recipient of the Award of Merit, Jorge Guillén, were opened on the same day. The annual meeting is held in December, at which time in 1955 the following new members were elected: Marianne Moore, Maxwell Anderson, Lewis Mumford, Walter Piston, Andrew Wyeth, and Edward Hopper. President, Archibald MacLeish; secretary, Douglas Moore. Headquarters: 633 West 155th St., New York 32, N.Y.

American Academy of Arts and Sciences.—Founded in 1780 for the encouragement and diffusion of every art and science. Membership: 1,050. Endowment: \$1,000,000. Publications: *Proceedings*; *Memoirs*; *Bulletin*. President, John E. Burchard; secretary, William C. Greene. Annual meeting is held the 2d Wednesday in May, in Boston. Headquarters: 77 Massachusetts Ave., Cambridge 39, Mass.

American Academy of Political and Social Science.—Organized in 1889, to provide a forum for the discussion of national and world questions. Membership (Jan. 1, 1955): 15,384. Publications (1955): *Ethical Standards and Professional Conduct*; *Contemporary Africa: Trends and Issues*; *Air Power and National Security*; *Internal Security and Civil Rights*; *Higher Education Under Stress*; *Community Services and the Public Schools*. The 59th annual meeting was held in Philadelphia in April 1955. President, James C. Charlesworth (on leave of absence); acting president, Thorsten Sellin; secretary, Raymond T. Bowman; exec. asst., E. Gordon Alderfer. Headquarters: 3937 Chestnut St., Philadelphia 4, Pa.

American Association for the Advancement of Science.—Founded in 1848 to promote the advancement of science in all fields of the natural sciences and of the social and economic sciences. Membership: 48,800. There are 260 affiliated and associated societies with a combined membership of approximately 1,000,000. Endowment: \$365,000. Periodicals: *Science*; *The Scientific Monthly*. Books (1955): *Antimetabolites and Cancer*; *Advances in Experimental Caries Research*; *The Luminescence of Biological Systems*; and other volumes. President, Paul B. Sears; admin. secretary, Daed Wolfe. Headquarters: 1515 Massachusetts Ave. NW, Washington 5, D.C.

American Association of Law Libraries.—Organized to promote librarianship; develop and increase the usefulness of law libraries; cultivate the science of law librarianship; and foster a spirit of cooperation among the members of the profession. Membership: 620. Publications: *Law Libraries in the United States and Canada*; *Law Library Journal*; *Index to Legal Periodicals*. The 1955 convention was held at Chicago, Ill. President, Carroll C. Moreland; secretary, Frances Farmer. Headquarters: Law Library, Clark Memorial Hall, University of Virginia, Charlottesville, Va.

American Association of University Professors.—The professional organization for college and university teachers and investigators in the United States and its territories, Canada, and American-controlled institutions of higher education abroad, the association endeavors to bring about more effective cooperation among the members of the profession, promote discussion of educational problems in institutions of higher learning, create means for authoritative expression of the public opinion of the teachers, make collective action possible, and maintain and advance the ideals and standards of the profession. Membership: 43,525. Publication: *Bulletin* (quarterly). President, William E. Britton; general secretary, Ralph F. Fuchs. Headquarters: 1785 Massachusetts Ave. NW, Washington 6, D.C.

American Association of University Women.—Founded in 1882, the association acts as spokesman for educated women, seeking to make their influence felt and to enlarge their opportunities for service. It supports research fellowships for women and gives international grants to bring women of other countries to the U.S. for study. Membership: 137,000 in 1,320 branches. Fellowship Endowment:

\$1,316,000. Publication: *Journal* (quarterly). President, Dr. Anna L. Rose Hawkes; gen. director, Dr. Helen D. Bragdon. Headquarters: 1634 I St. NW, Washington 6, D.C.

American Automobile Association.—Established to provide services to car-owning members on the basis of national and international reciprocity and to work for improvement of motoring conditions generally. Membership: over 4,843,000 in 783 member organizations. Publications include *Sportsmanlike Driving* (3d ed.). The annual meeting was held in Washington, D.C., Sept. 20-22, 1955. President, A. J. Sordoni; secretary, W. A. Stinchcomb. Headquarters: 1712 G St. NW, Washington 6, D.C.

American Bankers Association.—The national organization of banking, representing more than 99 per cent of banking resources. As part of its educational program, the Association conducts the American Institute of Banking, and The Graduate School of Banking at Rutgers University. Membership (1955): 17,140 banks and branches. Publication: *Banking* (monthly). The 81st annual convention was held at Chicago, Ill., Sept. 25-28, 1955. President, Fred F. Florence; secretary, Henry M. Sommers. Headquarters: 12 East 36th St., New York 16, N.Y.

American Bar Association.—Established to uphold and defend the U.S. Constitution and maintain representative government; advance jurisprudence; promote the administration of justice, and the uniformity of legislation and judicial decisions throughout the nation; uphold the honor of the legal profession; and apply its knowledge and experience in the field of law for the public good. Membership: 58,000. Publications: *American Bar Association Journal* (monthly); *Annual Report*; *American Citizenship Bulletin* (quarterly); numerous specialized manuals. The annual meeting was held in Philadelphia, Pa., Aug. 22-26, 1955. President, E. Smythe Gambrell; secretary, Joseph D. Stecher. Headquarters: 1155 East 60th St., Chicago 37, Ill.

American Bible Society.—Founded in 1816 to translate, publish, and distribute the Scriptures, without note or comment. Membership: approx. 375,000. Publication: *Bible Society Record*. President, Daniel Burke; secretary, Eric M. North. Headquarters: 450 Park Ave., New York 22, N.Y.

American Book Publishers Council.—Founded to further the interests of its members in their relationships with other segments of the industry, the government, and the public; to serve as a clearing house of information on publishing techniques and practices; and to collect and publish statistics with respect to book publishing; to increase the distribution of books. Membership: 125 publishing firms. President, Donald S. Klopfer; managing director, Dan Lacy. Headquarters: 2 West 46th St., New York 36, N.Y.

American Cancer Society.—Organized in 1913 to collect, collate, and make available statistical information relative to the incidence, mortality, and curability of cancer; encourage medical and scientific research and training of personnel in the detection, diagnosis, treatment, and prevention of cancer; and foster the establishment of cancer treatment facilities. Membership: 188 persons; 60 chartered divisions. Publications: *Cancer*; *Cancer News*; *CA: A Bulletin of Cancer Progress*; *Annual Report*. The annual meeting was held Oct. 30-Nov. 4, 1955, New York, N.Y. President, G. V. Brindley; secretary, Granville Whittlesey, Jr. Headquarters: 521 West 57th St., New York 19, N.Y.

American Catholic Sociological Society.—See article, SOCIOLOGY.

American Chemical Society.—Founded in 1876 to encourage the advancement of chemistry in all its branches. Membership: 74,500 in 149 local sections. Publications: *Journal of the American Chemical Society*; *Industrial and Engineering Chemistry*; *Analytical Chemistry*; *Journal of Physical Chemistry*; *Journal of Agricultural and Food Chemistry*; *Journal of Organic Chemistry*; *Chemical and Engineering News*; *Chemical Abstracts Service*. In 1955 meetings were held in Cincinnati, Ohio, in April and in Minneapolis, Minn., in September. President, Joel H. Hildebrand; exec. secretary, Alden H. Emery. Headquarters: 1155 16th St. NW, Washington 6, D.C.

American Civil Liberties Union.—Founded in 1920 to maintain and extend throughout U.S. jurisdiction the principles of the Bill of Rights, as essential to the functioning of democracy for majorities and minorities alike. Membership: 36,000, including that of 22 affiliates. Publications: *Civil Liberties*; various pamphlets. Chairman, Ernest Angell; director, Patrick Murphy Malin. Headquarters: 170 Fifth Ave., New York 10, N.Y.

American College of Dentists.—Founded for the advancement of the standards and efficiency of dentistry; promotion of the ideals of the profession; stimulation of graduate study and efforts by dentists; the conferring of fellowships in recognition of meritorious achievement; and improvement of public understanding of oral health service. Membership: 2,058 in 29 sections. Publication: *Journal of the American College of Dentists* (quarterly). President, Kenneth C. Pruden; secretary, Otto W. Brandhorst. Office of Secretary: 4221 Lindell Blvd., St. Louis 8, Mo.

American College of Physicians.—Founded in 1915 to

maintain and advance the highest possible standards in medical education, medical practice, and clinical research. Membership: 8,800. Endowment: approx. \$474,000. Publication: *Annals of Internal Medicine*. President, George F. Strong, M.D.; secretary, E. R. Loveland. Headquarters: 4200 Pine St., Philadelphia 4, Pa.

American College of Surgeons.—Founded in 1913 to elevate the standards of surgery and to improve hospital care of the patient. Membership (1956): 21,000. Publications: *Surgery, Gynecology & Obstetrics* (monthly); *Bulletin* (bimonthly). Regional surgical meetings are sponsored each year in addition to an annual Clinical Congress which is the largest surgical meeting in the world. President, Dr. Warren H. Cole; director, Dr. Paul R. Hawley. Headquarters: 40 East Erie St., Chicago 11, Ill.

American Correctional Association.—Organized in 1870 for the improvement of laws in relation to correctional procedures and offenders; improvement of correctional institutions; public education in the correctional field. Membership (1955): 2,000 persons in 9 member organizations. Publications: *American Journal of Correction* (bimonthly); *Manual of Correctional Standards*; *Proceedings of annual Congress of Correction*. The 85th annual Congress of Correction was held Sept. 27-30, 1955, at Des Moines, Iowa. The name of the organization was officially changed from American Prison Association to American Correctional Association. President, Kenyon J. Scudder; general secretary, E. R. Cass. Headquarters: 135 East 15th St., New York 3, N.Y.

American Council of Learned Societies.—A federation of national organizations devoted to the encouragement of humanistic studies. Activities include the promotion of research and the dissemination and utilization of its results; the training of individuals for vital teaching; and the representation of the interests of American scholars in humanistic fields. Membership: 25 professional societies. Publications (1955): *Bulletin* 48; *ACLS Newsletter*. The annual meeting was held in Washington, D.C., Jan. 20-21, 1955. Chairman, Howard Mumford Jones; exec. director, Mortimer Graves. Headquarters: 1219 16th St., NW, Washington 6, D.C.

American Council on Education.—Founded in 1918 to advance American education through action on the part of education organizations and institutions. Membership: 143 organizations; 960 educational institutions, school systems, and departments of education. Publication: *The Educational Record*. President, Arthur S. Adams; secretary, Walter E. Hager. Headquarters: 1785 Massachusetts Ave. NW, Washington 6, D.C.

American Dental Association.—Established in 1859 "to encourage the improvement of the health of the public and to promote the art and science of dentistry." Membership (Sept. 1, 1955) 84,023 in 54 state and 448 local societies. Publications: *The Journal of the A.D.A.* (monthly); *Journal of Oral Surgery* (quarterly); *American Dental Directory* (annual); *Accepted Dental Remedies* (annual); *Index to Dental Literature* (quarterly cumulative); *American Dental Association Specifications for Dental Materials* (annual); *Dental Abstracts* (monthly). In 1955, conducted aptitude testing program for 5,597 prospective dental students; sponsored National Children's Dental Health Week, Feb. 7-13; reiterated its recommendation that fluoridation of water supplies to reduce dental decay be adopted in all communities with a central water supply (by late 1955 more than 1,100 communities with a total population of over 21 million had the measure in operation); constructed a \$1,300,000 addition to its Central Office building in Chicago, and expanded significantly its research and health education programs. The 96th annual session was held Oct. 17-20, 1955, in San Francisco, Calif. President, Bernard C. Kingsbury; secretary, Harold Hillenbrand. Headquarters: 222 E. Superior St., Chicago 11, Ill.

American Economic Association.—Organized in 1885 for the encouragement of economic research, the issuance of publications on economic subjects, and the encouragement of freedom of economic discussion. Membership: 7,717, and 2,995 subscribers. Publication: *American Economic Review*. The 1955 annual meeting was held in New York, N.Y. President, John D. Black; secretary, James Washington Bell. Headquarters: Northwestern University, Evanston, Ill.

American Farm Bureau Federation.—Organized in 1920 to better the standards of farm living and to handle legislative and educational problems affecting the welfare of farm people. Membership: 1,609,461 farm families. Publication: *The Nation's Agriculture*. President, Charles B. Shuman; secretary, Roger Fleming. Headquarters: Room 2300, Merchandise Mart, Chicago 54, Ill.

American Federation of Labor.—See separate article under its own heading.

American Federation of Teachers.—Founded to provide better educational facilities for children, raise the professional standards of teaching, and provide better working conditions for teachers. Membership: 51,000 in 440 organizations. President, Carl J. Megel. Headquarters: 28 E. Jackson Blvd., Chicago 4, Ill.

American Forestry Association.—Founded in 1875 for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife, and outdoor recreation. Membership: 26,000.

Endowment: \$275,000. Publications: *American Forests* (monthly); *Knowing Your Trees* (Rev. 1955); *A Program for American Forestry* (1954); *Proceedings Fourth American Forest Congress* (1953); *Teaching Conservation* (1948); *Managing Small Woodlands* (1947); and others. President, Don P. Johnston; exec. director-forester, Lowell Besley; secretary, Fred E. Hornaday; editor, James B. Craig. Headquarters: 919 17th St. NW, Washington 6, D.C.

American Foundation for Allergic Diseases.—See article, ALLERGIES.

American Foundation for the Blind.—Established in 1921 to promote the interests of blind people throughout the United States. Publications: *Directory of Activities for the Blind in the United States and Canada*; *The New Outlook for the Blind*; *Touch and Go*; other books and pamphlets. President, William Ziegler, Jr.; secretary, Eustace Seligman. Headquarters: 15 West 16th St., New York 11, N.Y.

American Geographical Society.—A research institution devoted to the advancement of geography in its scientific, educational, and cultural aspects; its practical applications; and its bearing on fundamental problems of human existence and human relationships in different parts of the earth. Membership: 4,200. Publications: *Geographical Review* (quarterly); *Focus* (10 issues yearly); *Current Geographical Publications* (10 months a year). President, Richard U. Light; director, Charles B. Hitchcock. Headquarters: Broadway at 156th St., New York 32, N.Y.

American Geological Institute.—Established in 1948 for the advancement of geology and its application to human welfare by providing a means for the cooperation of organizations active in the fields of pure and applied geology. Operates under the National Research Council. Membership: 13 organizations. Publications: *Geological Newsletter*; *Directory of Geology Departments in the U.S. and Canada*; *Directory of Geologists and Geophysicists in member societies of the Institute*; *Geological Abstracts*. The board of directors meets twice annually: in the spring in conjunction with the annual meeting of the American Association of Petroleum Geologists, and in the fall with the annual meeting of the Geological Society of America. Exec. director, Robert C. Stephenson. Headquarters: 2101 Constitution Ave. NW, Washington 25, D.C.

American Historical Association.—Founded in 1884 for the promotion of historical studies, the collection and preservation of historical manuscripts, and for kindred purposes in the interests of American history and of history in America. Membership: approx. 6,000. Endowment: \$414,799.99. Publications: *American Historical Review*; *Annual Report*. President, Dexter Perkins; exec. secretary, Boyd C. Shafer. Headquarters: Study Room 274, Library of Congress Annex, Washington 25, D.C.

American Horticultural Society, Inc.—Founded for the promotion of horticulture in all its branches, embracing all activities of the gardener and the orchardist, the growth and culture of fruits, vegetables, and flowers, and study of their origins, uses, and history. Membership: approx. 3,000; member organizations, 52. Publication: *National Horticultural Magazine* (quarterly). The annual meeting is held in the spring in Washington, D.C. President, Dr. John L. Creech; exec. secretary, James R. Harlow. Headquarters: 1600 Bladensburg Rd. NE, Washington 2, D.C.

American Hospital Association.—Founded in 1898 to promote the public welfare through the development of better hospital care for all the people. Membership: 3,946 persons; 6,607 institutions. Publication: *Hospitals*. The 1955 annual convention was held Sept. 19-22 at Atlantic City, N.J. President, Ray E. Brown; director, Edwin L. Crosby, M.D. Headquarters: 18 E. Division St., Chicago 10, Ill.

American Institute of Accountants.—The purposes of this national professional organization of certified public accountants are to promote and maintain high professional standards; to assist in the maintenance of high standards for the CPA certificate; and to advance the science of accountancy. Membership (1955): 26,345. Publications: *The Journal of Accountancy*; *The CPA*; *Accounting Research Bulletins*; *Accounting Terminology Bulletins*; *Statements on Auditing Procedure*; *CPA Handbook*; *Accountant's Index*. President, John H. Zebley, Jr.; exec. director, John L. Carey. Headquarters: 270 Madison Ave., New York 16, N.Y.

American Institute of Architects.—Founded 1857. Objectives: to organize and unite in fellowship the architects of the United States; to combine their efforts so as to promote the esthetic, scientific, and practical efficiency of the profession; to advance the science and art of planning and building by advancing the standards of architectural training and practice; to coordinate the building industry and the profession of architecture to insure the advancement of living standards through improved environment; and to make the profession of ever-increasing service to society. Membership: 10,500 in 118 chapters; 11 state organizations. Publications: *Journal* (monthly); *Bulletin* (bi-monthly); *Memo* (bi-weekly). President, George Bain Cummings; secretary, Edward L. Wilson; exec. director, Edmund R. Purves. Headquarters: The Octagon, 1735 New York Ave. NW, Washington 6, D.C.

American Institute of Banking.—Devoted to the education of bank personnel in the theory and practice of banking and in those principles of law, economics, and accounting that pertain to the banking business; and to the establishment and maintenance of a recognized standard of banking education. Membership: 122,000. President, Bernard J. Hunt; secretary, Robert C. Rutherford. Headquarters: 12 East 36th St., New York 16, N.Y.

American Institute of Chemical Engineers.—Its purpose is the advancement of chemical engineering in theory and practice and the maintenance of a high professional standard among its members. Membership: 16,601. Publications: *Chemical Engineering Progress* (monthly); *A.I.Ch.E. Journal* (quarterly); various monographs and symposium series. Four meetings are held each year. The annual meeting was held at Detroit, Mich., Nov. 27–30, 1955. President, Barnett F. Dodge; secretary, F. J. Van Antwerpen. Headquarters: 25 West 45th St., New York 36, N.Y.

American Institute of Chemists.—Founded to advance the profession of the chemist in the United States. Membership: 2,850 in 12 organizations. President, Dr. Ray P. Dinsmore; secretary, Lloyd Van Doren. Headquarters: 60 East 42d St., New York 17, N.Y.

American Institute of Electrical Engineers.—Established to advance the theory and practice of electrical engineering and its allied arts and sciences, and to maintain high professional standards among its members. Membership: 53,000. Endowment: \$1,250,000. Publications: *Electrical Engineering* (monthly); *Annual Transactions*; various papers and special pamphlets. President, M. D. Hoovan; secretary, N. S. Hibbsman. Headquarters: 33 West 39th St., New York 18, N.Y.

American Institute of Graphic Arts.—Founded in 1914. A national, educational, non-profit organization to raise standards of design and manufacture of printing and the allied arts in the United States. Membership: 1,350. Publications: *Fifty Books of the Year* (annual); *Printing for Commerce* (annual); 17th Annual Textbooks; Children's Books (biennial exhibition catalogues). A two-year printing workshop course is given in cooperation with the New York School of Printing. Four clinics: Magazine, Printing for Commerce, Trade Book and Textbook, meet monthly to consider design and production problems. The Institute sponsors a series of exhibits in its small gallery during the season. The Guild of Bookworkers (hand bindings) is an affiliate. The annual meeting was held May 19, 1955. President, Leo Lionni; secretary, Horace Nahm; director of public relations and executive administrator, Joyce Morrow. Headquarters: 13 East 67th St., New York 21, N.Y.

American Institute of Mining and Metallurgical Engineers.—Established to promote the arts and sciences connected with the economic production of the useful minerals and metals, and the welfare of those employed in these industries. Membership: 23,500. Publications: *Journal of Metals*; *Journal of Petroleum Technology*; *Mining Engineering*. The annual meeting was held in Chicago, Ill., Feb. 14–17, 1955. President, Henry DeWitt Smith; secretary, Ernest Kirkendall. Headquarters: 29 West 39th St., New York 18, N.Y.

American Iron and Steel Institute.—Founded to promote the interest of the iron and steel industry. Membership: 2,400 individuals; 95 companies. Publications: *Steelways*; *Steel Facts*; *Annual Statistical Report*; *Yearbook*; *Directory of Iron and Steel Works of the U.S. and Canada*; various technical and engineering booklets. In 1954 research projects were sponsored in colleges, universities, and research institutions, bearing on technology of iron and steel making, preparation of raw materials, etc. The general meeting is held in May in New York City. President, B. F. Fairless; exec. vice pres., Max D. Howell; secretary, George S. Rose. Headquarters: 350 Fifth Ave., New York 1, N.Y.

American Law Institute.—Founded in 1923 to do constructive work for the law. Its present projects include the drafting of a federal income tax statute, a model penal code, a federal estate and gift tax statute, revision of the Restatements and a program of continuing legal education. Membership: 1,530. President, Harrison Tweed; director, Herbert F. Goodrich. Headquarters: 133 South 36th St., Philadelphia 4, Pa.

American Legion, The.—A patriotic, non-political organization founded in 1919 by veterans of World War I. Subsequent amendments to the charter (1942 and 1950) have made veterans of World War II and the Korean War eligible for membership. Membership: 2,785,277 in 58 departments and 17,200 posts. Publication: *The American Legion Magazine* (monthly). During 1955, more than \$7,330,000 was expended in child welfare work; the 29th year of the junior baseball program was celebrated; 18,997 school award medals were received by primary and secondary school pupils, and high school students participated in the Legion's national oratorical contest, Boys States and Boys Nation. The Legion also continued its "Back to God" movement and its "New Glory For Old Glory" program to encourage greater display of the Flag of the United States. The 37th national convention was held in Miami, Fla., Oct. 10–13, 1955. National Commander, J. Addington Wagner. Headquarters: 700 N. Pennsylvania St., Indianapolis 6, Ind.

American Library Association.—See separate article under its own heading.

American Mathematical Society.—Founded in 1888 to encourage and maintain an active interest in mathematical science. Membership: 4,958 individuals and 134 institutional members. Publications include the *Bulletin*; *Proceedings*; *Transactions*; *Mathematical Reviews*; *Colloquium Publications*; *Mathematical Surveys*; *Memoirs*; *Proceedings of Symposia in Applied Mathematics*. Eleven meetings are held each year. President, R. L. Wilder; secretary, E. G. Begle. Headquarters: 80 Waterman St., Providence 6, R.I.

American Medical Association.—Founded in 1847 to promote the science and art of medicine and the betterment of public health. Membership: 155,537 in 53 state and territorial associations. Publications include the *Journal*; *Today's Health*; nine monthly journals devoted to special fields of medicine; and thousands of books, pamphlets, and reprints. The 1955 annual meeting was held at Atlantic City, N.J., June 6–10. President, Elmer Hess, M.D.; secretary and gen. mgr., George F. Lull, M.D. Headquarters: 535 N. Dearborn St., Chicago 10, Ill.

American Meteorological Society.—Founded in 1919 for the development and dissemination of knowledge of meteorology and the advancement of its professional ideals. Membership: 5,500. Endowment: \$28,000. Publications: *Bulletin*; *Journal of Meteorology*; *Meteorological Abstracts and Bibliography*; *Compendium of Meteorology*; *Weatherwise*; meteorological monographs. President, A. F. Merewether; exec. secretary, Kenneth C. Spengler. Headquarters: 3 Joy St., Boston 8, Mass.

American Missionary Association.—Founded in 1846 as a consolidation of several missionary, nonsectarian societies primarily concerned with the abolition of slavery; it later pioneered for education of the freedmen. Endowment: \$13,000,000. It maintains community centers, colleges, mission work in Puerto Rico, and a Department of Race Relations. It is now a division of The Board of Home Missions of the Congregational and Christian Churches. General secretary, Philip M. Widenhouse. Headquarters: 287 Fourth Ave., New York 10, N.Y.

American Museum of Natural History.—An organization founded in 1869 to encourage and develop the study of natural science, to advance the general knowledge of kindred subjects, and to that end furnish popular instruction. Membership: approx. 51,000. Publication: *Natural History* (10 issues yearly). Noteworthy during 1954–55 were the following openings: the Hall of Oil Geology, which tells the story of petroleum, from its origin in the earth millions of years ago to its emergence through man-made wells in today's world; and the Natural Science Center for Young People which includes living plants and animals, designed to introduce young people to the natural history of the metropolitan area. Combined attendance for the Museum and the American Museum–Hayden Planetarium was 2,174,415 for 1954–55. President, Alexander M. White; director, Albert E. Parr. Address: Central Park West at 79th Street, New York 24, N.Y.

American Newspaper Publishers Association.—Established to gather and disseminate to membership information on problems of the newspaper publishing business. Membership: 803 daily newspapers. The 1955 convention was held April 26–28 in New York. President, Richard W. Slocum; gen. mgr. Cranston Williams. Headquarters: 370 Lexington Ave., New York 17, N.Y.

American Nuclear Society, Inc.—Organized in 1955 to promote the advancement of science and engineering relating to the atomic nucleus; to aid in the integration of the several disciplines constituting nuclear science and technology; and to encourage research in these and allied fields. Membership: 917. Publication: *Nuclear Science and Engineering*. The first annual meeting was held June 27–29, 1955, at Pennsylvania State University, University Park, Pa. President, W. H. Zinn; exec. secretary, W. W. Grigorieff. Address: Oak Ridge Institute of Nuclear Studies, P.O. Box 963, Oak Ridge, Tenn.

American Nurses' Association.—Founded in 1896 to promote the professional and educational advancement of nurses; to elevate the standard of nursing education; to establish and maintain a code of ethics among nurses; and promote their social and economic welfare. Membership: 175,840 in 54 constituent associations. Publication: *The American Journal of Nursing*. President, Agnes Ohlson, R.N.; secretary, Frances L. A. Powell, R.N. Headquarters: 2 Park Ave., New York 16, N.Y.

American Optometric Association, Inc.—Organized in 1897 to advance the profession of optometry and to protect and improve the visual welfare of the American people. Membership: 11,000. Publication: *The Journal of the American Optometric Association*. During 1955 seminars were held in various U.S. cities on children's vision, occupational vision, ethics, and economics; a film strip entitled "Adventures in Seeing" was produced for grade schools; national Save Your Vision Week was sponsored during March. The annual convention was held at Milwaukee, Wis., July 6–9, 1955. President, Norman R. Hays, O.D.; secretary, E. H. Kickenapp, O.D. Headquarters: 4030 Chouteau Ave., St. Louis 10, Mo.

American Osteopathic Association.—Founded to promote the public health by maintaining high standards of osteopathic education and stimulating and disseminating

original research. Membership: 9,372. President, Hobert C. Moore; exec. secretary, R. C. McCaughan. Headquarters: 212 E. Ohio St., Chicago 11, Ill.

American Petroleum Institute.—Founded in 1919 to further cooperation with the government; foster trade in American petroleum products; and promote the interests of the industry and the improvement of its members through scientific studies. Publications: *Statistical Bulletin* (weekly); *Advance News* (weekly); *Tax Economics Bulletin* (bimonthly); *Quarterly*; *Annual Statistical Bulletin*. President, Frank M. Porter; secretary, Lacey Walker. Headquarters: 50 West 50th St., New York 20, N.Y.

American Philatelic Society.—Founded in 1886 to disseminate knowledge of philately and to assist its members in acquiring and disposing of stamps through its various departments. Membership: 11,700; chapters, 235. Endowment: \$100,000. Publication: *The American Philatelist*. President, L. D. Shoemaker; exec. secretary, H. Clay Musser. Central Office: P.O. Box 800, State College, Pa.

American Philosophical Association.—Founded in 1901 to promote the study and the teaching of philosophy. Membership: 1,403. Endowment: \$10,000. The association maintains close affiliation with UNESCO and the ACLS. Chairman, Glenn R. Morrow; secretary-treasurer, William H. Hay. Headquarters: Bascom Hall, University of Wisconsin, Madison 6, Wis.

American Physical Society.—Founded in 1899 for the advancement and diffusion of the knowledge of physics. Membership: 11,900. Publications: *Physical Review*; *Reviews of Modern Physics*; *Bulletin*. President, E. P. Wigner; secretary, K. K. Darrow. Headquarters: Columbia University, New York 27, N.Y.

American Political Science Association.—Founded in 1903 to encourage the study of government and contemporary public affairs. Membership: 6,300. Endowment: \$33,000. Publication: *The American Political Science Review*. President, Harold D. Lasswell; exec. director, Evron M. Kirkpatrick. Headquarters: 1726 Massachusetts Ave. NW, Washington 6, D.C.

American Psychiatric Association.—Promoting further study of all phases of mental disorder; greater interest in and better maintenance of high standards in hospitals and all other agencies concerned with mental health; further psychiatric education and research. Membership: 8,534. Publications: *American Journal of Psychiatry*; *Newsletter* (monthlies). During 1955, conferences and studies for evaluation of psychiatric therapies and hospital inspection were continued. The annual meeting was held May 9-13, 1955 in Atlantic City, N.J. President, R. Finley Gayle, Jr.; secretary, William Malamud. Addresses: 1270 Avenue of the Americas, Rm. 310, New York 20, N.Y.; 1785 Massachusetts Ave. NW, Washington 6, D.C.

American Psychological Association.—Founded in 1892 to advance psychology as a science, as a profession, and as a means of promoting human welfare. Membership: 14,700. President, Theodore M. Newcomb; exec. secretary, Filmore H. Sanford. Headquarters: 1333 16th St. NW, Washington 6, D.C.

American-Scandinavian Foundation.—Founded in 1910 to promote knowledge and understanding and improve cultural relationships between the United States and Denmark, Iceland, Norway, and Sweden. Membership: 3,100 in 10 chapters in the U.S. Four associated organizations in the Scandinavian countries. Endowment: \$736,750. Publications: *American-Scandinavian Review* (quarterly); *SCAN* (monthly news bulletin). President, Lithgow Osborne; director, Raymond Dennett. Headquarters: 127 East 73rd St., New York 21, N.Y.

American Society for Metals.—Established in 1913 to collect information concerning technical and engineering developments and keep industrial, research, and government organizations informed of the progress and needs of the metallurgical field. The society grants 500 awards to high school students for outstanding work in the field of science; awards 50 scholarships of \$400 each to university students of metallurgy; awards annually a \$3,000 fellowship for post-graduate study in metallurgy; awards \$2,000 in cash to outstanding metallurgy teachers at university level. The annual convention is held concurrently with the National Metal Congress & Exposition (Oct. 17-21, 1955). Membership: 25,000; 93 organizations. Publications: *Metal Progress* (monthly); *Metals Review*; *Transactions* (annual); numerous books covering the metals field. President, A. O. Schaefer; secretary, W. H. Eisenman. Headquarters: 7301 Euclid Ave., Cleveland 3, Ohio.

American Society for Psychical Research.—Incorporated in 1904 for the systematic investigation of phenomena that are prima facie inexplicable on any generally recognized hypothesis, especially those phenomena suggesting the survival of human personality after death and the occurrence of extrasensory perception. Membership: 850. Endowment: \$250,000. Publication: *The Journal of the American Society for Psychical Research* (quarterly). President, George H. Hyslop, M.D.; chairman of research committee, Prof. Gardner Murphy; research associate, Laura Abbott Dale. Headquarters: 880 Fifth Ave., New York 21, N.Y.

American Society of Civil Engineers.—Established to promote the advancement of the science and profession of

engineering. Membership: 39,000; 135 local sections and sub-units; 132 student chapters. Publications: *Civil Engineering*; *Proceedings* (monthlies); *Transactions* (annual); special manuals of engineering practice. The annual convention was held the fourth week in October, 1955, in New York City. President, Enoch R. Needles; secretary, William H. Wily. Headquarters: 33 West 39th St., New York 18, N.Y.

American Society of Composers, Authors, and Publishers.—Founded in 1914 to collect, on behalf of its members, royalties for the public performance (for profit), of their copyright musical works, this being done principally by the issuance of blanket licenses to commercial users of music and by making available to licensees the whole repertoire of ASCAP. Membership: 4,308. President, Stanley Adams; secretary, John Tasker Howard. Headquarters: 575 Madison Ave., New York 22, N.Y.

American Society of Heating and Air-Conditioning Engineers, Inc.—Organized in 1895 to advance the arts and sciences of heating, ventilating, cooling, and air conditioning, and allied arts and sciences, for the benefit of the general public. Membership: 10,200 in 62 local chapters. Publications: *ASHAE Journal Section* (monthly); *Transactions* (annual); *Heating, Ventilating, and Air Conditioning Guide* (annual). During 1955 the Society changed its name from American Society of Heating and Ventilating Engineers to American Society of Heating and Air-Conditioning Engineers; nominated Dr. Robert W. Keeton, of Chicago, Ill., for the F. Paul Anderson Medal; and made 13 grants for cooperative research to U.S. colleges and universities. The 62nd annual meeting was held in Cincinnati, Ohio, Jan. 23-25, 1956. President, John E. Haines; exec. secretary, A. V. Hutchinson. Headquarters: 62 Worth St., New York 13, N.Y.

American Society of Mechanical Engineers.—Established in 1880 to promote the art and science of mechanical engineering and the allied arts and sciences. Membership (1955): 40,289. Publications: *Mechanical Engineering* (monthly); *Transactions* (8 issues yearly); *Journal of Applied Mechanics* (quarterly); *Mechanical Catalog* (annual); *Applied Mechanics Reviews*. The annual meeting is held in winter, usually in New York, N.Y. President, David W. R. Morgan; secretary, Clarence E. Davies. Headquarters: 29 West 39th St., New York 18, N.Y.

American Society of Naturalists.—An association fostering the development of breadth and unity in biology through the discussion, advancement, and diffusion of knowledge concerning the broader biological problems, thus serving to correlate the various biological sciences into a common philosophy of biology. Membership: 660. Publication: *The American Naturalist*. President, Kenneth V. Thimann; secretary, Warren P. Spencer. Headquarters: Dept. of Biology, Wooster College, Wooster, Ohio.

American Society of Zoologists.—Founded as an association of workers in the field of zoology for the presentation and discussion of facts and problems and for the advancement of zoological science. Membership: 1,424. President, Tracy M. Sonneborn; secretary, Rudolf T. Kempton. Address: Vassar College, Poughkeepsie, N.Y.

American Sociological Society.—A nationwide organization seeking to stimulate and improve sociological research, instruction, and discussion; and to encourage cooperation among those engaged in sociological studies. Membership: 4,600, 9 regional and affiliated societies. Publications: *American Sociological Review*; *Sociometry*; *Employment Bulletin*; special bulletins. The 1956 annual meeting is scheduled for September 7-9 in Detroit, Mich. President, Herbert Blumer; secretary, Wellman J. Warner; exec. officer, Matilda White Riley. Headquarters: New York University, Washington Square, New York 3, N.Y. (See article, SOCIOLOGY.)

American Veterans of World War II (AMVETS).—Chartered by Congress; its purpose, to promote world peace and the American way of life, and to help the veteran help himself. Membership: 200,000 in 1,600 posts. Publications: *National AMVET*; *AMVET Letter*. The annual convention was held in Philadelphia, Pa., Sept. 6-11, 1955. National Commander, Rudolph G. Pesata. Headquarters: 1710 Rhode Island Ave. NW, Washington 6, D.C.

American Vocational Association.—Established to advance the services of American education through the development of economic competence of youths and adults, and to promote the professional interests of persons engaged in vocational and industrial arts education. Membership: 35,000. Publications: *American Vocational Journal* (10 issues annually); various bulletins. President, Cecil Stanley; exec. secretary, M. D. Mobley. Headquarters: Denrike Bldg., 1010 Vermont Ave., NW, Washington 5, D.C.

American Youth Hostels, Inc.—To help all, but especially young Americans, to acquire a greater appreciation of the out-of-doors, and of the culture and history of peoples at home and abroad, by providing simple accommodations for their use while traveling primarily by foot or bicycle, thus promoting their health, welfare and education and furthering mutual understanding among peoples of differing backgrounds and points of view. Membership: 10,000. Publication: *AYH Handbook-Hos-*

telers Manual; National Sponsored Trips Travel Bulletin. Activities in 1955: Developed, supervised and chartered 100 youth hostel facilities throughout the U.S.; sponsored the AYH National Leaders Training Course; directed and furnished leadership for travel programs for 490 young people in the U.S., and to Mexico, Canada, and Europe; coordinated the work of 22 local councils of AYH. President, Miller Moore; secretary, Mrs. Carl Neumann; exec. director, Justin J. Cline. Headquarters: 14 West 8th St., New York 11, N.Y.

Archaeological Institute of America.—Founded in 1879 to foster archaeological research and to disseminate the knowledge resulting from that research. Membership: approx. 2,600. Endowment: \$155,000. Publications: *American Journal of Archaeology*, for experts, and *Archaeology*, for laymen (quarterlies); *Bulletin* (annual); *Newsletters*. President, Henry T. Rowell. Headquarters: 608 University of Cincinnati Library, Cincinnati 21, Ohio.

Art Institute of Chicago.—Established to maintain schools of art and design; to form and exhibit art collections; and to cultivate the arts of design. Membership: 17,105. Endowment: \$18,507,000. Publications: *Art Institute of Chicago Quarterly*; various catalogs. Six fellowships for foreign study are given annually to graduating students of the School of the Art Institute. The School of Drama in the Goodman Theatre and the Goodman Theatre's productions are under Institute jurisdiction. Exhibitions, 1955: *Great French Paintings*; in memory of Chauncey McCormick; *Masterpieces of Japanese Prints*; *Joseph Winterbotham Collection of European Paintings*; *Society for Contemporary American Art*: 15th annual exhibition; *Artists of Chicago and Vicinity*: 58th annual exhibition; *Art Institute School Students Show*; *French Drawings*. Acting president, Everett D. Graff; director, Daniel Catton Rich. Address: Adams and Michigan, Chicago 3, Ill.

Arthritis and Rheumatism Foundation.—Established in 1948, its purposes are: to formulate and carry out a national program of research and education in the rheumatic diseases to discover their causes and develop methods of prevention; to promote on the local level more effective methods of diagnosis, more facilities for treatment and training physicians in rheumatic disease; to provide systematic rehabilitation for the disabled. Membership: 43 local chapters. Publications: *Manual for Nurses*; *Arthritis and Related Disorders*; *Home Care in Rheumatoid Arthritis*; *Bulletin on Rheumatic Diseases*; *Manual for Arthritis Clinics*; *Primer on Rheumatic Diseases*. For laymen: *Arthritis*; *It's Women Three to One*; *The Farmer Suffers Most*; *10,104,000 Questions About Arthritis and Rheumatism*. President, Gen. George C. Kenney; exec. director, Thomas E. Freeman; medical dir., Dr. Russell L. Cecil. Headquarters: 23 West 45th St., New York 36, N.Y.

Association of American Colleges.—Organized in 1915 for the promotion of higher education in the colleges of liberal arts and sciences and for the prosecution of such plans as may make the member institutions more efficient. Membership: 714 colleges and universities. Publication: *Bulletin* (quarterly). President, Very Rev. Joseph R. N. Maxwell; exec. director, T. A. Distler. Headquarters: 726 Jackson Pl. NW, Washington 6, D.C.

Association of American Railroads.—Founded in 1934 as the organization of the principal railroads of the United States, Canada, and Mexico, for dealing with matters of common concern in the whole field of railroading. Membership: 131 railroad systems. President, W. T. Faricy; secretary-treasurer, G. M. Campbell. Headquarters: Transportation Building, Washington 6, D.C.

Association of Better Business Bureaus, Inc.—Organization which coordinates the Better Business Bureau movement, whose purpose is: to promote honesty and dependability in advertising and merchandising, and fair conditions in trade; to help the public buy wisely and gain the maximum of satisfaction in its dealings with business; through the handling of customer inquiries and complaints about companies, products, services and organizations; trade practice conferences and standards for advertising and selling; and information-education activities with business firms, groups and the public. Membership: 104 bureaus in the U.S. and Canada, supported by more than 70,000 business firms. President, Victor H. Nyborg. Headquarters: 405 Lexington Ave., New York 17, N.Y.

Association of Research Libraries.—Founded for the purpose of developing and increasing the resources and usefulness of research collections in American libraries. Membership: 45 organizations. Exec. secretary, Robert A. Miller. Headquarters: Indiana University Library, Bloomington, Ind.

Association of the Junior Leagues of America, Inc.—Founded in 1921 to unite all Junior Leagues of America and their members and to foster interest in the social, economic, educational, cultural, and civic conditions of their own communities and to make efficient their volunteer service. Membership: 66,000 in 183 member Leagues. President, Mrs. Robert L. Foote; administrator, Mrs. Margaret G. Twyman. Headquarters: The Waldorf-Astoria, New York 22, N.Y.

Benevolent and Protective Order of Elks.—Founded in 1868 to inculcate the principles of charity, justice,

brotherly love and fidelity; promote the welfare and happiness of its members; and quicken the spirit of patriotism. Membership: 1,500,000 in 1,744 subordinate lodges. Publication: *The Elks Magazine*. The 1955 convention was held in Philadelphia, Pa., July 4-8. Grand exalted ruler, John L. Walker, grand secretary, Lee A. Donaldson. Headquarters: 2750 Lake View Ave., Chicago 14, Ill.

B'nai B'rith.—Founded in New York in 1843 to unite and serve the Jewish people and humanity through cultural, social, civic, philanthropic, and patriotic activities. Membership: 360,000 in 35 countries. Agencies, departments and B'nai B'rith activities include Anti-Defamation League, Hillel Foundations, Youth Organization, Vocational Service Bureau, Americanism and Civic Affairs Department, Service Committee for Armed Forces and Veterans, Adult Jewish Education Committee, Women's Supreme Council, Israel Committee, and U.N. Liaison Office; 1,000 men's lodges, 600 women's chapters in U.S. and Canada; 135 lodges and chapters in 33 other countries. Publications: *The National Jewish Monthly*; *The Shofar* (youth monthly); *The Career News* (bi-monthly); *B'nai B'rith Women's World* (monthly). The next international convention is scheduled for 1956. President, Philip M. Klutznick; secretary, Maurice Bisgyer. Headquarters: 1003 K St. NW, Washington 1, D.C.

Boston Museum of Fine Arts.—Major exhibitions of 1955: Matisse Bronzes and Drawings; Sport in Art. Outstanding accessions in 1955: a Gustave Courbet painting, *The Forest Pool*; Italian Renaissance bronze relief attributed to Francesco di Giorgio; Chinese landscape by Wang Meng of the Yuan Dynasty; Etruscan bronze lion's head; life-size stone figure of St. Malo, French, early 13th century; tapestry of *Wild Men and Moors*, c. 1400, Upper Rhinish; sculptured *Death Triumphant*, c. 1560, from Lorraine; Strasbourg School *Bust of a Prophet*, c. 1490; Jacopo de' Barbari's *Large Bird's-eye View of Venice*, woodcut dated 1500; Flemish tapestry of *Allegorical Scenes from the New Testament*, Brussels, c. 1500. Publications: *Bulletin* (quarterly); *Handbook of the Museum*. Attendance (1954): 463,719. President, Ralph Lowell; director, Perry Townsend Rathbone. Address: 465-479 Huntington Ave., Boston 15, Mass.

Botanical Society of America, Inc.—Concerned with the scientific and educational advancement of botany, the society serves as a clearing house for American botanists in all matters of general botanical interest. Membership: 1,950. Publication: *The American Journal of Botany*. The 1955 annual meeting was held at E. Lansing, Mich., Sept. 6-10. President, Oswald Tippo; secretary, Harold C. Bold. Address: Box 1501, Vanderbilt University, Nashville 5, Tenn.

Boy Scouts of America.—Founded in 1910 to promote the ability of boys to do things for themselves and others; to train them in scoutcraft; and to teach them patriotism, courage, self-reliance, and kindred virtues. Membership (1955): 3,821,000 in 540 scout councils. Publications: Over 300 manuals and pamphlets including *Handbook for Boys*; *3 Cub Scout Books*; *Explorer Manual*; magazines, *Boys' Life* (for boys), *Scouting* (for leaders). President, John M. Schiff; chief scout exec., Arthur A. Schuck. Headquarters: New Brunswick, N.J.

Boys' Clubs of America.—Founded to promote the health, social, educational, vocational, and character development of boys throughout the United States. Publications include *Program Service*, *The Boys' Club Bulletin*, *The Boys' Club Newsletter*. Membership: 400,000 in 413 clubs. Chairman of the board, Herbert Hoover; president, Albert L. Cole; secretary, William Ziegler, Jr.; exec. director, David W. Armstrong. Headquarters: 381 Fourth Ave., New York 16, N.Y.

Brookings Institution.—Organized in 1927 to promote research and training in economics and government. Publications (1955): *Economics and Public Policy—Brookings Lectures*, 1954, A. Smithies and Others; *The United Nations and the Maintenance of International Peace and Security*, L. M. Goodrich and A. P. Simons; *Proposal for Changes in the U.N.*, F. Wilcox and C. Marcy; *Research Frontiers in Politics and Government—Brookings Lectures*, 1955, S. K. Bailey and Others. President, Robert D. Calkins; secretary, E. H. Wilson. Headquarters: 722 Jackson Pl. NW, Washington 6, D.C.

Buhl Foundation.—Established for the advancement of human welfare by support of experimental, demonstration, and research projects in natural and social sciences, education, and community planning in the Pittsburgh (Pa.) district. Endowment (1953): \$13,500,000. Director, Charles F. Lewis; secretary, J. G. Verwer, Jr. Headquarters: 2215 Farmers Bank Bldg., Pittsburgh 22, Pa.

California Academy of Sciences.—Established in 1853, the academy maintains Morrison Planetarium, the Science Museum, and Steinhart Aquarium. Its research facilities include collections in botany, entomology, herpetology, ichthyology, mammalogy, ornithology, paleontology, and a library of 100,000 volumes in the natural sciences. A staff of 40 engages in original research. Membership: 1,789. Publications: *Pacific Discovery* (bi-monthly); *Proceedings*; *News Letter*; occasional papers. Chairman, board of trustees, Charles Page; president of the academy, Ira L. Wiggins; director, Robert C. Miller. Address: Golden Gate Park, San Francisco 18, Calif.

Camp Fire Girls.—Founded in 1910 to provide a

leisure-time program of health and character-building activities for girls between the ages of 7 and 18, with emphasis on homemaking skills. Membership: 430,124. Publications: *The Camp Fire Girl* (monthly, September through June); *Horizon Club Program Book*; *Outdoor Book*; *Handbook for Guardians of Camp Fire Girls*; *The Blue Bird Book*; *Book of the Camp Fire Girls*. President, Mrs. Harold H. Hartman; national director, Miss Martha F. Allen. Headquarters: 16 East 48th St., New York 17, N.Y.

Canadian Association for Adult Education.—Organized to stimulate an interest in leisure time education; and to provide a national clearing house for publications, research, and experimentation on behalf of universities, departments of education, and all organizations interested in adult education. Membership: 1,019 persons; 115 organizations. Publications: *Food For Thought*, CAAE journal (8 issues yearly); *Adult Education in Canada*; *Culture in Canada*; *University Extension in Canada*; *Pioneers in Adult Education in Canada*; *Education in Canadian Institutions*; *Where—and Why?* (a study of the distribution of program materials); *Let's Tell People*; *Questions and Answers About Adult Education*; *Adult Education and The School*; *Program Guide*; and 11 booklets on Canadian adult education, the *Learning For Living* series. Two discussion-action projects—*Citizens' Forum* and *National Farm Radio Forum*—were carried on in conjunction with the Canadian Broadcasting Corp. Sponsors of the Canadian film and radio awards. President, W. R. Carroll; director, J. R. Kidd. Headquarters: 113 St. George St., Toronto 5, Ont.

Canadian Corps Association.—Incorporated to make Canada a working partner in the Commonwealth of Nations, and to further democracy at home. Membership: 15,000. Publication: *Torch* magazine. President, A. E. Lanning; treasurer, E. V. Heesaker; secretary, Miss S. Wood. Headquarters: 41 Isabella St., Toronto 5, Ont.

Canadian Institute of International Affairs.—Established to promote an understanding of world affairs through publications, discussion meetings with authorities, conferences, and use of the national library. Membership: 2,200 persons. Publications (1955): *International Journal* (quarterly); *Behind the Headlines* (series of pamphlets); *Tariff Procedures and Trade Barriers*. President, Edgar McInnis. Headquarters: 230 Bloor St. W., Toronto 5, Ont.

Canadian Library Association (Association Canadienne des Bibliothèques).—Formed in 1946 to stimulate and aid Canadian library service, promote high standards of librarianship, advance the welfare of librarians and library patrons, and cooperate with other organizations in furthering education, literature, science, and culture. Membership: 1,084 persons and 429 organizations. Publications (1955): *Canadian Index to Periodicals and Documentary Films* (annual bound cumulation and monthly service); *C.L.A. Bulletin* (bimonthly); *Canadian Library Directory*; *The Library Trustee*; *Conference Proceedings*. President, Willard E. Ireland; exec. secretary, Elizabeth Homer Morton. Headquarters: 46 Elgin St., Ottawa, Ont.

Canadian Medical Association.—Founded for the promotion of medicine and allied sciences, and the maintenance of the honor and the interests of the medical profession. Membership: approx. 10,500. Publication: *The Canadian Medical Association Journal*. President, Dr. T. C. Routley; general secretary, Dr. A. D. Kelly. Headquarters: 150 St. George St., Toronto 5, Ont.

CARE (Cooperative for American Remittances to Everywhere, Inc.).—A cooperative, non-profit overseas relief and rehabilitation agency, established in 1945 to channel aid of American individual citizens and civic groups to needy and underdeveloped areas of the free world, in form of standard food, clothing and tool packages, "self-help" implements and equipment, books, medical supplies, etc. Collaborates closely with 25 member agencies and other groups in overseas aid programs. By end of September of 1955, CARE had delivered over 15 million packages, valued at more than \$175,000,000 in some 30 countries in Europe, Asia, Africa and Latin America. President, Murray D. Lincoln; exec. director, Richard W. Reuter. Headquarters: 660 First Ave., New York 16, N.Y.

Carnegie Corporation of New York.—Established in 1911 for the advancement and diffusion of knowledge and understanding among the people of the United States and the British dominions and colonies. Assets: \$174,000,000. Publications: *Annual and quarterly Reports*. President, John W. Gardner; secretary, Florence Anderson. Headquarters: 589 Fifth Ave., New York 17, N.Y.

Carnegie Endowment for International Peace.—Established in 1910 by Andrew Carnegie to promote international peace. Objectives: to increase knowledge and understanding of the basic factors in international relations, to encourage mutual understanding among the peoples of the world, and to further the development of organizations and measures likely to lead to orderly international cooperation based on peace and justice. Current programs include: conferences, lectures, exhibits, and other activities at the new Carnegie Endowment International Center; a study of national policies and attitudes toward the United Nations carried out in over 20 countries; encouragement of the role of universities in world

affairs; and publications dealing primarily with problems of international organization. Current assets: \$16,336,414.84. Periodical: *International Conciliation* (5 issues yearly). Chairman of the board, Harvey H. Bundy; president, Joseph E. Johnson; secretary, Leslie Paffrath. Headquarters: United Nations Plaza at 46th St., New York 17, N.Y. European Center: 172 Route de Ferney, Grand Saconnex, Geneva, Switzerland.

Carnegie Foundation for the Advancement of Teaching.—Founded to conduct educational studies in the field of higher education and to make payment of retiring allowances and widows' pensions to officers and teachers in specified North American higher educational institutions. Membership: 25 trustees. Assets: \$11,837,232. The annual meeting is held in November in New York City. President, John W. Gardner; secretary, James A. Perkins. Headquarters: 589 Fifth Ave., New York 17, N.Y.

Carnegie Hero Fund Commission.—Established in 1904 by Andrew Carnegie for the purpose of rewarding acts of heroism in civil life through medals and pecuniary grants. Endowment: \$5,000,000. Members of the Commission, never exceeding 21 in number, hold their annual meeting the 4th Wednesday in January. In the 12 months ending Jan. 31, 1955, 63 awards were made. President, Thomas S. Arbuthnot; manager and ass't secretary, M. H. Floto. Address: Oliver Bldg., Pittsburgh 22, Pa.

Carnegie Institute, Pittsburgh, Pa.—Founded and endowed by Andrew Carnegie in 1896, it houses under one roof the Carnegie Library, the Department of Fine Arts, the Carnegie Museum, and the Carnegie Music Hall. Endowment: \$8,000,000. Publications: *Carnegie Magazine*; various bulletins. President, James M. Bovard; vice president, Roy A. Hunt; treasurer, Thomas L. Orr; secretary, William P. Witherow. Address: 4400 Forbes St., Pittsburgh 13, Pa.

Carnegie Institution of Washington.—Founded to encourage investigation, research, discovery, and the application of knowledge to the improvement of mankind. Endowment: \$32,000,000. Integrated programs of fundamental scientific research in astronomy, terrestrial sciences, biological sciences, and archaeology are carried on in the institution's 7 departments. President, Caryl P. Haskins; executive officer, Paul A. Scherer. Address: 1530 P St. NW, Washington 5, D.C.

Catholic Community Service, National. See under *National*.

Catholic Library Association.—Founded to initiate and encourage activities that will promote Catholic library work. Membership: 2,184. President, Rev. A. Homer Mattlin, S.J.; exec. secretary, Rev. Vincent T. Mallon. Publications: *Catholic Library World*; *Catholic Periodical Index*. Headquarters: Maryknoll Seminary, Glen Ellyn, Ill.

Catholic Rural Life Conference, National. See under *National*.

Catholic Welfare Conference, National. See under *National*.

Chamber of Commerce of the United States.—A national business federation working to preserve and promote representative democracy; to promote good citizenship, good government, and good business; and to preserve the right of the individual to earn a profit, and to acquire and to hold property. Membership: 3,100 organizations representing 1,700,000 businessmen; 21,000 business firms and individuals. Publications: *Nation's Business* (monthly); *Legislative Outlook* (biweekly); *Washington Report* (weekly); *Legislative Daily*; *American Economic Security* (6 issues a yr.); *Newsletters*. The 1955 annual meeting was held in Washington, D.C., April 27-30. President, Boyd Campbell, exec. vice president, Arch N. Booth. Headquarters: 1615 H St. NW., Washington 6, D.C.

Chicago Natural History Museum (formerly FIELD MUSEUM OF NATURAL HISTORY).—All departments of the museum—anthropology, botany, geology, and zoology—benefited in 1955 from collecting and research in both the Americas, and in Asia and Africa. The largest field operation was the Southwest Archaeological Expedition which excavated sites of ancient Mogollon culture in New Mexico and Arizona. This was the 21st year in which Dr. Paul S. Martin and his associates worked at the reconstruction of some 4,000 years of the history of a previously unknown American Indian people. Dr. Julian A. Steyermark, curator of the phanerogamic herbarium, and Dr. John J. Wurdack, of the N.Y. Botanical Garden, made a joint expedition to the "lost world" area of Venezuela. Dr. Sharat K. Roy conducted a geological expedition to El Salvador, Costa Rica, and Nicaragua to collect volcanic specimens and study volcanoes. Loren P. Woods collected marine fishes in the Acapulco region of Mexico and in the Gulf of Tehuantepec. A botanical expedition, headed by Dr. Margery C. Carlson, collected plants in Mexico, El Salvador, and Honduras. Other field work included: collecting on the Pacific Coast of material for the hall of American woods; collecting insects in Georgia and Florida; bird collecting in Nepal; zoological collecting in the Philippines, Peru, and Portuguese West Africa; and collecting reptiles and amphibians in New Mexico and Arizona. Dr. Karl P. Schmidt, herpetologist, and chief curator of zoology since 1941, retired in July after 33 years on the staff and was succeeded by Dr.

Austin L. Rand. A new hall with improved physical geology exhibits was opened in October. In addition to monographic displays, it spotlights with spectacular dioramas such earth features as glaciation, volcanism, solvent action of ground waters, and stream erosion. Three new dioramas were added illustrating facets of the lives of prehistoric Southwest Indians. In all departments, exhibits and specimen collections were expanded. An important museum publication was the translation by Dr. I. J. Gelb of the texts of a large collection of ancient Babylonian cuneiform tablets in the oldest Akkadian dialect, dating back more than 4,000 years. There was an increasingly effective extension work in the schools by the Harris Extension which circulates traveling miniature exhibits, and the Raymond Foundation which sends lecturers and films to the schools, as well as providing programs for children in the museum. Attendance (1954): 1,142,200. Director, Clifford C. Gregg. Address: Roosevelt Rd. and Lake Shore Dr., Chicago 5, Ill.

Christian Endeavor, International Society of. See under *International*.

Civitan International.—A service organization devoted to the promotion of good citizenship. Each individual club selects activities best suited to the needs of its respective community. Membership: 20,000 persons in 504 clubs in the United States and Canada. Publications: *The Civitan* (monthly); various booklets and pamphlets. Activities in 1955: Presentation of citizenship awards; rehabilitation project for physically handicapped; safety program and work with youth through Junior Civitan Clubs, scouting, Y.M.C.A., and boys and girls clubs. President, R. Clarence Williams; secretary, Rudolph T. Hubbard. Headquarters: 1523-28 Comer Bldg., Birmingham, 3, Ala.

Cloisters, The.—See below, *Metropolitan Museum of Art*.

Committee for Economic Development.—Founded in 1942, CED is a non-profit, non-political organization of 150 businessmen and educators, formed to study and report on national economic problems. Its Research and Policy Committee issues Statements on National Policy containing recommendations which, in the Committee's judgment, will contribute to maintaining high and productive employment and a rising standard of living. Chairman of the board, Meyer Kestbaum; exec. director, W. F. Rennie. Headquarters: 444 Madison Ave., New York 22, N.Y.

Commonwealth Fund, The.—Established in 1918 by Mrs. Stephen V. Harkness "to do something for the welfare of mankind." Having been increased by bequests from Edward S. Harkness and Mrs. Edward S. Harkness, the fund amounted to approximately \$85,500,000 at the end of the fiscal year 1954-55. Appropriations for that year were \$3,469,972.94. The major concern of the Fund at present is helping medical schools to reorient medical education to the student, and medical care to the patient, by better integration and increased attention to the relation between the patient and his environment. Grants for medical education, including fellowships and planning in the health field, amounted to \$2,370,721.25; for experimental health services, \$137,750.00; and for medical research, \$887,926.04. During the academic year 1955-56, fifty-seven Commonwealth Fund Fellows are in residence in the United States. Forty-three hold fellowships for scholars, journalists, and civil servants from Great Britain and other parts of the British Commonwealth, and fourteen hold fellowships for scholars from western countries on the European continent. The Fund publishes an annual report in November. President, Malcolm P. Aldrich. Headquarters: 1 East 75th St., New York 21, N.Y.

Community Chests and Councils of America, Inc.—The national association of local Community Chests, United Funds and Welfare Councils, organized in 1918 to advance the cause of united social planning and federated financing in local communities; to be a clearing house of ideas and information for its local members; and to provide advisory service in the fields of health and welfare planning, campaigns, public relations, statistics, personnel, labor-employer participation, and volunteer leadership. Membership (1955): 1,737 chests, united funds, councils and state affiliates. Publications: *Community* magazine, various bulletins, studies and manuals. A National Budget Committee reviews budgets of national agencies requesting such services and makes recommendations to local Chests. In 1955 Chests and United Funds raised \$302,025,059 for the support of voluntary health and welfare services. National conferences are held biennially. President, Albert J. Nesbitt; secretary, Foster W. Doty. Headquarters: 345 East 46th St., New York 17, N.Y.

Congress of Industrial Organizations.—See separate article under its own heading.

Consumers' Research.—Incorporated in 1929, as a nonprofit organization to make tests, collect, compile, and edit reports and findings on a wide range of consumers' goods for its consumer-subscribers. Products are rated by brand names as "A. Recommended," "B. Intermediate," or "C. Not Recommended," on the basis of test findings. Publications include the *Consumers' Research Bulletin* (monthly) and the *Annual Cumulative Bulletin*. Presi-

dent and technical director, F. J. Schlink; secretary, Clark C. Willever. Office and laboratory: Consumers Rd., Washington, N.J.

Daughters of Isabella.—An organization to unite all Catholic women for mutual assistance in times of need and to promote their religious, social, and intellectual growth. Membership: 113,000. President, Mrs. Helen T. Howard; secretary, Mary F. Riley. Headquarters: 375 Whitney Ave., New Haven, Conn.

Daughters of the American Revolution (National Society).—Founded in 1890 for historical, patriotic, and educational purposes. Functioning through 24 national committees, the society: owns and operates two schools in the Southern mountains; gives financial assistance to 11 approved schools; aids American Indians through financial support to St. Mary's and Bacon colleges; conducts D.A.R. Good Citizens contest for senior high school girls; administers student loan funds; forms and operates Junior American Citizens Clubs; maintains a genealogical library and a museum of Americana. Membership: 180,572 in 2,784 chapters. Publications: *Daughters of the American Revolution Magazine*; *Press Relations Digest*; *D.A.R. Manual for Citizenship*. Annual conventions are held in Washington, D.C., in April. President general, Miss Gertrude S. Carraway. Headquarters: 1776 D St. NW, Washington 6, D.C.

Duke Endowment.—Established in 1924 by James B. Duke "to make provision in some measure for the needs of mankind along physical, mental and spiritual lines." Beneficiaries include Duke University and other educational institutions, hospitals, orphanages, rural churches, and superannuated Methodist preachers. Through Dec. 31, 1954, a total of \$114,822,345.75 was distributed. Chairman, George G. Allen; secretary, Philip B. Heart. Offices: Power Building, Charlotte 1, N.C.; 30 Rockefeller Plaza, New York 20, N.Y.

Economic Mobilization National Council, Inc.—Originally established as the National Economic Mobilization Council and incorporated under the new title. The council is established for the purpose of promoting the preservation of national security through the dissemination and mutual exchange of economic mobilization information between business executives, educators, civic leaders, and the appropriate federal agencies, to the end that responsibilities during national emergencies are clearly established. Liaison is maintained with the Dept. of Defense through the Industrial College of the U.S. Armed Forces. President, Maj. Gen. Robert E. Condon; treasurer, Frank A. Vanderlip, Jr.; exec. secretary, Lloyd W. Stearns. Headquarters: 52 Wall St., New York 5, N.Y.

Educational Film Library Association.—Founded to promote the production, distribution, and utilization of films for education, both on the school and college level and for adult and general use. EFLA evaluates films; acts as an information center; publishes booklets on the use of films, selected film lists, and issues a monthly *Bulletin* with news of the audiovisual field. Membership: 70 personal, 550 service and constituent members. President, Garret R. Weathers; exec. secretary, Emily S. Jones. Headquarters: 345 East 46th St., New York 17, N.Y.

Elks, Benevolent and Protective Order of. See under *Benevolent*.

English-Speaking Union of the United States.—Organized to draw together in the bond of comradeship the English-speaking peoples of the world. Membership: 23,000 in 64 branches. Publication: *E.-S.U. News*. President, William V. Griffin. Headquarters: 19 East 54th St., New York 22, N.Y.

Falk Foundation, The Maurice and Laura.—Established in 1929, it devotes its activities principally to financing research studies of economic problems affecting the operation and development of the domestic economy of the United States and to financing programs and projects to further the efforts of American colleges and universities to prepare their students for a vocational participation in party politics as a responsibility of American citizenship. A few out-of-program grants are made to Pittsburgh medical and social welfare activities. Endowment (market value, Dec. 31, 1954): \$14,200,792.75. Grants voted in 1955 included allotments to various colleges and universities in support of programs to promote college training for citizen participation in politics, and an allotment to the Brookings Institution in support of a research study of the impact of union policies upon industrial management. Appropriations outside the Foundation's major fields of interest included allotments to the Pittsburgh Child Guidance Center; to the Carnegie Institute, Pittsburgh; and to the Community Chest of Allegheny County. Publications (1955) included the *First Annual Report—1954 of the Falk Project for Economic Research in Israel*. Executive director, J. Steele Gow; secretary, E. B. Strassburger. Headquarters: Farmers Bank Building, Pittsburgh 22, Pa.

Family Service Association of America.—A voluntary federation made up chiefly of Community Chest-supported family casework agencies seeking the further development of healthful and stable family life and providing direct assistance to people with personal or family problems. Through the association, agencies exchange information regarding professional practice, agency administration, community organizations, etc. Membership: 263

member and pre-member affiliate agencies, Publications: *Social Casework and Family Service Highlights* (monthly); numerous pamphlets dealing with family social work. General director, Clark W. Blackburn. Headquarters: 192 Lexington Ave., New York 16, N.Y.

Ford Foundation.—Established in 1936 "to receive and administer funds for scientific, educational and charitable purposes, all for the public welfare." Endowment (1954): \$493,213,842. Publications: *Annual Report*; various program announcements. During 1955 the Foundation made grants to support programs in education, public affairs, international understanding, economic development and administration, and the behavioral sciences. President, H. Rowan Gaither, Jr.; secretary, Joseph M. McDaniel, Jr. Headquarters: 477 Madison Ave., New York 22, N.Y.

Foreign Policy Association.—Founded in 1918, to carry on educational activities to aid in the understanding and constructive development of American foreign policy. Membership: approx. 60,000 in over 60 cooperating community organizations. Publications include *Foreign Policy Bulletin*; *Headline Series*. President, John W. Nason; vice pres., A. W. Allport. National office: 345 East 46th St., New York 17, N.Y.

Four-H Clubs.—A part of the system of cooperative extension work in agriculture and home economics, established on a national basis in 1914, and carried on jointly by the U.S. Department of Agriculture, state colleges of agriculture, and local county governments. 4-H Club work, emphasizing head, heart, hands, and health, is a specialized educational enterprise for rural young people, 10 to 21 years of age, who may become members of local 4-H Clubs, organized under the supervision of county extension agents and local volunteer leaders. Enrollment: 2,104,787. The National 4-H Club Camp is held annually in June in Washington, D.C.; the National 4-H Club Congress, in December in Chicago, Ill. Administrator, C. M. Ferguson, Federal Extension Service, U.S. Department of Agriculture, Washington 25, D.C.

Franklin Institute.—Dedicated to the promotion of the mechanic arts and the dissemination of scientific knowledge, the nonprofit, private institute is designed to be a permanent memorial to Benjamin Franklin. Membership: 6,900. Publication: *Journal*; *Institute News*. The institute is presently concerned with the Benjamin Franklin Memorial, a science museum; Fels Planetarium; and four research laboratories engaged in work for private industry and the government. President, S. Wyman Rolph; exec. vice president, Henry B. Allen. Headquarters: 20th St. and Benjamin Franklin Pkwy., Philadelphia 3, Pa.

Freemasonry, Northern Jurisdiction, Supreme Council, 33°, Ancient and Accepted Scottish Rite of.—Organized in 1813 for fraternal, benevolent, religious, scientific, and educational purposes. Membership: 448,305 persons in 113 lodges in 15 states. Publications: *News-Letter* (monthly); special reports; occasional books. Council activities include subsidizing research in dementia praecox, and financing journalism scholarships at Boston University. Sovereign grand commander, George E. Bushnell; grand secretary, F. Elmer Raschig. Headquarters: 1117 Statler Bldg., Boston 16, Mass.

Freemasonry, Southern Jurisdiction, Supreme Council, 33°, Ancient and Accepted Scottish Rite of.—Organized in 1801 for fraternal and benevolent purposes. Membership: 420,000. Publications: *The New Age and Scottish Rite News Bulletin* (monthly); various books and pamphlets. The Supreme Council meets biennially in October; the last meeting was in 1955. The Council's activities include maintenance of a free public library. Grand commander, Thomas J. Harkins; grand secretary-general, Dr. Claud F. Young. Headquarters: House of the Temple, 1733 16th St. NW, Washington 9, D.C.

Future Farmers of America.—An organization for boys founded in 1928 for the development of rural and agricultural leadership, cooperation, and citizenship. Membership: 383,219 in 50 state and territorial associations. Publications: *Proceedings* of national conventions; *The National Future Farmer* (quarterly). Conventions are held annually at Kansas City, Mo., at the time of the American Royal Livestock Show—1955 meeting, October 10-13. President, William D. Gunter, Jr.; exec. secretary, Dr. A. W. Tenney. Headquarters: Office of Education, Dept. of Health, Education & Welfare, Washington 25, D.C.

Garden Club of America.—Established to stimulate the knowledge and love of gardening among amateurs; to aid in the conservation of natural resources and in the protection of native plants and birds; and to encourage civic planting. Membership: approx. 10,000. Publication: *Bulletin* (bimonthly). The 1956 annual meeting will take place at Colorado Springs, Colo., April 16-19. President, Mrs. Fernando Reid, Jr.; corresponding secretary, Mrs. Charles D. Webster. Headquarters: 15 East 58th St., New York 22, N.Y.

General Federation of Women's Clubs.—Organized to unite women's clubs and like organizations throughout the world for the promotion of education, philanthropy, public welfare, moral values, civics and fine arts. Membership: approx. 11,000,000 in 15,000 state, national, and international clubs and affiliated groups. Publica-

tion: *General Federation Clubwoman*. Activities in 1954-55 included: a campaign for better comics; ridding newsstands of salacious and obscene magazines; eliminating violence, crime and drinking in motion pictures, television and radio; continued efforts to prevent juvenile delinquency; a Community Achievement Contest with prizes totalling \$60,000. The annual convention was held in Philadelphia, Pa., May 24-30, 1955. President, Mrs. Theodore S. Chapman; exec. director, Mrs. Stephen J. Nicholas. Headquarters: 1734 N St. NW, Washington 6, D.C.

Geological Society of America.—Founded in 1888 for the advancement in North America of the science of geology. Membership: 3,948. Endowment: \$4,500,000. Publications: *Bulletin* (monthly); *Proceedings* (annual); *Bibliography of Geology Exclusive of North America* (annual); memoirs, special papers. President, Walter H. Bucher; secretary, H. R. Aldrich. Headquarters: 419 West 117th St., New York 27, N.Y.

Georgia Warm Springs Foundation.—Founded in 1927, it is a nonprofit medical institution for the study and treatment of the after-effects of infantile paralysis. Publications: *Annual Report*; *The Story of the Georgia Warm Springs Foundation*. President, Basil O'Connor; exec. vice president, Henry K. Urien; secretary, William F. Snyder. Headquarters: 120 Broadway, New York 5, N.Y.

Gideons International.—Established to win men and women for the Lord Jesus Christ, through the association of Christian businessmen for service; personal testimony and personal work by individual Gideons; placing the Bible or portions thereof in hotels, hospitals, schools, institutions, and also through the distribution of same for personal use. Membership: 16,000 persons; 785 local associations in U.S. Publication: *The Gideon* (monthly). The Gideons have distributed over 30,000,000 Bibles and Testaments in the United States, Canada, and 71 foreign countries. The 1956 convention is scheduled for July 18-23, at Atlanta, Ga. President, R. R. Lindsey; secretary, W. W. Gothard. Headquarters: 212 E. Superior St., Chicago 11, Ill.

Girl Scouts of the U.S.A.—Chartered by Congress, 1950. Founded in 1912 by Juliette Gordon Low to help girls develop as happy, resourceful individuals willing to share their abilities as citizens in their homes, their communities and the world. One of 35 national organizations comprising the World Association of Girl Guides and Girl Scouts. Program is scaled to three age groups: Brownie Scouts, 7-9; Intermediate Girl Scouts, 10-13; Senior Scouts, 14-17. Membership (1955): 2,580,000. Publications include: *Brownie Scout Handbook*; *Girl Scout Handbook*; *Senior Girl Scouting*; magazines, *The Girl Scout Leader* and *The American Girl*. In 1955, the Girl Scouts began restoration of the birthplace and childhood home of Juliette Gordon Low in Savannah, Ga., as a national Girl Scout center. During the summer of 1955 more than 1,100 teen-age Senior Girl Scouts participated in special regional primitive encampments in preparation for the Girl Scout Senior Roundup to be held in Pontiac, Mich., June 29-July 11, 1956. Under the 1955 Girl Scout international exchange program, 30 U.S. Girl Scouts visited Girl Guides in other countries, and 40 Girl Guides from abroad came to the United States. These exchanges were with Australia, Canada, Chile, Finland, France, Germany, Great Britain, Greece, New Zealand, Peru, and Sweden. An additional 39 U.S. Girl Scouts attended Girl Guide international camps or conferences in Canada, Italy, Norway, Sweden, and Switzerland. Honorary president, Mrs. Dwight D. Eisenhower; national president, Mrs. Roy F. Layton; secretary, Mrs. Charles H. Ridder; national exec. director, Miss Dorothy C. Stratton. Headquarters: 155 East 44th St., New York 17, N.Y.

Good Templars, International Order of. See under *International*.

Grange, National. See under *National*.

Guggenheim Memorial Foundation, John Simon.—Established to promote the advancement and diffusion of knowledge and the appreciation of beauty, by offering Fellowships to further the development of scholars and artists by assisting them to engage in research in any field of knowledge and artistic creation in any of the fine arts, including music. Fellowships are available to citizens of the United States, Canada, all the Latin American republics, the Philippines, and the British Caribbean. Membership: 9. Endowment: \$43,519,000. The foundation awarded 258 fellowships in 1955. President, Mrs. Simon Guggenheim; secretary general, Henry Allen Moe. Headquarters: 551 Fifth Ave., New York 17, N.Y.

Hispanic Society of America.—Founded in 1904 to establish a free public library and museum for the presentation of Hispanic culture from prehistoric times to the present. The collection includes paintings, sculpture, and examples of the various decorative arts, as well as a notable library of more than 100,000 volumes. Publications include many studies of the museum and library collections. In 1954, on the 50th anniversary of the founding, a history of the Society was issued. Membership: limited to 100 members and 300 corresponding members, all distinguished in the field of Hispanic studies. President (and

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founder), Archer M. Huntington; secretary, Charles Eldredge. Address: Broadway, between 155th and 156th Sts., New York 32, N.Y.

Holy Name Society.—A religious organization founded in Rome, Italy, for the purpose of fostering personal sanctification and public honoring of the name of God; and to suppress all unnecessary oaths, blasphemy, perjury, and indecent speech. Membership: approx. 4,000,000. Publications: *Holy Name Journal* (monthly); various pamphlets. Director, Very Rev. H. C. Graham. Headquarters: 141 East 65th St., New York 21, N.Y.

Industrial Hygiene Foundation of America, Inc.—A nonprofit research and service organization for the advancement of healthful working conditions in industry, the preservation of human resources, and the solution of specific problems relating to these areas. Membership: 365 companies. Publications: *Industrial Hygiene Digest* (monthly); transactions of annual meeting and technical conferences; special bulletins; technical papers by staff members. Board chairman, Andrew Fletcher; managing director, C. Richard Walmer, M.D. Headquarters: Mellon Institute, 4400 Fifth Ave., Pittsburgh 13, Pa.

Industrial Research Institute.—Founded in 1938 under the auspices of the National Research Council; incorporated in 1945 as a nonprofit membership corporation to promote more effective techniques of industrial research management for the benefit of member corporations, science, industry, and the public. Membership: 139 companies. President, E. D. Reeves; secretary, C. G. Worthington. Headquarters: 100 Park Ave., New York 17, N.Y.

Institute for Advanced Study.—Founded in 1930 by Mr. Louis Bamberger and Mrs. Felix Fuld. An institute for post-doctoral research, providing facilities for advanced study to a limited number of scholars in the fields of mathematics, mathematical physics, and historical studies. Membership is by special appointment; a Ph.D. degree is required. Permanent members: approx. 30. Temporary members: approx. 100. Director, Robert Oppenheimer; librarian, Judith E. Sachs. Trustee Officers: Chairman of the Board, Herbert H. Maass; president of the corporation, Lewis L. Strauss; treasurer, Samuel D. Leidesdorf. Headquarters: Princeton, N.J.

International College of Surgeons.—Founded in 1935 as a worldwide institution for teaching and advancing the art and science of surgery. Membership: approx. 11,000. Publication: *The Journal of the International College of Surgeons* (monthly). In 1955, the 20th anniversary meeting was held at Geneva, Switzerland, May 23–26. The annual congress of the U.S. and Canadian sections was held at Philadelphia, Pa., Sept. 12–15. President, Dr. Rudolph Nissen; secretary, Dr. Max Thorek. Headquarters: 1516 Lake Shore Dr., Chicago 10, Ill.

International Confederation of Free Trade Unions.—See separate article under its own heading.

International Federation of Catholic Alumnae.—Formed to bring into communication the alumnae associations of Catholic high schools, colleges, and universities in order to uphold the ideals of Catholic womanhood and extend Catholic education, literature, and social service. Membership: approx. 500,000 in 565 organizations. Publication: *Catholic Alumnae Quarterly*. President, Mrs. Ernest P. Tibbitts; exec. secretary, Mrs. Marguerite E. Barry. Headquarters: 22 East 38th St., New York 16, N.Y.

International Labor Organization.—See separate article under its own heading.

International Order of Good Templars.—Dedicated to the liberation and protection of humanity from the destructive influence of intoxicants. Membership: 262,688. International chief templar, Ruben Wagnsson, Kalmar, Sweden; international secretary, C. G. Peet, Farnham-Surrey, England; national secretary, Mrs. Martha V. Palmgren. Headquarters: 2832 Zulette Ave., Bronx 61, N.Y.

International Political Science Association.—See article, POLITICAL SCIENCE.

International Society of Christian Endeavor.—Founded in 1885 as a youth society in Protestant churches to aid in spiritual life and leadership growth. The program is interdenominational, interracial, and international. Membership: 1,000,000 in 20,000 organizations. Publication: *Christian Endeavor World*. President, Rev. Earle W. Gates; general secretary, Dr. Gene Stone. Headquarters: 1221 E. Broad St., Columbus 16, Ohio.

International Sociological Association.—See article, SOCIOLOGY.

Jewish Welfare Board, National.—See under National.

Juilliard Musical Foundation.—Incorporated in 1920 by Augustus D. Juilliard to further music in America, its chief object is maintenance of the Juilliard School of Music. Endowment: approx. \$12,000,000. President, John W. Drye, Jr., secretary, M. Steilen. Headquarters: 149 Broadway, New York 6, N.Y.

Junior Chamber of Commerce, United States. See under United.

Junior Leagues of America, Inc., Association of. See under Association.

Kellogg Foundation, W. K.—Founded in 1930 to re-

ceive and administer funds for educational and charitable purposes. Capital assets (market value Aug. 31, 1955): \$124,257,200. In 1954, the Foundation conducted extensive health and education programs by making grants in support of agriculture, medicine, education, dentistry, nursing, public health and hospital administration. President, Emory W. Morris; secretary, Leonard L. White. Headquarters: Battle Creek, Mich.

Kiwanis International.—A community service organization founded in 1915 for business and professional leaders and designed to strengthen the free enterprise system; mold sound public opinion; aid and counsel youth; and develop the church, home, and school as bulwarks of democracy. Membership: 241,000 in 4,100 clubs throughout the United States and Canada. Publications: *The Kiwanis Magazine*; *Annual Convention Proceedings*; and *The Keynote*, official publication of 1,300 Kiwanis-sponsored Key Clubs with a membership of 30,000 high school boys. Activities in 1955 included celebration of the 40th anniversary year with a "Pledge of Rededication" made to the President of the United States; a Kiwanis Congressional Dinner honoring the 100 Kiwanians in the U.S. House and Senate; the promotion of Kids' Day to raise funds for needy children; the coordination of the first annual Farm-City Week, a promotion backed by 150 farm, civic, governmental, educational and industrial organizations. President, J. A. Raney; secretary, O. E. Peterson. General Office: 520 N. Michigan Ave., Chicago 11, Ill.

Knights of Columbus.—A Catholic society formed to render pecuniary aid to its members and their beneficiaries; to assist its sick, disabled, and needy; to promote social and educational intercourse among members; and to conduct educational, charitable, religious, social welfare, and war relief activities. Membership (1955): 961,030. Publication: *Columbia* (monthly). In 1955, a campaign was conducted by placing advertisements dealing with various phases of Catholic belief and practice in publications of nationwide circulation. An educational trust fund of \$1,000,000 is administered to provide 4-year scholarships in a Catholic college of their choice for children of members killed in World War II. Supreme knight, Luke E. Hart; supreme secretary, Joseph F. Lamb. Headquarters: 71 Meadow St., New Haven 7, Conn.

Knights of Pythias.—A social and fraternal organization founded in 1864, with the basic principles of friendship, charity, and benevolence. Membership: 300,000. Publication: *Pythian Khorassan Herald*. Supreme chancellor, Peter S. Ford; supreme secretary, Melvin M. Ewen. Headquarters: 2934 Vernon Pl., Cincinnati, Ohio.

League of Women Voters of the U.S.—To promote the responsible participation of citizens in government. Membership: 127,000 in 985 local organizations. Publications: *The National Voter* (16 issues yearly); various pamphlets. President, Mrs. John G. Lee; secretary, Mrs. Werner J. Blanchard. Headquarters: 1026 17th St. NW, Washington 6, D.C.

Lions International.—Founded in 1917 as nonpolitical, nonsectarian civic organizations for business and professional men interested in the development of their communities. Activities are grouped under the headings: agriculture; boys and girls; citizenship and patriotism; civic improvements; community betterment; education; health and welfare; safety; sight conservation and the blind; United Nations. Membership: 523,000 in 11,800 clubs in 70 countries. Publications: *The Lion* (monthly); *El Leon* (Spanish edition). President, Humberto Valenzuela G.; director-general, R. Roy Keaton; secretary, William R. Bird. Headquarters: 209 N. Michigan Ave., Chicago 1, Ill.

Loyal Order of Moose.—Founded in 1888 and operating in the United States and possessions, Canada, and the British Isles, its membership is restricted to the white race. It operates at Mooseheart, Ill., a school and home for boys and girls, and at Moosehaven, Orange Park, Fla., a home for dependent aged members and their wives or widows. Membership: 1,065,811 in 3,146 units, including women's auxiliary. Publication: *Moose Magazine*. Director general, Paul P. Schmitz; supreme secretary, George Eubank. Headquarters: Mooseheart, Ill.

Magazine Publishers Association, Inc.—Organized to serve the industry in the solution of business problems encountered by publishers of all types of magazines. Membership: 116 publishers of 396 magazines. Publications: *Annual Report*; special trade reports. President, Arch Crawford; secretary, Ford Stewart. Headquarters: 232 Madison Ave., New York 16, N.Y.

Markle Foundation, John and Mary R.—Established in 1927, it now makes grants chiefly to medical schools and other scientific institutions in support of medical science in the United States and Canada. Endowment: approx. \$16,484,000. Publications: *Annual Report*; *Purposes and Program of the John and Mary R. Markle Foundation*; *Charter and Constitution and By-Laws*; *Grants for Scholars in Medical Science*. During 1947 the foundation inaugurated a program to keep talented young scientists in academic medicine. Over 158 scholars have received appointments, and grants totaling \$30,000 each, payable at the rate of \$6,000 annually, have been made for their support to the medical schools where they are faculty members. President, George Whitney; vice presi-

dent and exec. director, John M. Russell; secretary, Dorothy Rowden. Headquarters: 511 Fifth Ave., New York 17, N.Y.

Masons. See above, *Freemasonry*.

Mellon Institute.—See separate article under its own heading.

Methodist Youth Fellowship.—Founded to deepen Christian faith and build Christian character; provide young people with a chance for self-expression; train leaders; develop friendships; promote church welfare; and help build a Christian social order. Membership: 1,291,959. Publication: *The Handbook of The Methodist Youth Fellowship*. Director, Harold W. Ewing. Headquarters: Box 871, Nashville 2, Tenn.

Metropolitan Museum of Art.—Founded in 1870, the Museum houses the most extensive art collection in the Western Hemisphere, covering 5,000 years and representing the culture of the ancient world, the Near East and Far East, as well as the arts of Europe and America.

Highlights of the 1955 exhibition schedule were: *Goya: Drawings and Prints*, lent by the Prado and the Lazaro Galdiano museums in Madrid and The National Gallery in Washington, and supplemented with items from the Metropolitan and other American collections; *The Comédie Française and the Theater in France*, costumes and paintings selected from the Comédie Française collection in Paris, augmented by Museum paintings and prints; *Art of the Hebrew Tradition*, commemorating the American-Jewish Tercentenary, arranged by The Jewish Museum of the Jewish Theological Seminary of America; *Persian and Assyrian Art*, antiquities from the Museum's collection, most of them from excavations at Nimrud in Assyria and two important Persian sites; *Word Becomes Image*, great texts as visualized by artists through the ages in prints and drawings; *John Taylor Arms Memorial Collection*, 212 prints by contemporary American artists, gift of The Society of American Graphic Artists; *Islamic and Indian Miniature Painting*.

The Cloisters in Fort Tryon Park is a branch of the Metropolitan Museum devoted to medieval art. The building includes five cloisters reconstructed with original elements of Romanesque and Gothic architecture and a complete Chapter House of the 12th century. In this setting are exhibited fine examples of sculpture, painting, stained glass, metalwork, and furniture of the Middle Ages. Outstanding are the major part of a set of three 14th century tapestries depicting the Nine Heroes and the 15th to 16th century tapestries representing the Hunt of the Unicorn. Displayed in the Treasury are about 200 objects of medieval art, including the Chalice of Antioch, earliest-known Christian chalice. During 1955 the Cloisters held a special exhibition of *Spanish Medieval Art*, presenting objects dating from the Visigothic period to the year 1400.

Attendance at the Metropolitan Museum and the Cloisters (1954) totaled 2,834,274 (Jan.-June 1955, 1,413,445). Publication: *The Metropolitan Museum of Art Bulletin* (10 issues yearly). President, Roland L. Redmond; director, James J. Rorimer; secretary, Dudley T. Easby, Jr. Address: 5th Ave. at 82d St., New York 28, N.Y.

Milbank Memorial Fund.—Incorporated in 1905 to "improve the physical, mental and moral condition of humanity and generally to advance charitable and benevolent objects," the Fund is primarily interested in projects in public and mental health and population studies. Endowment (Dec. 31, 1954): \$14,347,065.76. Publications (1955): *Quarterly*; *Current Research in Human Fertility*; *Promotion of Maternal and Newborn Health*. In 1954 \$254,173.98 was expended for 24 grants; \$38,960.67 for 22 fellowships; and \$42,728.84 for the Fund's own research projects. President, Samuel R. Milbank; exec. director, Frank G. Boudreau, M.D. Address: 40 Wall St., New York 5, N.Y.

Mineralogical Society of America.—Founded for the advancement of mineralogy, crystallography, petrology, and allied sciences. Membership: 1,299; subscribers, 952. Publication: *The American Mineralogist*. President, Clifford Frondel; secretary, C. S. Hurlbut, Jr. Headquarters: Geological Museum, Harvard University, Cambridge 38, Mass.

Moose, Loyal Order of. See under *Loyal*.

Museum of Modern Art.—Principal exhibitions in 1955 were: XXV Anniversary Exhibition—Paintings from the Museum Collection; Modern Master Prints of Europe; The Family of Man (photographs); 100 Museum selections from Good Design 1950-1954; Paintings by Italian Children; 15 Paintings by French Masters of the 19th Century from the Louvre; Textiles and Ornamental Arts of India; New Talent; The New Decade: 22 European Painters and Sculptors; Paintings from Private Collections; U.P.A.: Form in the Animated Cartoon; Yves Tanguy; Giorgio de Chirico; Built in Latin America; Japanese Exhibition House. The Film Library continued its daily programs with masterworks from the Film Library Collection. Attendance for the year ending June 30, 1955 was more than 500,000. The Museum publishes at least four major catalogs annually and a quarterly *Bulletin*. Director, René d'Harnoncourt; chairman of the board, John Hay Whitney; president, William A. M. Burden. Address: 11 West 53rd St., New York 19, N.Y.

Music Library Association, Inc., The.—Organized to promote the establishment, growth, and use of music libraries and collections of music, musical literature, and recordings in the U.S. and Canada; and to initiate and encourage studies aiming to improve the organization, administration and contents of such libraries. Membership: 955 individuals; plus 1,000 subscribers to *Notes* only. Affiliated with American Library Association and member of International Association of Music Libraries. Publication: *Notes* (quarterly) and Supplements. President, Charles Warren Fox; secretary, Jean Kauffman; treasurer, Mary R. Rogers. Publication headquarters: Music Division, Library of Congress, Washington 25, D.C.

National Academy of Design.—Founded in 1825 for the cultivation and extension of the arts of design. Operates the National Academy School of Fine Arts, New York City, with classes in life drawing, painting, and composition. Membership: 238 Academicians; 160 Associates. Publication: *Catalog of Annual Exhibition* (scheduled for 131st in March 1956), devoted to painting in oil and water color, graphic arts, sculpture, and architecture. Chairman of the school committee, Eliot Clark; president of the academy, Lawrence G. White; secretary, Ernest Fiene. Address: 1083 Fifth Ave., New York 28, N.Y.

National Academy of Sciences—National Research Council.—The National Academy of Sciences is a private non-profit corporation chartered by Congress in 1863 for the promotion of science and to investigate, examine, experiment, and report upon any subject of science or the useful arts upon government request. Membership: 550 leading U.S. scientists and 53 foreign associates. The National Research Council was organized by the Academy for the war emergency in 1916 and permanently established in 1918 to stimulate and advise on government and private research through committees, conferences, publications, management of research funds and fellowships, etc. Membership: 243, representing more than 100 scientific societies and certain federal agencies. Nearly 5,000 academic and industrial scientists and engineers serve on Academy-Research Council committees and boards. In 1955 the Academy-Research Council undertook to study the effects of atomic radiation on man, and upon request provided advice to the White House on loyalty in relation to unclassified government research grants and contracts. Academy-Research Council publications: *Proceedings*; *News Report*; various technical reviews and reports. Buildings and general maintenance are financed by a \$5,000,000 endowment given by the Carnegie Corporation of New York in 1919; other costs are supported by government and private funds. President of the Academy, Detlev W. Bronk; exec. officer of the Academy-Research Council, S. D. Cornell. Headquarters: 2101 Constitution Ave. NW, Washington 25, D.C.

National Aeronautic Association.—Organized for the advancement of the art and science of aviation and related subjects and the diffusion of knowledge thereof. Membership: 8,500 regular; 47,000 affiliated. Publication: *National Aeronautics and Flight Plan* (monthly). Activities include promotion of air racing and record attempts, sanction of the National Aircraft show and other events; promotion of model aviation activities. NAA is the U.S. representative of the Federation Aeronautique Internationale, official governing body of sporting aviation throughout the world. The annual national convention was held Oct. 26-28, 1955 in Cleveland, Ohio. President, Thomas G. Lanphier, Jr. Headquarters: 1025 Connecticut Ave. NW, Washington 6, D.C.

National Association for Mental Health, Inc.—A voluntary agency working in cooperation with state and local mental health associations to promote adequate care and treatment of the mentally ill and mentally deficient; the prevention of mental and emotional illnesses; public education, training, and research; and the organization of state and local associations. Affiliated organizations: 350. Publications: *Mental Hygiene* and *Understanding the Child* (quarterlies); *Annual Report*; directory of psychiatric clinics and other resources in the U.S.; materials on mental health and related subjects. Exec. director, Richard P. Swigart; national and international consultant, George S. Stevenson, M.D. Headquarters: 1790 Broadway, New York 19, N.Y.

National Association for the Advancement of Colored People.—Founded in 1909 to safeguard the full political, civil, and legal rights of colored citizens and secure for them equality of opportunity. Membership: 350,000 in 1,235 branches, youth councils, and college chapters. Publication: *Crisis*. President, Arthur B. Spingarn; exec. secretary, Roy Wilkins. Headquarters: 20 West 40th St., New York 18, N.Y.

National Association of Manufacturers.—Established in 1895 to preserve the free competitive enterprise system in the U.S. by stressing the protection of the individual liberty and rights of both employer and employee. Membership: more than 20,000 companies. Publications: *Memo to Members* (biweekly); *Washington Bulletin* and *Review of Legal Developments* (weeklies); pamphlets and economic studies. Its annual Congress of American Industry is held in December. President, Henry G. Riter, 3d; senior vice pres., Kenneth R. Miller; secretary, Thomas M. Brennan. Headquarters: 2 East 48th St., New York 17, N.Y.

National Association of Radio and Television Broadcasters.—Founded in 1922 to foster the development of the art of broadcasting and to encourage practices in the best interest of the public and the radio-television industry. Member stations: 1,862; associates, 128. President and chairman of the board, Harold E. Fellows; secretary-treasurer, C. E. Arney, Jr. Headquarters: 1771 N. St. NW, Washington 6, D.C.

National Association of Social Workers.—A professional membership association founded in 1955 through merger of the American Association of Group Workers, American Association of Medical Social Workers, American Association of Psychiatric Social Workers, American Association of Social Workers, Association for the Study of Community Organization, National Association of School Social Workers, and Social Work Research Group, to advance the quality of social work practice. Membership: 20,000 in 144 chapters. Publication: *Social Work* (quarterly). President, Nathan E. Cohen; exec. secretary, Joseph P. Anderson. Headquarters: One Park Ave., New York 16, N.Y.

National Association of State Libraries.—Organized to develop and increase the usefulness and efficiency of state libraries and other agencies performing state library functions. Membership: 3 association, 166 individual; 57 institutional. Publications: *Proceedings* (annual); *Newsletter* (quarterly). President, Walter T. Brahm; secretary-treasurer, Helene H. Rogers, Illinois State Library, Springfield, Ill.

National Audubon Society.—Founded in 1905 to arouse public understanding of the value and need of conservation of soil, water, plants, and wildlife. Membership: 27,000 adults; 300,000 juniors; approx. 50,000 in branches and affiliates. Endowment: \$2,300,000. Publications: *Audubon Magazine*; *Audubon Field Notes*; *Audubon Junior News*. The Audubon Society of Canada (Toronto) publishes *Canadian Nature*. Headquarters: 1130 Fifth Ave., New York 28, N.Y.

National Catholic Community Service.—Founded in 1940 as the agency designated by the Catholic bishops of the United States to mobilize and coordinate the Catholic resources of the country to assist in serving spiritual, educational, recreational, and welfare needs of the men and women in the armed forces and defense industries, their families, and patients in veterans hospitals. During 1955, it conducted programs in 64 USO and USO-type units located near major military establishments in the United States and overseas, conducted volunteer programs in 171 VA Hospitals and was a participating agency in the United Community Defense Services. Publications: *NCCS News*; *NCCS-VA Hospital News*; *Focus on Faith*; *Greetings*; *Fall In*; *Letters to Servicemen*; etc. The NCCS received funds for its services to the armed forces and defense workers principally from the USO and UCDS, which were financed by the United Defense Fund largely through local Community Chests. Exec. director, Thomas D. Hinton. Headquarters: 1312 Massachusetts Ave. NW, Washington 5, D.C.

National Catholic Rural Life Conference.—Founded to strengthen and develop Catholicity in the rural districts, and to promote the general welfare of the rural population. Diocesan directors, 109. Publication: *Feet in the Furrow*. President, Most Rev. Peter W. Bartholome; exec. director, Rt. Rev. Msgr. L. G. Ligutti; exec. secretary, Rev. Michael P. Dineen. Headquarters: 3801 Grand Ave., Des Moines 12, Iowa.

National Catholic Welfare Conference.—Founded in 1919 to coordinate and organize Catholic activities in the fields of education, social welfare, immigrant aid, youth guidance, etc. Membership: all Catholic archbishops and bishops of the U.S. Publications: *NCWC News Service* for Catholic weeklies; various bulletins and pamphlets. The 1955 annual meeting was held in November in Washington, D.C. Chairman of the admin. board, Most Rev. Karl J. Alter, Archbishop of Cincinnati; gen. secretary, Rt. Rev. Msgr. Howard J. Carroll. Headquarters: 1312 Massachusetts Ave. NW, Washington 5, D.C.

National Conference of Social Work.—Founded in 1873, its major function is to provide a dynamic educational forum program for the critical examination of the basic social welfare problems and issues. Membership: 5,000 individuals; 1,200 organizations. Publication: *Social Welfare Forum*. President, Benjamin E. Youngdahl; exec. secretary, Joe R. Hoffer. Headquarters: 22 West Gay St., Columbus 15, Ohio.

National Congress of Parents and Teachers.—An educational organization that unites the forces of home, school, and community for the education, welfare, and protection of children and youth. Membership: 9,409,282 individuals, in 40,322 local units (P.T.A.'s). Publications: *National Parent-Teacher: The P.T.A. Magazine*; *National Congress Bulletin*; *Proceedings*; *New Hope for Audiences*; *101 Questions About Public Education*. President, Mrs. Rollin Brown; secretary, Mrs. L. W. Alston. Headquarters: 700 N. Rush St., Chicago 11, Ill.

National Council of the Churches of Christ in the U.S.A.—Constituted in 1950 by 30 Protestant and Eastern Orthodox national churches in the United States as the cooperative instrument of the churches in carrying on an extensive program in 75 areas of Christian activity at home and abroad and as their united voice on moral and

social questions. The Council consolidates the work of 13 separate interdenominational agencies and is the nation's largest religious organization. Its 30 constituent denominations have total memberships of 35,500,000. President: Rev. Dr. Eugene Carson Blake; general secretary, Rev. Dr. Roy G. Ross; treasurer, Charles E. Wilson. Headquarters: 297 Fourth Ave., New York 10, N.Y.

National Council of the Young Men's Christian Associations.—An international Christian organization founded in England in 1844 with the aim of improving the spiritual, intellectual, social, and physical welfare of young men. Movement organized in United States and Canada in 1851. Membership in the U.S.: 3,036,379 in 1,802 member organizations. Endowment: \$57,695,300. Publications: *National Council Bulletin*; *YMCA Year Book*; *The Intercollegian*. In 1955, 171,062 groups met regularly in a program which included strong emphasis on Christian education, interracial policies and practices, citizenship, world affairs, health and physical education. The World's Alliance of Young Men's Christian Associations marked its 100th anniversary with conferences held in Paris during the summer of 1955. President, James C. Donnell II; general secretary, Jay A. Urice. Corporate body: National Board of YMCA's, 291 Broadway, New York 7, N.Y.

National Dairy Council.—A research, educational, and public relations organization promoting consumption of dairy foods and better public understanding of the dairy industry. Eighty-two local organizations in major cities of the U.S. distribute educational information obtained from nutrition research carried on in colleges and universities and financed in part by the dairy industry. President, Milton Hunt; secretary, G. L. Ogle. Headquarters: 111 N. Canal St., Chicago 6, Ill.

National Education Association of the U.S.—Dedicated to the upbuilding of democratic civilization and supported by cooperation of teachers of the U.S. to advance the interests of the teaching profession, promote child welfare, and foster education of all people. Membership: 612,716 persons; 30 departments; 66 state and 5,542 local affiliates. Publications: *NEA Journal*; 27 professional magazines; nearly 200 other publications annually. President, John Lester Buford; exec. secretary, William G. Carr. Headquarters: 1201 Sixteenth St. NW, Washington 6, D.C.

National Exchange Club.—Organized in 1911 to educate, improve, and develop the capabilities of the members of the clubs chartered by the Exchange Club, and of the citizens of the communities in which such clubs operate. Membership: 80,000 in 1,500 clubs. President, Harold E. Mott; secretary, Herold M. Harter. Headquarters: 335 Superior St., Toledo 4, Ohio.

National Federation of Business and Professional Women's Clubs, Inc.—Organized with the purpose of improving conditions in all professions and businesses; extending opportunities for women and improving their professional status; preparing members for leadership in their communities, states, and the nation; and advancing women in their respective fields of work. Membership: approx. 165,000; 3,300 clubs. Publication: *Independent Woman* (monthly). President, Marguerite Rawalt. Headquarters: 1790 Broadway, New York 19, N.Y.

National Federation of Music Clubs.—Founded in 1898, to encourage high standards and equalization of opportunity in musical education; make music an integral part of the life of the nation; encourage and advance American creative musical art; promote American artists; and uphold high musical standards. Membership: over 500,000 in approx. 6,500 clubs. Major Publications: *Music Clubs Magazine*; *Junior Keynotes*. In 1955, the organization awarded prizes in composition in its Young Composers Contest and Steinway Centennial Contest; selected three Young Artist winners, a baritone, a pianist and a string quartet, for awards aggregating \$1,000 each or its equivalent; awarded a total of 14 summer scholarships, with State Federations giving many more, and several year-around scholarships, plus a \$500 award for superior musicianship. Also commissioned an orchestral work, "Dance Overture," by Paul Creston, which was world-premiered at its Biennial Convention in Florida in April. Made gifts of instruments and musical equipment to schools, hospitals and other institutions overseas. Staged a Parade of American Music in which more than 5,000 programs of all-American works were presented. President, Mrs. Ronald A. Dougan; exec. director, Helen Havener. Headquarters: 445 West 23d St., New York 11, N.Y.

National Foundation for Infantile Paralysis.—Established to lead, direct, and unify the fight against poliomyelitis. Membership: 3,100 Chapters. Publications: *Annual Report*; *National Foundation News*. Through funds contributed to the annual March of Dimes, the chapters pay for treatment and care of polio victims. National headquarters underwrites programs of research, education, and polio prevention as well as assisting chapters hard pressed for funds. On April 12, 1955, Dr. Thomas Francis Jr. of the University of Michigan reported on the Foundation's field trials of a polio vaccine developed by Dr. Jonas E. Salk of the University of Pittsburgh. The vaccine was found "safe, effective and potent." During the spring vaccine purchased by the Foundation was made available free to all youngsters in the 1st and 2d grades of school

and youngsters who participated in the field trials without getting vaccine. Vaccine was also made available for booster shots to the 440,000 children who got vaccine during the 1954 field trial. Grants and appropriations are made for scholarships and fellowships. President, Basil O'Connor; vice pres. and secretary, William F. Snyder; exec. director, Raymond H. Barrows. Headquarters: 120 Broadway, New York 5, N.Y.

National Gallery of Art.—Noteworthy exhibits in 1955: *Renaissance Prints* by Lucan van Leyden, Marcantonio Raimondi, and Jean Duvet, from the Rosenwald Collection; *Austrian Drawings and Prints*, from the Prado and Lazaro Galdiano museums, Madrid; *American Primitive Paintings*, from the Edgar William and Bernice Chrysler Garbisch Collection; *Miniatures and Prints* from the Rosenwald Collection; *German Drawings—Masterpieces from Five Centuries*. Gifts to the Gallery included the art library of the late Julius Meier-Graefe; portrait by George Romney; portrait by Sir Henry Raeburn; three portraits by Gilbert Stuart, including one of George Washington; *On the Terrace and Fête Champêtre* by Pater; *Portrait de Femme* by Carriera; *Portrait of Thomas Sully* by Rembrandt Peale; 64 contemporary prints given by the people of Germany; 27 prints from Mrs. W. Murray Crane. The Education Department continued its lectures and tours in the Gallery and its distribution of color slides, films, and exhibitions of color reproductions. The Index of American Design, a collection of watercolor renderings of American crafts and folk arts, is available at the Gallery for study, publication, and reproduction purposes. The fourth annual series of A. W. Mellon Lectures in the fine arts was delivered by Dr. Étienne Gilson on *Art and Reality*. The regular series of concerts was held in the East Garden Court throughout the year, and in the spring the Gallery held its 12th American Music Festival. Average daily attendance for the year ended June 30, 1955, was 2,245. Since March 17, 1941, when the Gallery was opened to the public, through June 30, 1955, there have been 23,633,628 visitors. Director, David E. Finley. Address: Constitution Ave. at 6th St., Washington 25, D.C.

National Geographic Society.—See separate article under its own heading.

National Grange.—A rural fraternity founded to improve and strengthen the farm home; advance the welfare of agriculture; support good government at local, state, and national levels; advance the cause of education; work for equity among all groups; and advance the cause of good citizenship. Membership: 860,000 in 7,125 granges. Publication: *The National Grange Monthly*. Master, Herschel D. Newsom; secretary, Harry A. Caton. Headquarters: 744 Jackson Pl., Washington 6, D.C.

National Health Council.—Founded in 1921, it is a membership organization consisting of 50 national organizations concerned with health; voluntary and governmental health agencies, professional societies, and organizations and business groups with strong health interests. They seek, through the Council, to promote better health throughout the nation, improve their own services, encourage the formation and effective operation of state and local health councils, and promote better official community health services. The Council serves as a conference ground for exchange of health information, maintains the National Health Library, and operates common services for member agencies. President, Hugh R. Leavell, M.D.; secretary, James E. Perkins, M.D.; exec. director, Philip E. Ryan. Headquarters: 1790 Broadway, New York 19, N.Y.

National Industrial Conference Board, Inc.—An independent, nonprofit organization, established in 1916, conducting scientific research in the fields of economics, business management, and human relations in order to assist the sound development and effective operation of voluntary productive enterprise in the U.S. and Canada. Membership: more than 3,400 subscribing associates. Publications: *Desk Sheet* (weekly); *Previews*; *Road Maps of Industry* (economic charts); *Economic Almanac* (annual); research reports, chart books, basic industrial data. The 40th annual meeting will be held May 17-18, 1956, New York, N.Y. President, John S. Sinclair; secretary, Herbert S. Briggs. Headquarters: 460 Park Ave., New York 22, N.Y.

National Institute of Arts and Letters.—Founded in 1898 for the furtherance of literature and the fine arts in the United States. Membership: 250 persons. Publications: *Yearbook*, 1955; Catalogues of art and manuscript exhibitions held May 25-June 26, 1955 and "The Great Decade in American Writing," Dec. 3-30, 1954; *Proceedings*, 2d Series, No. 5. On May 25, 1955 a public ceremonial was given jointly with the American Academy of Arts and Letters. New members were inducted, awards made, and 16 arts and letters grants of \$1,000 each were given. On exhibition were the works of newly-elected art members, grantees in art, and the recipient of The Gold Medal for Painting, Edward Hooper; and manuscripts and books by newly-elected literature and music members, grantees in literature, and recipients of the Fellowship of the Academy, Ralph Ellison; The Gold Medal for Essays and Criticism, Edmund Wilson; the Howells Medal for the Novel, Eudora Welty; and the Award of Merit, Jorge Guillén. The annual meeting was held on Jan. 16, 1955. President, Marc Connelly; secretary, Louis Kronenberger. Headquarters: 633 West 155th St., New York 32, N.Y.

National Institute of Social Sciences.—Founded to promote the study of the social sciences and research therein, and to reward distinguished services rendered to humanity, either by election to membership, or by bestowal of its honor medals or other insignia. Membership: limited to 600, excluding honorary memberships. President, Walter Hoving; secretary, Rosina Hahn. Headquarters: 271 Madison Ave., New York 16, N.Y.

National Jewish Welfare Board.—The national association of more than 350 Jewish Community Centers and YM-YWHAs with a combined membership of 550,000 and the American member of the World Federation of YMHAs and Jewish Community Centers. As the government-authorized agency for serving the religious, welfare and morale needs of Jewish personnel in the U.S. armed forces, JWB maintains 350 full- and part-time chaplains at home and abroad, a field staff of trained workers, and 265 local Armed Services Committees. Aggregate annual budgets of Centers affiliated with JWB total some \$15,000,000. Combined cost of Center buildings has reached \$75,000,000. In 1955 the Board continued to sponsor the Jewish Book Council, Jewish Music Council, the National Jewish Youth Conference and Jewish Center Lecture Bureau, and was actively involved in the development of Center facilities in Europe, Israel, and Latin America. President, Charles Aaron; exec. vice pres., Samuel D. Gershovitz; secretary, Alan J. Altheimer. Headquarters: 145 East 32d St., New York 16, N.Y.

National Kindergarten Association.—Purpose: to increase the number of kindergartens throughout the United States (preferably in the public schools), always under the direction of graduates of kindergarten training courses in accredited institutions. Since the Association was founded in 1909, almost 1,800,000 children have been enrolled in kindergartens through its efforts. Promotion materials (leaflets, a film, petition headings, etc.) and step-by-step advice on opening kindergartens are furnished without charge on request. President, Dr. Howard R. Best; exec. secretary, Mrs. Creighton Peet. Headquarters: 8 West 40th St., New York 18, N.Y.

National Music Council.—Organized in 1940 to provide a forum for exchange of information and the discussion of national musical problems; to coordinate efforts of its member organizations; and to encourage the development and appreciation of music. Membership: over 800,000 in 45 musical organizations. Publication: *Bulletin* (3 issues yearly). President, Howard Hanson; exec. secretary, Edwin Hughes. Address: 117 East 79th St., New York 21, N.Y.

National Recreation Association.—A national, nonprofit service agency established in 1906 to promote widespread recreation activities for young and old. It maintains an International Recreation Service to help individuals and groups outside the U.S. Membership: 1,289 affiliate, 2,984 active associate, and 12,500 contributing members. Endowment: \$457,296.24. Chairman, Otto T. Mallory; exec. director, Joseph Prendergast. Headquarters: 8 West 8th St., New York 11, N.Y.

National Research Council.—See above, *National Academy of Sciences*.

National Research Council of Canada.—Its principal occupation is with industrial and scientific research affecting the expansion of Canadian industries or the utilization of Canadian natural resources. Annual budget: approx. \$16,000,000. Publications: *Canadian Journal of Biochemistry and Physiology*, of Botany, of Chemistry, of Microbiology, of Physics, of Technology, of Zoology; *Annual Report*; *NRC Review*; *NRC Research News* (monthly); *List of Publications*, 1918-1952 (3d ed. and supplements). In 1955-56 grants included 30 medical and some 80 National Research Laboratories postdoctorate fellowships; 267 scholarships for graduate work in the natural sciences; and about \$2.5 million to assist graduate work in science departments of Canadian universities. President, E. W. R. Steacie; secretary, S. P. Eagleson. Headquarters: National Research Bldg., Sussex St., Ottawa, Ont.

National Safety Council.—A nonprofit, non-political organization founded in 1913 to reduce the number and severity of all kinds of accidents. It serves as a clearing house for information on causes and prevention of accidents. Membership: over 11,000 organizations. Publications: *National Safety News*; *Public Safety*; *The Industrial Supervisor*; *Safety Education*; *Safe Worker*; *Safe Driver*; *Safe Railroad*; *Safe Builder*; *Home Safety Review*; *Farm Safety Review*. President, Ned H. Dearborn; secretary, R. L. Forney. 425 N. Michigan Ave., Chicago 11, Ill.

National Sculpture Society.—Founded in 1893 to spread the knowledge of good sculpture, encourage its production for museums and the household, promote the decoration of public buildings, squares, and parks with sculpture of high quality, and improve its use as applied to industry. The society holds an annual competition and exhibition of bas-reliefs, sponsors various other exhibitions, and carries on an educational program through endowments and gifts. Awards: Lindsey Morris Memorial prize; Mrs. Louis Bennett prize; Herbert Adams Memorial Medal. Membership: approx. 500. Publications: *National Sculpture Review* (quarterly); *Year Book* (for members); *Red Book of Classified Sculptural Services and Supplies*. President, Leo Friedlander; secretary, Adolph Block.

SOCIETIES AND ORGANIZATIONS

Headquarters: 1083 Fifth Ave., New York 28, N.Y.

National Society for Crippled Children and Adults, Inc.—Organized in 1921 to help the crippled through programs of care and treatment; rehabilitation; research into causes, prevention, and improved treatment; and education of the public. Membership: 52 state and territorial societies; 1,600 local societies. Publications: *Crippled Child Magazine* (bimonthly); *Bulletin of the National Society and Bulletin on Current Literature* (monthly); various pamphlets and reprints. During 1955, in addition to maintaining its regular facilities, the Society awarded 40 scholarship and fellowship grants for graduate and undergraduate therapy training. The 1955 convention was held in Chicago, Ill., Nov. 28–30. President, Edgar Kobak; secretary, Lawrence J. Linck. Headquarters: 11 S. LaSalle St., Chicago 3, Ill.

National Society of Professional Engineers.—Organized in 1934 to advance the public welfare and to promote the professional, social, and economic interest of the professional engineer. Membership: 36,000 persons; 39 state societies; 350 local chapters. Publications: *American Engineer* (monthly); *Executive Research Survey Reports*. President, A. C. Neff; secretary, Paul H. Robbins. Headquarters: 1121–15th St. NW, Washington 5, D.C.

National Travelers Aid Association.—Founded in 1917 to promote means of cooperation and improve standards of Travelers Aid service; to study causes of migration and to encourage public understanding of moving people. It provides consultant and advisory service to local Travelers Aid Societies; distributes information regarding migration; and conducts regional conferences, institutes, and training courses. Operating members, 104 Travelers Aid Societies; cooperating members, 1,043 organizations and individuals in the United States and foreign countries on call where no regular Travelers Aid Society exists. The association is a member agency of USO and of United Community Defense Services. Publication: *Shifting Scenes*. President, Robert W. Budd; secretary, Mrs. H. W. Ruggles, Jr.; gen. director, Laurin Hyde. Headquarters: 425 Fourth Ave., New York 16, N.Y.

National Tuberculosis Association.—Organized to study tuberculosis in all its forms; to disseminate knowledge concerning the causes, treatment, and prevention of tuberculosis and of related health problems; to stimulate, unify, and standardize the work of its affiliated associations; to cooperate with other organizations interested in tuberculosis and related health problems, and to promote international relations in connection with the study and control of the disease. Membership: 5,565; approx. 3,000 affiliated organizations. Publications: *American Review of Tuberculosis*; *Bulletin*; *Tuberculosis Abstracts* (all monthly); numerous books and pamphlets. For the fiscal year 1955–56, the association made 40 grants for medical research. Twenty-six medical research and medical education fellowships were awarded. In addition, scholarships were awarded for postgraduate work in public health, health administration, and rehabilitation. Postgraduate courses in tuberculosis were conducted for physicians. The 1955 annual meeting was held in Milwaukee, Wis., May 22–27, 1955. President, Edward T. Fagan; secretary, Mrs. Morrell De Reign. Headquarters: 1790 Broadway, New York 19, New York.

National Urban League.—Founded in 1910 “for social work among Negroes” and dedicated to improving, through interracial leadership, the living and working conditions of Negroes and the extent of cooperation and understanding between the races throughout the United States. Membership: 62 local Urban Leagues in 30 states with total membership of 50,000 persons, of whom approximately 3,500 serve on interracial boards and committees. President, Robert W. Dowling; secretary, Mollie Moon; exec. director, Lester B. Granger. Headquarters: 1133 Broadway, New York 10, N.Y.

National Woman's Christian Temperance Union.—Organized in 1874 to build public sentiment for total abstinence through teaching the effects of beverage alcohol on the mental, moral, social, spiritual, and physical well-being of the individual and the nation, promoted by an alcohol education program through the two branches, “The Youth Temperance Council” and “The Loyal Temperance Legion”; the 22 departments; and 4 bureaus: legislation, publicity, facts and news service, and narcotics. Membership: approx. 400,000 in U.S.; World's WCTU organized in 65 countries. Publications: *The Union Signal* (seminthly); *The Young Crusader* (monthly for children). President, Mrs. Glenn G. Hays; corresp. secretary, Mrs. H. E. Mielke. Headquarters: 1730 Chicago Ave., Evanston, Ill.

Near East Foundation.—Supported by about 40,000 contributors, and organized to cooperate with governments, municipalities, societies, and individuals in the care and instruction of children, and in the promotion, maintenance, and support of community activities in the Near East and in countries adjacent thereto, and to provide relief and assist in the repatriation and rehabilitation of suffering and dependent peoples of these areas. The foundation's program reaches more than 100,000 people in Greece, Syria, Iran, Afghanistan, and Jordan. Chairman, Cleveland E. Dodge; president, John S. Badeau; exec. director, E. C. Miller. Headquarters: 54 East 64th St., New York 21, N.Y.

New York Academy of Medicine.—Its purpose is the advancement of the science and art of medicine, and the promotion of public health and medical education. A public medical library is maintained. Membership: 2,000. Endowment: \$6,000,000. Publications (1955): *Academy Bulletin*; *The Academy Bookman*; *Society & Medicine*; *Laity Lectures XVII*; *Better Health Through Better Living*; *Perinatal Mortality in New York City*. President, Dr. Edward J. Donovan; secretary, Dr. Frederick H. Wilke. Headquarters: 2 East 103d St., New York 29, N.Y.

New-York Historical Society.—Founded in 1804, it is the second oldest historical society in the United States. It comprises a 400,000 volume reference library and a museum of American history, particularly that of the city and state of New York. Membership: 700. Publications (1955): *The New-York Historical Society Quarterly*; *Esra Ames of Albany: Portrait Painter, Craftsman, Royal Arch Mason, Banker, 1768–1836. And a Catalogue of His Works*, by T. Bolton and I. F. Cortelyou. Special exhibitions in 1955 were: The New York “El”; The Livingston Gift; The Bequest of Waldron Phoenix Belknap, Jr.; American Glass; Fort Ticonderoga Bicentennial; The Arnold Shirliffe Menu Collection; and Paintings by Esra Ames. Accessions included oil portraits of Mr. and Mrs. Cassius Hunt by Joseph Badger, Mr. and Mrs. Eleazer Burnham by Esra Ames, 1826. Daniel D. Tomkins by John W. Jarvis; copy of the Elephant Folio Edition of Audubon's *Birds of America*, 1826–1836, the original watercolors for which have long been a treasure of the Society; a plaster bust of Mrs. John Rogers, Sr. by John Rogers, her son; a collection of 10,000 manuscripts of New York Provincial officials and of members of the Stuyvesant family; and a collection of over 10,000 hotel and restaurant menus covering the last 150 years. Three film series and a concerts series were given, group tours and school programs were presented, a lecture series was given and a course on methods and resources of American historical societies was given in cooperation with Columbia University. Director, Dr. R. W. G. Vail. Address: 170 Central Park West, New York 24, N.Y.

Parents and Teachers, National Congress of.—See under National.

Photographic Society of America.—Founded in 1934 for the promotion of the art and science of photography. Membership: over 10,000 members and over 1,100 camera clubs; 350 or more clubs affiliated through 12 camera club councils; about 250 additional miscellaneous members included in a list of firms, libraries, laboratories, and government bodies. Publications: *PSA Journal*; various news bulletins. Exec. secretary, Randolph Wright, Jr. Headquarters: 2005 Walnut St., Philadelphia 3, Pa.

Planned Parenthood Federation of America.—Founded in 1921 as the American Birth Control League to strengthen maternal and infant health through providing and spreading knowledge about conception control under medical auspices. In 1941 its name was changed to better express an expanded program of family planning, treatment for infertility, education for marriage and parenthood, and research in the field of human reproduction. Membership: 112 organizations. Publications: *Planned Parenthood News*; various pamphlets. The Robert L. Dickinson Research Memorial aims to improve present contraceptive techniques, develop new simple, inexpensive, and safe methods that can be used in underprivileged and overpopulated world areas, and to investigate infertility and sterility problems. Federation affiliates conducted 157 of the country's 546 birth control clinics and 91 of the 217 infertility clinics. National director, William Vogt. Headquarters: 501 Madison Ave., New York 22, N.Y.

Red Cross, American National.—See separate article under its own heading.

Rockefeller Foundation.—Founded in 1913 to promote the well-being of mankind through the advancement and the effective application of knowledge to human interests in specific fields of medical education and public health, biological and medical research, agriculture, the social sciences, and the humanities. Uncommitted assets (market value on Dec. 31, 1954): \$447,686,573. Publications: *President's Review*; *Annual Report*; *Rockefeller Foundation Grants* (quarterly). In 1955 appropriations in medical education and public health were concerned chiefly with professional education, medical care, and the development of the health sciences. In biological and medical research emphasis was on experimental biology and the investigation and control of specific diseases and deficiencies. In agriculture the major interests were in research and demonstration programs in Latin America, and in research on the basic sciences which underlie agriculture. The social sciences were concerned with projects contributing to the understanding of international relations, human behavior and interpersonal and intergroup relations, and the functioning and management of the economy; and to the development of moral and social philosophy and of social science personnel. Projects aided in the humanities were in the general fields of intercultural understanding, humane values, literature, and the arts. President, Dean Rusk; secretary, Flora M. Rhind; treasurer, Edward Robinson. Headquarters: 49 West 49th St., New York 20, N.Y.

Rotary International.—Worldwide organization of all

Rotary Clubs; a world fellowship of business and professional executives to further thoughtfulness of and helpfulness to others in business and community life and to promote international understanding. Membership: 8,900 Clubs in 92 countries and geographical regions; 420,000 Rotarians. Foreign offices are located in London, England, and in Zurich, Switzerland. Publications: *The Rotarian*; *Revista Rotaria* (in Spanish). Since 1947, Rotary Foundation Fellowships have been awarded to 708 outstanding graduate students from 57 countries for one year of study in a country other than their own. Total grants awarded during the nine-year period amount to more than \$1,750,000. The 46th annual convention was held in Chicago, Ill., in May, 1955. President, A. Z. Baker; secretary, George R. Means. Headquarters: 1600 Ridge Ave., Evanston, Ill.

Rural Sociological Society.—See article, SOCIOLOGY.
Russell Sage Foundation.—Established by Mrs. Russell Sage in 1907 for improvement of social and living conditions in the U.S.; now devoted primarily to a research and consultation program designed to increase the utilization of social science principles in various fields of social practice. A 12-member board of trustees handles administration. Principal (Sept. 30, 1955): \$21,100,000 (market value). Publications (1955): *Morbidity in the Municipal Hospitals of the City of New York*, M. Fraenkel and C. L. Erhardt; *Studying Your Community*, R. L. Warren; *The Estimation of Population Changes for New York City*, H. G. Brunsman; *Health, Culture, and Community*, B. D. Paul, Ed.; *From Custodial to Therapeutic Patient Care in Mental Hospitals*, M. Greenblatt, R. H. York and E. L. Brown; *Annual Report 1954-55*. Chairman of the Board, Eli Whitney Debevoise; president, Donald Young; treasurer, Dave H. Morris, Jr.; secretary, Ralph G. Hurlin. Headquarters: 505 Park Ave., New York 22, N.Y.

Scottish Rite Masonry.—See above, Freemasonry.
Seeing Eye, Inc., The.—Founded in 1929 to train dogs as guides for blind persons; to teach instructors how to train the dogs; and to teach blind persons how to use the dog guides. Membership: 21,000. President, Henry A. Colgate; exec. vice president, George Wertz, Jr. Headquarters: Morristown, N.J.

Sloan Foundation, Alfred P.—Established in 1934, the Foundation originally made grants-in-aid for projects in economic education to fully accredited educational institutions. More recently, it has developed significant programs for giving financial assistance to cancer research, scientific research and research in ophthalmology. Fund reserves: \$53,720,104. During its entire existence, up to the end of 1954, the Foundation had made grants totaling \$27,368,330. Exec. director, Arnold J. Zurcher; vice president, Raymond P. Sloan; secretary-treasurer, James F. Kenney. Headquarters: 30 Rockefeller Plaza, New York 20, N.Y.

Sloan-Kettering Institute for Cancer Research.—Founded in 1945 as a division of Memorial Center for Cancer and Allied Diseases, for the purpose of engaging in cancer research. A gift of \$2,400,000 for construction, and originally a \$200,000 annual operating gift for ten years (now \$400,000 pledged for a five year period) was made by the Alfred P. Sloan Foundation. Research is also supported by contributions from the public and by the Institutes of Health of the U.S. Public Health Service; the American Cancer Society and its affiliate, the New York City Cancer Committee; the Atomic Energy Commission; the Damon Runyon Memorial Fund; and the Department of the Army. Control and management is vested in a board of 21 trustees. Director, C. F. Rhoads, M.D.; chairman of the board, Alfred P. Sloan, Jr.; president, Frank A. Howard; secretary, Edward C. Delafield. Headquarters: 410 East 68th St., New York 21, N.Y.

Smithsonian Institution.—See separate article under its own heading.

Social Science Research Council.—Its purpose is to advance knowledge concerning human relations through the development of research in the social sciences. Membership: 30 members of the board of directors, of whom 21 are designated by 7 national social science organizations and 9 are elected as directors-at-large. In 1954-55, the council awarded 18 faculty research fellowships; 38 grants-in-aid for research; 29 research training fellowships; 19 first-year graduate study fellowships; and 56 undergraduate research stipends. President, Pendleton Herring; vice president, Paul Webbink. Headquarters: 230 Park Ave., New York 17, N.Y.

Society for the Study of Social Problems.—See article, SOCIOLOGY.

Society of American Bacteriologists.—Organized to promote the advancement of bacteriology. Membership: 5,000. Publications: *Journal of Bacteriology*; *Bacteriological Reviews*; *Applied Microbiology*; *Bacteriological Proceedings*; *Alice in Viruland*. The annual meeting was held in New York, N.Y., May 8-12, 1955. President, H. Orin Halvorson; secretary-treasurer, John H. Bailey. Headquarters: Mr. Francis C. Harwood, Bus. Mgr., Mt. Royal & Guilford Aves., Baltimore 2, Md. (See article, BACTERIOLOGY.)

Sodality of Our Lady.—Formed to give Catholics an opportunity to follow Christ more closely within their own state of life by following a permanent rule and way

of life through the motivating force of love of the Blessed Virgin Mother. Membership: 18,014 organizations. Publications: *Action Now*, *Queen's Work*, *Direction*, and *Junior Sodalist* (monthlies); *Children's Moderator* (bi-monthly). In 1955 the diocesan sodality directors held their annual meeting in St. Louis in January, and Summer School of Catholic Action courses were held in 7 cities. National promoter, Rev. R. L. Rooney, S.J. Headquarters: 3115 S. Grand Blvd., St. Louis 18, Mo.

Special Libraries Association.—Formed in 1909 by librarians of business, professional, governmental, and industrial organizations to promote the collection, organization, and dissemination of information in specialized fields and to improve the usefulness of special libraries and information services. Its program includes an annual convention, consultant services, and a placement service for members and employers. Membership: approx. 5,000. Publications: periodicals, *Special Libraries*, *Technical Book Review Index*, pamphlets, *Indexing—with Emphasis on Its Techniques*, *Libraries for Research and Industry—Planning and Equipment*, *Bibliography of Engineering and Abstracting Services*. The International Relations Committee issues a news bulletin to library interests throughout the world. The SLA professional award for 1955 was presented to Dr. Jolan M. Fertig, librarian of Westinghouse Electric Corp., East Pittsburgh, Pa. President, Chester M. Lewis; exec. secretary, Marian E. Lucius. Headquarters: 31 East 10th St., New York 3, N.Y.

Synagogue Council of America.—The spokesman agency for religious American Jewry made up of the Rabbinical Council of America, the Rabbinical Assembly of America, the Central Conference of American Rabbis, the Union of Orthodox Jewish Congregations in America, and the Union of American Hebrew Congregations. The council represents its constituencies before U.S., U.N., and UNESCO agencies, and cooperates with the Protestant and Catholic denominations. President, Dr. Abraham J. Feldman; exec. director, Marc H. Tanenbaum. Headquarters: 110 West 42 St., New York 36, N.Y.

Town Hall, Inc., The.—A nonprofit educational institution founded as The League for Political Education. Activities include the morning lecture series, concerts, short courses for adults, and the radio program, *America's Town Meeting of the Air*. Exec. director, Thurston J. Davies. Headquarters: 123 West 43rd St., New York 36, N.Y.

Travelers Aid Association, National.—See under National.

Twentieth Century Fund.—An endowed foundation for research and public education on economic and social issues and problems. Assets (Dec. 31, 1954): \$12,134,162. Reports issued in 1955: *America's Needs and Resources—A New Survey*; *Approaches to Economic Development*; *Economic Needs of Older People*; *American Imports*; *World Commerce and Governments*. Studies in progress pertaining to the United States economy include: the effects of technological changes; antitrust policies and enforcement; the influence of military considerations on national policy; recent agricultural policies and programs; and distribution costs and methods. In the field of international relations, the Fund is conducting a broad survey of economic, social and political conditions in tropical Africa. Exec. director, J. Frederic Dewhurst. Headquarters: 330 West 42d St., New York 36, N.Y.

United Service Organizations, Inc.—The purpose of the USO is to serve the religious, spiritual, social, welfare and educational needs of service men and women. Its member agencies are the Young Men's Christian Associations, the National Catholic Community Service, the National Jewish Welfare Board, the Young Women's Christian Association, The Salvation Army, the National Travelers Aid Association, and Camp Shows, Inc. USO is financed by the voluntary contributions of the American public. In 1955 there were 208 USO service units operating from the Mediterranean to Tokyo and from the Panama Canal to Alaska. In a typical month service men and women make more than 4,000,000 visits to these units. USO Camp Shows also bring professional entertainment to armed forces personnel at military bases and in hospitals overseas and at isolated outposts in this country. Chairman, Harvey S. Firestone, Jr.; president, Emil Schram; secretary, Mrs. William Spencer Bowen; exec. director, Edwin E. Bond. Headquarters: 500 Fifth Ave., New York 36, N.Y.

United States Junior Chamber of Commerce.—A nonprofit corporation organized for educational and charitable purposes and designed to inculcate in the individual members a spirit of genuine Americanism and civic interest, and as a supplemental educational institution to provide them with opportunity for personal development and achievement and an avenue for intelligent participation for young men in the affairs of their community, state and nation, and to develop true friendship and understanding among young men of all nations. Membership: 200,000 in 3,000 organizations. Publications: *Future*; *Action* (monthlies). The 1955 national convention was held in Atlanta, Ga., June 21-23. President, Hugh F. McKenna; exec. vice pres., Roland T. Tibbetts. Headquarters: 21st and Main St., Tulsa, Okla.

United World Federalists, Inc.—An organization call-

ing for the support and strengthening of the United Nations and such amendments to its Charter as will strengthen it into a world federation having powers limited to the prevention of aggression and the control of armaments. Membership: 23,534. Publications: *The Federalist* (periodical); *UWF, What, Who, Why*. A general assembly was held in New York, N.Y., May 20-22, 1955. Hon. president, Norman Cousins; president, C. M. Stanley; exec. director, Helen A. Shuford. Headquarters: 49 West 32d St., New York 1, N.Y.

Veterans of Foreign Wars of the United States.—Founded in 1899; chartered by the U.S. Congress in 1936. A fraternal, patriotic, historical, and educational organization active in promoting Americanism and civic improvement and in supporting legislation benefiting disabled veterans and national security. Membership: 1,200,000 active. Publication: *VFW Magazine*. The 1955 national encampment was held in Boston, Mass. Commander-in-chief, Timothy J. Murphy; adjutant general, Julian Dickenson. Headquarters: V.F.W. Bldg., Broadway at 34th St., Kansas City 11, Mo.

Whitney Foundation, The Helen Hay.—Established to promote basic research in rheumatic fever and rheumatic heart disease. The Foundation provides grants to individuals for research, study, and fellowships; maintenance of a clearinghouse of information concerning rheumatic fever facilities, program activities, and research in the United States and Territories, as a service to workers in the field. Assets for fiscal year ended Dec. 31, 1954, \$6,339,673.52. Grants paid out of current or accumulated income during same fiscal year, \$215,178.85. President, Mrs. Charles S. Payson; secretary-treasurer, Mr. Frederick K. Trask, Jr.; exec. secretary, Miss Dora E. Young. Address: 525 E. 68th St., New York 21, N.Y.

Woman's Christian Temperance Union, National.—See under *National*.

Women's Clubs, General Federation of.—See under *General*.

Woodrow Wilson Foundation.—Created in 1922, with an endowment of \$820,000, to further the Wilsonian concept of international organization and world cooperation. In 1950, the foundation inaugurated a long-term study of the structure and practices of the federal government in interrelated domestic and international affairs. Two publications have resulted: *U.S. Foreign Policy: Its Organization and Control* and *The Political Economy of American Foreign Policy*. President, August Heckscher, exec. director, Julie d'Estournelles. Headquarters: Woodrow Wilson House, 45 East 65th St., New York 21, N.Y.

World Council of Churches.—Official instrument of 164 denominations representing all major branches of the Reformation, the Old Catholics, the Eastern Orthodox, and other ancient Eastern churches, in 47 countries, carrying on responsibilities which call for united action. Membership represents over 160,000,000 persons. Work of the Council is carried on through three main divisions: Study; Ecumenical Action; and Interchurch Aid and Service to Refugees. Contact with the United Nations is maintained through the Commission of the Churches on International Affairs. Assemblies are held every six years (Evanston, Ill., 1954). In the interim, the Council is governed by a Central Committee of 90 members which meets yearly. Dr. Franklin Clark Fry (USA) is chairman. Publications: *Ecumenical Press Service* (weekly); *Ecumenical Review* (quarterly); *Ecumenical Courier* (bimonthly). Presiding officers of the Council are six presidents: Bishop Otto Dibelius (Germany); Principal John Baillie (Scotland); Rt. Rev. Henry Knox Sherrill (USA); Bishop S. U. Barbieri (South America); Metropolitan Juhanon (India); Archbishop Michael (Greek Orthodox). General secretary, Dr. W. A. Visser't Hooft. Headquarters: 17, Route de Malagnon, Geneva, Switzerland. Exec. head, New York Office, Dr. Samuel McCrea Cavert. Address: 156 Fifth Ave., New York 10, N.Y.

Young Men's Christian Associations, National Council of the.—See under *National*.

Young Women's Christian Association of the USA.—An organization endeavoring to improve the mental and physical well-being of women and girls and to encourage their spiritual growth in keeping with Christian traditions. Any girl over 12 may join, regardless of race, creed, or national origin. Membership: more than 3,000,000 in 438 community associations, 641 student groups, and in 1,550 rural and municipal units. The executive body is the National Board, which recommends program standards and directs regional staff in the 4 community and 9 student regions. As a member of the World's YWCA, the National Board is allied with YWCA work in 64 other lands. Publications: *The YWCA Magazine*; *National YWCA Bulletin*; *The Bookshelf*. Key events in 1955 included the Centennial Celebration, and the 20th national triennial convention, April 21-27, New York, N.Y. President, Miss Lilace Reid Barnes; general secretary, Mrs. Savilla Mills Simons. Headquarters: 600 Lexington Ave., New York 22, N.Y.

Zionist Organization of America.—Founded in 1897, its present purpose is the building of Israel and the promotion of interests of the Jewish renaissance. Membership: 250,000 persons in 900 units. Publications: *American Zionist*; *The Organization Letter*; *Dos Yiddishe Folk*. The

ZOA House is maintained in Israel to cement American-Israeli relations. In 1955, the organization founded and opened Kfar Silver Agricultural School in Israel, established an Israel Tourist Department, and embarked on a Shekel Campaign. The national convention was held in Washington, D.C., in June 1955. President, Mortimer May; secretary, Sidney Marks. Headquarters: 145 East 32d St., New York 16, N.Y.

Zonta International.—Organized in 1919 to improve legal, political, economic, and professional status of women; encourage high ethical standards in business and the professions; and work toward peace and understanding through a world fellowship of executive women in business and the professions. Membership: approx. 11,500 in 320 clubs in 13 countries. Publication: *The Zontian*. During 1955 the clubs supported vocational guidance projects, student scholarships and loans, and camp scholarships; and gave aid to the aged and to children's hospitals and recreation centers. Annual \$1,200 scholarships to graduate women students in the field of aeronautics, established in memory of Amelia Earhart, former Zontian, were awarded in 1955 to Miss Daria Domenighetti, Milano, Italy, and to Mrs. Selma Caroline Swift Teichmann, Los Angeles, Calif. International president, Dr. Dorothea Radusch; exec. secretary, Miss Ellen Firewood. Headquarters: 59 E. Van Buren St. Chicago 5, Ill.

SOCIOLOGY. During 1955, sociology made important strides in perfecting its research techniques and in conducting important studies in such fields as small groups, industrial relations, race and ethnic relations, and world affairs.

Research.—The advance in perfecting research methods is illustrated in the article, "An Outline of Some New Methodology for Social Research," by Louis Guttman (*Public Opinion Quarterly*, Winter 1954-55), in which several specialized techniques are presented.

In a re-examination of the participant observer method of social research, A. J. Vidich (*American Journal of Sociology*, January 1955) summarized the following weaknesses: (1) the images that the observed persons have of the observer may have a decisive influence on the nature of the data that are collected; (2) the responses of the observed person will change as the role of the observer changes; (3) the observer has difficulty in according the correct meanings to the actions of the observed; and (4) validating the results of participant observations is still a problem.

In the presidential address given at the 1955 meeting of the Pacific Sociological Society in April at Santa Barbara, Calif., Charles B. Spaulding pointed out the weakness now evident in carrying out large numbers of fragments of social research on aspects of human relations. He claimed that comparing social research fragments is not enough and urged that microscopic pieces of research should be supplemented by studies of the large frameworks of social life, such as the evolution of human society, the social systems, and human relations as a whole (*Research Studies*, State College of Washington, Pullman, June 1955).

Small Groups.—An outstanding monograph on small group research was published as the December 1954 issue of the *American Sociological Review*. It contained 15 articles by 23 writers on three-person groups, conformity to group norms, reactions to small group pressures, interpersonal orientations in small groups, planning a laboratory for the direct observations of human behavior, and other aspects.

Industrial Relations.—In this field, Melville Dalton (*Social Forces*, March 1955) calls attention to the "changing accommodations" that are taking place among personnel, arising out of the interplay of three motivations: "top managerial expectations, career incentives, and personal antipathies." The role of mediation in industrial conflict is analyzed by Clark Kerr in terms of tactical mediation and strategical mediation. He

points out that in the long run the latter is more important, for it can help to bring about an integration of worker and management interests, to establish new and fairer rules of the industrial game, and to increase industrial stability (*American Journal of Sociology*, November 1954).

Race and Ethnic Relations.—Sociologists are studying the nature and problems of desegregation and integration of racial and cultural groups, particularly of whites and Negroes in the public schools. A Southern sociologist has reported that in all Southern states except five, higher education is to some extent integrated, and that over 1,000 Negro students are attending more than 100 former all-white public and private colleges.

In the January 1955 issue of *Social Problems* a report is given, showing that the removal by college fraternities of discriminatory membership provisions, or the established absence of them "does not necessarily mean" that fraternities "do not indulge in discriminatory practices." The large role of these organizations in "the rating, dating, and mating of college students" is judged to be a major hindrance to integration.

World Urbanism.—A new sociological concept, world urbanism, is given currency in nine articles in the March 1955 issue of the *American Journal of Sociology*. The editor of this issue, Philip M. Hauser, states that the urban way of life appears to be on the way to dominate the rural areas and ultimately the world. The trend is also evident in hitherto remote areas of the world, such as Iceland. An article on "Social Change in Iceland" in the November–December 1955, issue of *Sociology and Social Research* shows that in 1900 only 20 per cent of the people in Iceland lived in villages, towns, and cities, whereas in 1952 the percentage had reached 80.

Sociological Societies.—The American Sociological Society held its annual meeting Aug. 31–Sept. 2, 1955, in Washington, D.C. In his presidential address on "Sociology and the Practicing Professions," Donald Young pointed out that sociologists need to take advantage of the opportunities "available to them through collaboration with the practicing professions," such as social work, law, public health, and medicine. More case studies "of sociology in application" are needed. It is "reasonable to expect" the establishment of "special graduate curricula to train sociologists for research in the applied fields for which sociology has the most relevance." In line with this emphasis the American Sociological Society (with the Russell Sage Foundation) was publishing in 1955 three bulletins on sociology and medicine, sociology and mental health, and sociology and correction.

Meetings were held on 30 different subjects, which included such newer themes as: social research with reference to defense, changing status of husband and father, sociology of the professions, and the interdisciplinary social science course.

Beginning with the first issue of 1956, the American Sociological Society is taking over the publication of *Sociometry* (founded in 1937 by J. L. Moreno), with the significant subtitle, *A Journal of Research in Social Psychology*.

The Rural Sociological Society held its 1955 annual meeting at the University of Maryland, August 29–30. Its president, William H. Sewell, gave the annual address on "Some Observations on Theory Testing." Among the subjects of section meetings were: rural-urban migration, technological change in rural society, application of

research findings, and research on peasant societies.

The Society for the Study of Social Problems held its fifth annual meeting in Washington, D.C., Aug. 30–Sept. 2, 1955, and was addressed by its president, Herbert Blumer, on the theme, "Attitudes and the Social Art."

The International Sociological Association (headquarters, London, England) announced that a Third World Congress of Sociology is scheduled to be held in Amsterdam, Aug. 22–29, 1956, on the theme, Problems of Social Change in the Twentieth Century.

Dissertations and Theses.—A total of 75 departments of sociology in the United States and Canada conferred 173 doctoral degrees and 286 master's degrees in 1954, according to the *American Journal of Sociology*.

EMORY S. BOGARDUS,
Professor of Sociology, University of Southern California.

SOFTBALL. See SPORTS, GAMES, AND SHOWS.

SOIL CONSERVATION. An outstanding feature of the United States soil and water conservation program during 1955 was the intensification of effort at all levels—national, state and local—to improve and expand facilities. During 1955, 20 state legislatures passed 37 new or amendatory laws relating to this program. To a large extent, the new legislation reflected an effort to provide authority needed by groups and organizations within the states in initiating and carrying out conservation work on a watershed basis and in cooperation with the U.S. Department of Agriculture.

The new legislation by the states followed passage of the Watershed Protection and Flood Prevention Act (Public Law 566) by the U.S. Congress in August 1954. By Oct. 1, 1955, 394 watershed protection and flood control groups had been organized in 41 states. Programs had been authorized on 103 projects, and planning parties composed of specialists in watershed problems had been assigned by the Soil Conservation Service to assist people with technical phases of their programs. Accomplishments during 1955, the first year of the watershed protection and flood control program, included completion of 1,044 stabilization and sediment control structures, 129 floodwater retarding structures, 38 silt and debris basins, revegetation on 28,000 acres, 165 miles of grassed waterways, and 211 miles of channel stabilization.

During the year, 56 new soil conservation districts were organized by farmers and ranchers, making a total of 2,674 such districts in the United States. Eighteen states and Puerto Rico and the Virgin Islands were completely covered by the districts. Fifteen districts in Hawaii and nine in Alaska had been organized. All the districts covered approximately 1,485 million acres and included 4,884,490 farms and ranches.

Nearly 1,553,000 farmers and ranchers within the districts had adopted soil and water conservation as a system for using their land. Two thirds of this number had complete conservation plans for their farms or ranches covering about 287 million acres. Most of them had reached or were approaching the advanced stage of applying overall conservation plans, and about 165,000 had applied all measures needed on their land.

During 1955, the following soil and water conservation practices were applied on farm and range land:

Contour farming.....	3,146,889 acres
Strip cropping.....	947,611 "
Cover cropping.....	4,506,673 "
Seeding grazing land.....	3,134,634 "
Tree planting.....	313,209 "
Wildlife planting and habitat improvement.....	525,051 "
Stubble mulching.....	4,199,916 "
Crop residue utilization.....	7,949,445 "
Windbreak planting.....	1,244 miles
Hedgerow planting.....	705,466 rods
Ponds constructed.....	86,574 "
Water diversion channels.....	6,902 miles
Terraces constructed.....	45,806 "
Drainage of wet lands.....	1,553,562 acres
Improved use of irrigation water.....	1,713,618 "
Land leveling for irrigation.....	493,907 "

The Soil Conservation Service provided 7,364 man-years of on-site technical assistance to farmers and ranchers during 1955. In addition, about 250 people who were employees of the states or soil conservation districts were working in the districts. At the same time, more than 13,000 supervisors, commissioners, or directors of districts gave their time and effort, without remuneration, to the district programs, and many other groups and organizations assisted in various ways. Among the latter was the year-long soil conservation program carried out in 1954-55 by the Boy Scouts of America. Practices applied by the scouts included planting of 20,363 acres to grass, 1,093,142 feet of hedgerows, and 6,192,753 trees; control of 65,485 eroding gullies; and improvement of 51,291 acres of farm woodlots.

On July 19, 1955, dedication of a historical monument and roadside parkway, commemorating the nation's first soil conservation project, was held in the 90,000-acre Coon Creek Watershed, in Wisconsin. The area was selected in 1933 by the Soil Conservation Service (at that time called the Soil Erosion Service) as an area suitable for large-scale demonstration of soil and water conservation. The watershed is now considered a model for conservation of farmland and is visited yearly by many students of conservation techniques.

Funds available during the fiscal year 1955 for soil and water conservation, as administered by the Soil Conservation Service, totaled \$87,075,769. Of this amount, \$77,956,020 was appropriated by Congress, while the remainder represented trust funds advanced to the service for assisting in the Agricultural Conservation Payments Program of the Department of Agriculture. (See also AGRICULTURAL RESEARCH SERVICE.)

PHOEBE O'NEALL HARRISON,

Division of Information, Soil Conservation Service.

SOLOMON ISLANDS. See WESTERN PACIFIC ISLANDS, BRITISH.

SOMALILAND (TERRITORY OF SOMALILAND UNDER THE UNITED NATIONS). A territory on the eastern coast of Africa, administered by Italy under a 10-year mandate ending in 1960. Area, 198,275 square miles; pop. (est., mid-1954), 1,269,000, including about 5,000 Europeans, mostly Italians. Mogadiscio (pop. 1953, 63,272) is the capital and chief port. The natives are mostly nomadic or seminomadic tribesmen of Arab-African origin and of Moslem religion. Numerous dialects are spoken and there is no written Somali language.

Government.—The Italian administrator is advised by a 3-member U.N. Advisory Council. There is a Territorial Council of 51 members (44 natives). A United Nations mission toured the territory in 1954. In its report to the U.N. Trusteeship Council, the mission recommended that Italy take greater steps to train native personnel for public administration, to prepare the way for self-government by 1960.

Education.—In 1954-55 there were 9,400 children and 11,950 adults attending 122 elementary schools. About 110 Somalis were studying abroad, mostly in Italy and Egypt. There is no provision for education of the nomads.

Finance.—Revenue in 1954 equaled \$12.3 million, of which Italy contributed nearly \$8 million. A 7-year development program was begun in 1954, projecting an expenditure of \$10 million in public and \$2.5 million in private funds toward improvements in agriculture, stock raising, and communications. The somalo equals U.S. \$0.137.

Economy.—Much of the land is arid and resources are meager. Livestock raising and farming are the chief occupations. Subsistence crops include sorghum, millet, maize, beans, and rice; cash crops: bananas (301,784 quintals exported in 1953), cotton, sisal, and sugarcane. Italian-owned plantations along the Webi Scebeli and Juba rivers produce bananas and sugarcane. A few small enterprises produce hides and skins, textiles, canned goods, and soap. Fishing is important along the coast. Exports totaled 34,687,600 somali in 1953; imports, 78,552,000. Trade is mostly with Italy.

Transportation and Communications.—Roads of all kinds total about 7,000 miles. There are no railways. Motor vehicles numbered 1,903 in 1954; telephones, 1,055 (1955). International airlines serve Mogadiscio. In 1952, Somaliland had one daily newspaper with a circulation of 2,000.

SOMALILAND, French. See FRENCH SOMALILAND.

SOMALILAND PROTECTORATE. British Somaliland, occupying about 68,000 square miles of northeastern Africa, extends some 400 miles along the south shore of the Gulf of Aden and adjoins French Somaliland, Ethiopia, and the Italian-administered United Nations trusteeship Territory of Somaliland. Except for about 2,700 non-natives (including a small number of Arab and Indian traders), the population (estimated in 1954 at 640,000) consists entirely of nomadic Somali tribes, who are Sunnite Moslems of the Shaff'i sect. Hargeisa (pop., 40,000) is the seat of government; other towns, whose names are also those of administrative districts, are Berbera, the chief port (pop., about 20,000). Borama, Burao, Erigavo, and Las Anod.

A governor (T. O. Pike, assumed office in February 1954) is assisted by an Advisory Council, consisting of both elected and selected Somali representatives; plans were in preparation in 1955 for the inauguration of a representative Legislative Council. The currency is the East African shilling. Revenue in 1953-54 totaled £582,122; expenditure, £1,053,720. There are 22 government primary schools (2,876 pupils in 1953); 2 government secondary schools; and 45 state-aided Koranic elementary schools (1,481 pupils).

Much of the coastal area is desert; but on the interior plateau coarse grass furnishes the food for camel, sheep, and goat herds. Imports valued at £2,360,000 in 1954 included 6,410,000 square yards of cotton piece goods; exports totaling £1,210,000 included goat and kid skins (6,360 hundredweight) and sheep and lamb skins (11,500 hundredweight). Exports to the United Kingdom totaled £33,738 in 1954; imports from the United Kingdom, £570,359. Highways aggregate 1,804 miles. External air services from Hargeisa are maintained by Aden Airways.

SOMERVELL, Brehon Burke, United States army officer: b. Little Rock, Ark., May 9, 1892; d. Ocala, Fla., Feb. 13, 1955. Commander of the Army Service Forces during World War II, he

was charged with supplying the armies of the United States with all the materials and facilities needed to wage total war against the Axis powers.

Commissioned a 2d lieutenant in the Corps of Engineers after his graduation from the U.S. Military Academy in 1914, Somervell served briefly as assistant military attaché in Paris at the outbreak of World War I, and as an assistant in the office of the chief of engineers in Washington. In 1915 he was sent to map the Mexican frontier, and this duty led to his participation in the Villa campaign under Gen. John Pershing in 1916.

With the entrance of the United States into World War I, Somervell went to France with the 5th Reserve Engineers. He worked on a variety of engineering projects until 1918, when he was assigned to the 89th Division, with which he participated in the Meuse-Argonne offensive. After the war, until 1920, he served as a supply officer in the 3d Army and later as assistant chief of staff of the supply division of the Army of Occupation at Coblenz.

Somervell worked in 1925 with Walker D. Hines, director general of American railways (1919-20) in preparing a survey of navigation conditions on the Rhine and Danube rivers for the League of Nations. From 1925 on, he held a variety of important engineering posts throughout the United States, and in 1933, at the request of Kemal Attatürk, went with Hines to Turkey to make a comprehensive economic survey of that country. With the death of Hines in January 1934, the major work, including a voluminous report, was completed by Somervell within a year.

Somervell's next major assignment came in August 1936 when he was appointed administrator of the Works Progress Administration (WPA) of New York City. From that year until he gave up his post in November 1940, he employed his organizing talents and inexhaustible energy to transform the administration from a loose organization, marked by scandal and incompetence, to a closely knit enterprise which completed many important projects.

In December 1940, Somervell was recalled to military service. Given charge of the construction division of the Quartermaster Corps, he directed the U.S. Army's vast development program. In November 1941 he was named assistant chief of staff in charge of supply, and in March 1942 he was appointed commander of the Services of Supply (later named Army Service Forces), the newly organized branch under whose jurisdiction were placed all supply units of the U.S. Army, including the Quartermaster Corps, the Ordnance Department, the Corps of Engineers, the Signal Corps, and the Chemical Warfare Service. In little over a year he advanced from lieutenant colonel to lieutenant general, and in March 1945 he became the first engineering officer to achieve the U.S. Army rank of four-star general.

"The impossible we do at once," he once said, "the miraculous takes a little longer." The extent of his task was indicated in a report he made to the War Department in 1945 in which it was computed that his organization had equipped 8,300,000 men and, by June 30, 1945, had disbursed a total of \$172 billion.

Retiring from the army in April 1946, General Somervell thereafter served as president and director of Koppers Company, Inc., at Pittsburgh, Pa., an industrial machinery and byproducts firm. He was buried in Arlington National Cemetery.



BLACK STAR PHOTO BY TERENCE SPENCER

A home in Sophiatown, Johannesburg, is demolished, following removal of Negroes to a new settlement nearby, under South Africa's Natives Resettlement Act.

SORGHUM. See Index entry.

SOUND. See Index entry.

SOUTH AFRICA, Union of. A sovereign unitary state with a multiracial population, South Africa is a member of the Commonwealth of Nations.

Area and Population.—The area of the Union is 472,494 square miles, and the population was estimated on June 30, 1955, at 13,629,000. The whites, themselves divided 60-40% between Afrikaans-speaking and English-speaking persons, numbered 2,856,000; the native Africans, or Bantu, 9,121,000; the Coloreds, of mixed descent, 1,242,000; and the Asians, almost exclusively Indians, 410,000.

The largest cities, with their 1951 census populations (including suburbs), are Johannesburg (880,014); Cape Town, seat of Parliament (571,638); Durban (475,026); Pretoria, Union administrative center (283,148); and Port Elizabeth (188,617).

South Africa controls two small islands, Prince Edward and Marion, lying some 1,200 miles southeast of Cape Town, and administers South West Africa (q.v.).

Education.—There is free, compulsory education for white children between the ages of 7 and 16. In 1952 the 2,662 primary and secondary schools for white children had a combined enrollment of 518,953.

Native education was placed under the Department of Native Affairs in 1953, at which time there were 883,896 native Africans attending government and government-aided schools, or about 41% of those of school age. By 1955, under the provisions of the Bantu Education Act of 1953, most Protestant mission schools had either been forced to close because of lack of funds or had been transferred to government control, but the Roman Catholic mission schools continued to operate.

There are nine universities—four English-speaking (Cape Town, Witwatersrand, Natal, Rhodes), four Afrikaans-speaking (Pretoria, Stellenbosch, Orange Free State, Potchefstroom), and the University of South Africa, a federal university mainly for external students. Fort Hare College, solely for Africans, was closed on May 4, 1955, following difficulties between the administration and the student body, but later was reopened.

Government.—The Constitution of the Union is embodied in the South Africa Act of 1909. Parliament consists of the Senate and the House of Assembly, and its measures are approved by

the governor general (Ernest G. Jansen since 1951) on behalf of Queen Elizabeth II.

Though a relatively small minority, the white population has a monopoly of political and economic power and social prestige. Only whites can sit in Parliament. Of 159 members of the House of Assembly, seat of political power, 156 are chosen at general elections, the last of which were held on April 15, 1953. At that time, the Nationalist Party, which represents the nationalistic Afrikaans-speaking element and is now led by Prime Minister Johannes G. Strijdom, won 94 seats; the United Party, the official opposition which holds together most of the English-speaking population and about 20% of the Afrikaans-speaking, won 57 seats; and the English-speaking Labour Party, which had an electoral agreement with the United Party and is now largely composed of intellectual socialists, won 5 seats. At the same time, the United and Labour parties polled well over 100,000 more votes than the Nationalists.

Since the 1953 elections three new parties have split off from the United Party; the National Conservatives, numbering 7 members in the assembly, resulting from revolt against the leadership of Johannes G. N. Strauss of the United Party; the Union Federal Party, still without representation in the assembly, which seeks to reinforce the British heritage in South Africa; and the Liberal Party, which endorses the far-reaching program of universal franchise for all South Africans, including non-Europeans, to be achieved by progressive stages.

On Dec. 1, 1954, the Liberal Party won 2 of the 3 seats assigned in the assembly to African voters in Cape Province who can meet certain educational and property qualifications. In addition to this representation, Africans throughout the Union select 4 European senators through a complicated indirect procedure, and 2 of these 4, chosen on Dec. 8, 1954, also were Liberals. The Senate, formerly consisting of 48 members, was enlarged in 1955 to 89 members, of whom the Nationalists control 77 (see below, *Principal Events*, 1955).

Finance.—In the year ending June 30, 1954, South Africa's net national product increased by 6.5%, to £1,521.5 million (£1=U.S. \$2.80), although wholesale and retail prices rose only 1.4%. This followed a striking and continuous increase in the net national product, at a rate of 11.5% a year between 1946-47 and 1952-53, during which period wholesale and retail prices rose by 7.2% a year.

After successive annual deficits totaling £75 million for the years 1951-53, the balance of payments of the Union, including South West Africa, showed a favorable turn in the first quarter of 1954, yielded a net surplus of £44 million for that year, and showed a total improvement of £74 million as compared with 1953. The surplus on the capital account in 1954 was also £74 million, the highest net capital inflow since 1948.

The 1955-56 national budget provided for ordinary expenditures of £244 million and capital expenditures of £90.3 million.

Mining.—Mineral production showed a strong upward tendency during 1954, and continued to increase steadily as new gold mines and uranium extraction plants were opened. Partly because of a sharp rise in the average yield of ore milled by Orange Free State mines, gold output increased from 12.4 million ounces, worth £153.6 million, in the year ending June 30, 1954, to 14 million ounces, worth £175.1 million, in that ending June 30, 1955. In the same period, receipts from the sale of uranium, which in South Africa is a byproduct of gold mining, rose from £7 million to £21 million. By 1955 the South African Atomic Energy Commission had empowered 26 gold mines to produce uranium, and 18 of these had reached the production stage. Though a shortage and uncertainty of native labor remained a problem, the average number of Africans employed by the gold mines in the first half of 1955 rose to 324,496, as compared with 305,233 in the first half of 1954.

The output of diamonds, platinum, and copper showed a moderate increase in the year end-

ing June 30, 1955, but that of coal, manganese ore, chrome ore, and asbestos was still being hampered by the inability of the railways to provide adequate transport to coastal ports for export. In the year 1954, 29.3 million metric tons of coal were produced, and diamond sales totaled £62,153,125.

Industrial Production.—There has been a steady increase in the output of secondary industries, but in some sectors, notably production of steel (1,431,000 metric tons in 1954) and deliveries of new cars, the supply has not been able to satisfy the demand.

In pursuance of the Nationalist government's aim of aiding the native reserves (which occupy 11% of the total area) to become a national home for the Africans, the National Resources Development Council plans to build 100 factories in these areas to provide employment for 30,000 Africans and 6,000 Europeans. Total costs are estimated at £200 million, and about 40 years will be required to complete the project.

Agriculture.—In 1954-55 there were record crops of sugar (828,555 tons) and deciduous fruits (69,290 tons exported) and a near-record crop of corn (36.4 million 200-pound bags). The wool clip totaled 290.4 million pounds, as compared with 268.3 million pounds in 1953-54, but because of a decline in price it yielded only £58.8 million (£64.2 million in 1953-54). For the year 1954 wheat production totaled 6,347,000 200-pound bags; and citrus fruit, 6,350,000 boxes for export.

External Trade.—In 1954, South Africa's exports totaled £317.7 million (about 50% to Great Britain), and imports £443.3 million; corresponding figures for the first six months of 1955 were £178.7 million and £246 million, respectively. With the favorable turn in the balance of payments import controls were substantially relaxed in the second half of 1954, and a further relaxation of controls on imports of motor vehicles and goods on the prohibited list was announced in February 1955. In the first half of 1955 imports increased by £17.3 million while the net inflow of capital declined by about £29 million, as compared with the first half of 1954. Thus the Reserve Bank's gold and foreign exchange holdings declined to £120.6 million by the end of June 1955, but this figure was still £1.8 million above that of June 30, 1954.

Principal Events, 1955.—The most significant development of 1955 was the change in the balance of the South African Constitution which resulted from the passage of the hotly contested Senate bill. While this bill, together with measures affecting the Appellate Division of the Supreme Court, was clearly designed to enable the Nationalists to make political *apartheid* (separation) complete, it also reflected a disturbing lack of concern for constitutional ways of action.

Since 1950 the Nationalists have attempted to place on a separate roll the last non-Europeans in the Union who vote on the ordinary roll with Europeans—the male Cape Coloreds who can meet certain educational and property qualifications. On March 20, 1952, the Appellate Division of the Supreme Court declared that the ordinary legislation passed for this purpose was unconstitutional because it did not follow the procedure laid down in the constitution for dealing with the voting rights of non-Europeans in Cape Province, which requires a two-thirds majority of the House of Assembly and Senate in joint session. An attempt to make Parliament itself the supreme judge of the validity of legisla-

tion through the High Court of Parliament Act similarly failed when the Appellate Division declared on Nov. 13, 1952, that this measure too was unconstitutional. After the Nationalists were returned to office with a much increased majority in 1953, Prime Minister Daniel F. Malan tried, unsuccessfully, twice by joint-session procedure to secure the necessary two-thirds majority to put the Coloreds on a separate roll.

Under Prime Minister Strijdom, who took office on Nov. 30, 1954, more far-reaching measures have been taken. On March 25, 1955, it was announced that 5 new judges would be appointed to the Appellate Division. Then, on May 5, Parliament passed the Appellate Division Quorum Act, raising the number of judges to 11 whenever the court questions the validity of an act of Parliament. Strijdom explained that the purpose of the act was to add new judges to the 5 who had made the decisions in 1952.

Still more drastic was the Senate Act, which became law on June 20, 1955. Under this act, Cape Province and the Transvaal receive more seats in the Senate than Natal and Orange Free State, thus overriding the principle of equal representation of provinces in the second chamber. Moreover, instead of allotting seats to the parties in proportion to their provincial strengths as formerly, the act provides that the party controlling a province receives all its Senate seats. Since the Nationalists control the provincial councils in Cape Province, the Transvaal, and Orange Free State, and the number of government-nominated members was substantially increased, the new Senate, selected on Nov. 25, 1955, has 89 seats instead of the former 48, and the Nationalists control 77 of these instead of 30. A joint session will yield the Nationalists 171 votes to 77, or a clear two-thirds majority, and so make it relatively easy for them to remove the Coloreds from the common roll.

While the Senate bill was under consideration, there were widespread signs of protest. A monster petition against the measure secured 100,000 signatures. A striking evidence of dissent was the formal protest of 13 senior faculty members of Pretoria University. A newly organized group, the Women's Defense of the Constitution League, not only held meetings throughout the country, but also wore black sashes in mourning for the constitution and lined the way whenever a cabinet minister made an appearance. There was little evidence, however, that these signs of opposition would change Nationalist policies.

The United Party vigorously fought the Senate Bill and maintained its position that the Coloreds should be left on the common roll. Under pressure from its small liberal wing, the party declared that on its return to office it would "set right the grave injustice" done the Coloreds through the Senate Act "in the best way open to us at that time." This did not satisfy one of its liberal members, Dr. Bernard Friedman, who felt that the party should pledge itself to replace the Coloreds on the common roll. When party leaders refused to give such a pledge, he resigned his seat, and on September 14 fought it in a bye-election as an independent. His defeat in a straight fight with a United Party candidate, is evidence that there is not deep concern about the position of the Coloreds, and also that many voters are reluctant further to weaken the United Party, which offers the only viable opposition to the Nationalists.

Though the Liberal Party still has only a relatively small membership, it is providing a unique

example for South Africa of multiracial membership in a political party. More than a quarter of its membership in Cape Province in 1955 was African, and in Natal almost 50% of its members were either African or Indian.

Almost the only evidence of the opposition of non-Europeans to the highly restrictive situation in which they find themselves was the Congress of the People held in July 1955. This brought together representatives of the African National Congress, the South African Indian Congress, the South African Colored People's Organization, and a left-wing European organization known as the Congress of Democrats. Together they attempted to publicize a Freedom Charter of rights for non-Europeans. Though this had no obvious effect, it suggested the danger of forcing non-European organizations, for lack of other channels, into the orbit of the Communists.

Few new measures of *apartheid* were introduced in 1955, and Nationalist efforts were concentrated on tightening the administration of acts already on the statute books. In February, for example, two groups of Africans living in Johannesburg suburbs were moved under the provisions of the Natives Resettlement Act. At the Nationalist Party congress held in Natal in August, Prime Minister Strijdom spoke of the necessity for Europeans within South Africa and elsewhere on the continent to stand together on the policy of *apartheid* if they were to maintain their position. He pledged himself to remove the Coloreds from the common roll and ultimately to transform South Africa into a republic.

The Nationalists achieved one cherished objective in 1955 when the United Kingdom, as announced on July 4, formally agreed to give up control and administration of the naval base of Simonstown by March 31, 1957, for a sum of £750,000. In return, the British were assured continued use of the base, and that there would be no discrimination against non-Europeans whom they wished to employ there.

The United Nations continued to concern itself in 1955 with South Africa's treatment of its Indian minority, its refusal to submit reports as the mandatory power for South West Africa, and its racial situation. South Africa, on its side, maintained its customary refusal to admit the right of United Nations organs to concern themselves with these issues. On April 5, it announced its withdrawal from UNESCO.

In its extended third report on the racial situation in South Africa, presented to the tenth session of the General Assembly on October 12, the U.N. Commission on the Racial Situation in South Africa suggested that the greatest problem of South Africa's white minority, particularly the Afrikaans-speaking element, lay in their sense of isolation. It pointed out that they could best gain the security they sought by developing a sense of solidarity with other nations "based on a common striving towards justice and social progress according to common and generally accepted principles." On November 9, after the Special Political Committee voted to continue the commission, the South African delegation withdrew from the General Assembly session. The General Assembly subsequently decided, however, not to continue the commission.

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SOUTH AMERICA. A continent in the Western Hemisphere. Estimated area, 6,894,000 square miles; est. pop. (1954), 121,100,000. (See In-

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dex entry, *South America*, and articles on the individual South American countries.)

SOUTH CAROLINA. South Atlantic state, United States; one of the original 13 states. The "Palmetto State" ranks 39th in area and 26th in population (1955) among the 48 states.

Area and Population.—Area: 31,055 square miles (land, 30,305; inland water, 750), divided into 46 counties. Population: (1950) 2,117,027; (est., July 1, 1955) 2,226,000. Urban places with 1950 populations above 10,000 are as follows:

Anderson.....	19,770	Greenwood.....	13,806
Brandon-Judson*.....	11,008	Orangeburg.....	15,322
Charleston.....	70,174	Rock Hill.....	24,502
Columbia, capital.....	86,914	Spartanburg.....	36,795
Florence.....	22,513	Sumter.....	20,185
Greenville.....	22,161	* Unincorporated	

Executive.—Chief state officers in 1955:

Governor: George Bell Timmerman, Jr. (Democrat)

Lieutenant Governor: Ernest F. Hollings

Secretary of State: O. Frank Thornton

Treasurer: Jeff B. Bates

Attorney General: T. C. Callison

Supt. of Education: Jesse T. Anderson

Constitution and Judiciary.—The present constitution went into effect in 1895. The Supreme Court comprises five justices; chief justice in 1955 was D. Gordon Baker.

Legislature.—The General Assembly (Senate, 46 members; House of Representatives, 124) meets annually commencing the second Tuesday in January.

The 1955 session of the General Assembly authorized General Fund expenditures of almost \$130 million. Chief cause of the \$10 million rise in expenditures over the previous year was an increase of \$5 per pupil in the state allocation to local school districts for current operations. Other legislation on education raised the state bonded indebtedness for school construction by \$37.5 million, and for bus equipment by \$1.5 million; repealed compulsory attendance and automatic teacher employment laws; and vested greater authority in local school districts. Corporate income taxes were raised to 5%, and the state was authorized to garnishee the salaries of employed persons delinquent in payment of income taxes. The offices of council director and code administrator were combined, with all bill drafting, publishing of acts, and code publication and revision functions placed in that office. A point system on traffic violations was enacted; payment of property taxes on automobiles was made a precondition for licensing or registration; closer regulation of narcotics sales was provided; and an amendment eliminating the antidueling provision from the oath of office was approved in final form.

Finances.—State treasury receipts (1954-55 fiscal year), \$301,276,346.91; expenditures, \$303,960,556.73; treasury balance, \$123,533,051.80; long-term indebtedness, \$146,298,792.91.

Taxation.—State tax revenue (1954-55 fiscal year): \$153,033,220, including \$119,087,149 from a 3% general sales tax and selective sales and gross receipts taxes; \$9,678,384 from licensing; \$12,326,765 from individual income taxes; and \$11,940,924 from corporate income taxes. The state also has a poll tax of \$1 per person.

Banking.—As of June 30, 1955, the state's 27 national banks had \$526,570,000 in assets, \$423,094,000 in demand deposits, and \$63,938,000 in time deposits; the state's 112 other banks, 23 branches, 1 military facility, and 14 cash depositories had \$323,549,938.71 in assets, \$221,647,431.79 in demand deposits, and \$52,116,231.80 in time deposits.

Education.—The state's compulsory attendance law was repealed at the 1955 session of the General Assembly. Operating expenditures for the 1954-55 school year included \$30,500,191.21 from local school districts, \$83,034,775.06 from the state, and \$5,134,718.70 from the federal government. Cost per pupil was \$169. Expenditures for construction and improvements totaled \$42,957,330. Teachers' salaries averaged \$2,924 (elementary school teachers, \$2,800; high school teachers, \$3,165).

Enrollment during the 1954-55 school year comprised 398,138 pupils in 1,562 public elementary schools (grades 1 to 8), with 12,050 teachers; 154,811 pupils in 402 public secondary schools (grades 6-12 in some districts and 8-12 in others), with 6,199 teachers; 9,678 students in 51 private and parochial elementary and second-

ary schools; and 25,344 students in 31 colleges and universities.

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$24,941,376, including \$16,398,029 for old-age assistance, \$772,173 for dependent children, and \$4,467,619 for the needy blind; a monthly average of 77,632 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$6,935,100; for correctional and penal institutions, \$1,383,061.

SOUTH CAROLINA WELFARE INSTITUTIONS

(As of June 30, 1955)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.....	3	7,750
Sanatoriums for the tubercular.....	1	506
Schools for the deaf and blind.....	1	330
Vocational schools for boys and girls.....	2	705
Hospitals for crippled children.....	1	40
Homes for veterans and veterans' widows.....	1	42
Reformatories for boys.....	2	500
Reformatories for girls.....	2	160
Prisons.....	1	1,547
Prison farms.....	2	337

Labor Force.—Nonagricultural employment numbered 512,600 in August 1954, and averaged 536,500 during 1953. There were 17,402 unemployed workers in August 1954, and the state paid \$13,582,467.63 in unemployment compensation for the 12 months ending June 30, 1954.

Manufacturing.—Establishments numbering 1,958 in 1954 employed 186,435 persons who received \$473,666,241 in salaries and wages. Value added by manufacture in 1953 totaled \$1,056,243,000, and investment in new plant and equipment (1954) amounted to \$76,029,000. Earnings of production workers in manufacturing averaged \$49.64 for an average work week of 39.4 hours in 1954, and \$52.10 for 40.7 hours in the first half of 1955.

MAJOR SOUTH CAROLINA MANUFACTURES, 1954

Product or industry	Ave. no. of employees	Salaries and wages	Value of product
Textiles.....	127,250	\$336,845,102	\$1,493,400,618
Clothing.....	18,604	32,066,770	113,567,846
Paper and pulp.....	4,060	15,712,963	113,181,043
Electricity.....	2,162	7,358,753	81,859,230
Barrels, boxes, baskets, veneer.....	4,429	8,690,798	37,078,407
Fertilizer.....	1,775	3,625,851	36,663,609
Furniture and wood-work.....	4,018	8,464,349	36,371,403
Foundry & machine shops.....	2,249	7,431,262	31,526,440

Mining.—South Carolina stood 43d among the states in 1953 in value of mineral output, with 0.12% of the United States total. The state normally ranks second as a producer of kyanite and vermiculite.

SOUTH CAROLINA MINERAL PRODUCTION, 1954

Mineral	Quantity	Value
Clay (short tons).....	1,136,019	\$ 4,702,027
Crushed stone (short tons).....	2,548,290	2,559,391
Sand and gravel (short tons).....	2,813,750	2,550,260
Other minerals.....	...	6,552,126
Total.....	...	17,363,804

(Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$78,358,000, and for the full year 1954 comprised \$91,261,000 from livestock and livestock products, \$227,894,000 from crops, and \$2,781,000 from government payments. Receipts from principal crops and livestock in 1954

included: cotton lint, \$88,695,000; tobacco, \$72,-544,000; hogs, \$24,624,000; and dairy products, \$21,490,000.

The state's 124,203 farms (11,069,348 acres; harvested cropland, 3,392,207) averaged 89.1 acres and \$6,767 in value of land and buildings per farm in 1954. There were 21,606 farms with telephones and 109,100 with electricity. Livestock on farms on Jan. 1, 1955, included 492,000 cattle, 525,000 hogs, and 5,263,000 chickens (excluding commercial broilers). During the week of Oct. 24-30, 1954, 231,772 family and hired workers were engaged in farming.

SOUTH CAROLINA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Corn (1,000 bu.).....	25,972	11,718	29,680
Cotton lint (1,000 bales).....	692	501	570
Cottonseed (1,000 tons).....	286	215	242
Cowpeas (1,000 bu.).....	410	252	451
Hay (1,000 tons).....	412	257	416
Oats (1,000 bu.).....	17,184	23,846	21,450
Pecans (1,000 lb.).....	507	450	60
Potatoes (1,000 bu.).....	1,979	1,595	1,070
Soybeans (1,000 bu.).....	589	910	2,595
Sweet potatoes (1,000 bu.).....	4,145	1,495	2,400
Tobacco (1,000 lb.).....	154,874	148,050	198,900
Wheat (1,000 bu.).....	3,040	3,081	2,978

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1953-54 fiscal year totaled \$24,486,270, and newly completed construction and reconstruction aggregated 1,606 miles.

Highways and roads in January 1954 totaled 49,-901 miles (19,141 surfaced). Registered motor vehicles numbered 690,137 in August 1954, including 544,392 passenger cars and buses. There were (1954) 16 railroads operating 3,353.13 line miles, and (1955) 5 regularly scheduled airlines and 54 airports and airfields (45 commercial and municipal, 4 military, 2 private, and 3 others).

Communications media included (1954) 53 AM radio stations and 9 operating television outlets (5 VHF and 4 UHF); 18 daily newspapers (circulation, 696,-849) and 76 other newspapers; and (Jan. 1, 1955) 106,856 business and 250,280 residential telephones.

Principal Events, 1955.—On March 27, a freeze occurred in the state which completely destroyed the peach crop and seriously damaged the pecan and apple crops. The peach crop is usually valued at \$10 million per year. Other crops were good. It was estimated that the value of cotton and cottonseed would amount to \$105 million in 1955 and that tobacco would bring in \$110 million. Most significant, however, was the fact that the state seemed to be moving toward a more diversified agriculture.

South Carolina was also striving for a better-balanced and more diversified industrial program. In the past, industry has been mostly confined to cotton textiles, but at the present time new woolen mills are entering the state. For instance, in 1955, Nichols and Company of Boston established the Wellman Combing Company plant at Johnsonville for the purpose of manufacturing wool tops; and the Amedee Prouvost Company of France, the largest wool top manufacturer in the world, established the Santee River Wool Combing Company plant at Jamestown. Each plant is a \$3 million installation employing 350 people and capable of producing 20 million pounds of tops per year. Both factories are so constructed that their size and production can be quadrupled at any time. A plant was established at Sumter, which can dye the entire output of the two wool top plants. Thus wool tops have been made available for woolen and other syn-

thetic manufacturing plants wishing to come into the Southern area.

As of October 15, industrial expansion in 1955 amounted to \$175 million and was expected to exceed \$200 million for the full calendar year. This amount represented the largest annual outlay for expansion in the history of the state.

Principal Events by: GEORGE R. SHERRILL,
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SOUTH DAKOTA. North Central state, United States; admitted to the Union, Nov. 2, 1889. The "Coyote State" ranks 15th in area and 40th in population (1955) among the 48 states.

Area and Population.—Area: 77,047 square miles (land, 76,536; inland water, 511), divided into 68 counties. Population: (1950) 652,740; (est., July 1, 1955) 672,000. Urban places with 1950 populations above 7,500 are: Aberdeen, 21,051; Brookings, 7,764; Huron, 12,788; Mitchell, 12,123; Rapid City, 25,310; Sioux Falls, 52,696; Watertown, 12,699; and Yankton, 7,709. Pierre (5,715) is the capital.

Executive.—Chief state officers in 1955:

Governor: Joe J. Foss (Republican)

Lieutenant Governor: L. R. Houck

Secretary of State: Geraldine Ostroot

Treasurer: Ed. T. Elkins

Attorney General: Phil Saunders

Supt. of Public Instruction: Harold S. Freeman

Constitution and Judiciary.—The present constitution went into effect in 1889. The Supreme Court comprises five justices; chief justice in 1955 was Herbert B. Rudolph.

Legislature.—The legislature (Senate, 35 members; House of Representatives, 75) meets in odd-numbered years commencing the first Tuesday after the first Monday in January.

The 1955 meeting of the legislature adopted a \$49.5 million budget for the 1955-57 biennium, including \$11.4 million for the maintenance and operation of state institutions of higher education; an increase of \$1 million in school appropriations, with the major share of the rise going to secondary schools; and an increase in the appropriations for highways. It added a ¼-cent tax per package of cigarettes, and enacted a temporary increase of the sales tax from 2% to 3%; established a Department of Revenue to consolidate the divisions of taxation and licensing, a Department of Military Affairs, in charge of civil defense, and a Water Resources Commission to administer the new water laws; designated the Board of Charities and Corrections as the Department of Probation and Parole; and made the Highway Commission the State Highway Department. The appropriation of the Natural Resources Commission was doubled to increase the promotion of industrial development; the decennial census was eliminated; provision was made for new buildings at state colleges; reflectorized license plates were approved; and salary increases were awarded to the governor, attorney general, and to Supreme Court and Circuit Court judges. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$79,472,099.38; expenditures, \$87,929,108.64; treasury balance, \$36,010,940.71. The state's long-term indebtedness was paid off as of June 30, 1955.

Taxation.—State tax revenue (1954-55 fiscal year), \$36,995,807.44, including \$34,839,367.66 from a 2% general sales tax (increased to 3% on April 1, 1955) and selective sales and gross receipts taxes, and \$2,156,-439.78 from licensing. The state has no individual income, corporate income, or property tax, but does have a \$1 school poll tax per person.

Banking.—As of June 30, 1955, the state's 35 national banks had \$316,435,000 in assets, \$216,862,000 in demand deposits, and \$77,928,000 in time deposits; the state's 136 other banks had \$295,025,719.87 in assets, \$164,373,583.10 in demand deposits, and \$62,-354,592.37 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for public elementary and secondary education in the 1954-55 school

SOUTH DAKOTA SCHOOL STATISTICS, 1954-55

Type of school	No.	Teachers	Students
Public elementary (1-8).....	2,945	5,451	100,784
Public secondary (9-12).....	271	2,028	31,393
Private and parochial elemen- tary and secondary.....	82	473	12,609
State teachers colleges.....	4	127	1,796
Colleges and universities.....	3	359	4,311

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year totaled \$33,506,238.87 (\$284.83 per pupil). Expenditures for construction and improvements amounted to \$5,628,439.76. In the 1953-54 school year teachers' salaries averaged \$2,122 for rural teachers, \$2,761 for city elementary school teachers, and \$3,573 for high school teachers.

Social Welfare.—Public assistance expenditures from federal and state funds (excluding operational costs) in the 1954-55 fiscal year totaled \$9,083,145, including \$5,862,416 for old-age assistance, \$2,767,940 for dependent children, \$104,395 for the needy blind, and \$348,394 for the disabled; a monthly average of 21,160 persons received public assistance. Operating expenditures for welfare institutions devoted to education, \$5,513,943.93; for all other welfare institutions, \$3,927,401.47.

SOUTH DAKOTA WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for the mentally ill (June 30, 1955).....	1	1,605
Homes for the feeble-minded (June 30, 1955).....	1	899
Sanatoriums for the tubercular (June 30, 1955).....	1	82
Schools for the blind (Sept. 13, 1955).....	1	51
Schools for the deaf (Sept. 12, 1955).....	1	93
Soldiers and sailors homes (Aug. 31, 1955).....	1	221*
Training schools for boys and girls (Sept. 9, 1955).....	1	125
Reformatories for males (December 1954).....	1	21
Prisons (December 1954).....	1	427

* Includes 145 men and 76 women.

Labor Force.—Nonagricultural employment on June 15, 1955, numbered 125,300, and for the full year 1954 averaged 121,850. The state paid \$1,384,337.67 in unemployment compensation during the year ending June 30, 1955.

Manufacturing.—Establishments in 1953 paid \$37,038,000 in salaries and wages to 10,441 persons. Value added by manufacture was \$80,703,000, and investment in new plant and equipment amounted to \$3,270,000. Earnings of production workers in manufacturing averaged \$67.39 for an average work week of 43.8 hours in 1954, and \$68.43 for 43.7 hours in the first half of 1955. Major manufacturing industries include food processing and printing and publishing.

Mining.—In 1953, South Dakota ranked first among the states in the production of beryl, columbium-tantalum, and gold; second in feldspar, kyanite, and lithium minerals; third in lignite; and fourth in mica. The state stood 36th in the value of its mineral products, with 0.24% of the United States total.

SOUTH DAKOTA MINERAL PRODUCTION, 1955*

(In short tons, except as noted)

Mineral	Quantity	Value
Beryl concentrates.....	330	\$ 137,000
Clay.....	230,000	1,332,000
Feldspar (long tons).....	43,000	273,000
Gold (fine ounces).....	527,400	18,459,000
Sand and gravel.....	20,000,000	8,200,000
Silver (fine ounces).....	154,700	140,011
Stone.....	1,800,000	5,400,000
Other minerals.....	...	4,676,989
Total.....	...	38,618,000

* Preliminary. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$216,740,000, and for the full year 1954 comprised \$362,872,000 from livestock and livestock products, \$201,631,000 from crops, and \$5,728,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$184,766,000; hogs, \$99,586,000; corn, \$71,153,000; wheat, \$65,488,000; dairy products, \$27,315,000; eggs, \$26,603,000; and oats, \$23,881,000.

The state's 62,520 farms (44,928,353 acres; harvested cropland, 17,759,947) averaged 718.6 acres and \$28,708 in value of land and buildings per farm in 1954. There were 37,394 farms with telephones and 56,734 with electricity. Livestock on farms on Jan. 1, 1955, included 3,301,000 cattle, 1,254,000 sheep, 1,524,000 hogs, and 9,371,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 120,670 family and hired workers were engaged in farming.

SOUTH DAKOTA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Barley (1,000 bu.).....	22,439	8,854	9,306
Corn (1,000 bu.).....	108,013	115,913	86,457
Flaxseed (1,000 bu.).....	4,833	5,802	5,512
Hay (1,000 tons).....	3,617	4,908	4,079
Oats (1,000 bu.).....	98,658	113,772	100,672
Potatoes (1,000 bu.).....	2,139	1,680	1,150
Rye (1,000 bu.).....	4,202	2,460	4,012
Soybeans (1,000 bu.).....	682	3,114	2,761
Wheat (1,000 bu.).....	43,157	27,008	28,158

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in the 1953-54 fiscal year totaled \$26,441,019.75, and newly completed construction and reconstruction in 1954 aggregated 1,033 miles.

Highways and roads on Dec. 31, 1954, totaled 91,706 miles (38,571 surfaced). Registered *motor vehicles* numbered 341,196 on Sept. 1, 1955, including 224,973 passenger cars. There were 9 *railroads* (1954) operating 3,950.53 line miles, and (1955) 2 regularly scheduled *airlines* and 209 *airports and airfields* (68 commercial and municipal, 1 military, and 140 private).

Communications media (1955) included 1 FM and 14 AM *radio stations* and 2 VHF operating *television outlets*; 12 daily *newspapers* (circulation, 156,951) and 158 other newspapers (circulation, 164,448); and (Jan. 1, 1955) 41,876 business and 129,310 residential *telephones*.

Principal Events, 1955.—Significant legislation of the 34th Legislature, whose session ended March 4, included: (1) recodification of state school laws; (2) provisions for directors of assessment on the county, rather than township, level; (3) appropriation of \$5,000,000 for state aid to education; (4) revision of the state's water laws; (5) adoption of a \$7,500,000 Korean bonus to be paid by raising the sales tax from 2% to 3%; and (6) repeal of the state's communal corporation laws to prevent further expansion of communities of the Hutterite sect.

In elections of April 19, Brookings favored a municipal liquor store by a narrow margin, and Yankton approved the city manager-council form of government. South Sioux Falls on October 18 and Sioux Falls on November 15 voted for a merger of the two cities, to be completed Jan. 1, 1956.

Educational news included a campaign for funds to replace College Hall, principal building of Dakota Wesleyan University, which was destroyed by fire on February 12; and the sale, after October 6, of 90 buildings of Pickstown by the Department of Health, Education, and Welfare to state institutions.

Automobile accidents and inclement weather furnished much of the tragedy of the year. From February 18 to 21, snow storms reached blizzard conditions, and on April 5, 50 inches of snow fell in the northern Black Hills, closing schools and roads in Lead, Deadwood, Spearfish, Belle Fourche, and Sturgis. An abnormally hot and dry summer reached a 110-degree temperature on July 31, and provided a 10th successive day of over 100 degrees on August 4. November, how-

ever, was the coldest since 1913. By December 20, automobile fatalities had numbered 190, surpassing the record high of 189 in 1954.

Miscellaneous events included administration of the first free Salk vaccine shots on June 14; a four-day visit of Soviet farm delegates, beginning July 2; the closing of Gavins Point Dam on the Missouri River on July 31 (see also DAMS); and the dedication of Joe Foss Air Field at Sioux Falls on August 7.

Principal Events by: CEDRIC C. CUMMINS,
Professor of History, University of South
Dakota.

SOUTH SEA ISLANDS. See FRENCH OCEANIA; PACIFIC ISLANDS; WESTERN PACIFIC ISLANDS, BRITISH.

SOUTH WEST AFRICA. Lying southward of Portuguese West Africa and extending westward from the Bechuanaland Protectorate to the Atlantic Ocean, this African territory (area, 317,725 square miles) is administered by, and closely integrated with, the Union of South Africa. Walvis Bay (an enclave of the Cape Province of the Union; area, 374 square miles; pop., 3,570 in 1951) is administered with South West Africa; the Caprivi Zipfel strip, extending northeastward 300 miles as far as Barotseland, is controlled by the Union Ministry of Native Affairs.

At the 1951 census the European population numbered 49,641. The native and Colored population (principally Bantu races, Hottentots, and aboriginal Bushmen) was estimated at 156,453 inside, and 224,233 outside, police areas, together with 27 Malays and Asians; total, 430,354. Windhoek (pop., 29,717) is the capital; other chief centers are Keetmanshoop (5,050); Luderitz (3,250), and Swakopmund (3,100).

The administrator (D. T. du P. Viljoen, assumed office in 1953), appointed by the Union government, is assisted by an Executive Committee, and (since 1925) by an 18-member Legislative Assembly. After elections held on Nov. 16, 1955, National Party candidates held 16 seats; others, 2. South West Africa is represented in the Union House of Assembly by 6 elected members, and in the Senate by 2 elected and 2 nominated members.

The Union government disputes the contention that transfer took place to the United Nations of the former League of Nations' functions with respect to the South West African mandate. Since 1946 the Union has resisted efforts of the U.N. General Assembly to "progressively assimilate" South West Africa to the status of a trust territory. On the other hand, the Union has denied that its government has proceeded toward incorporation of South West Africa in the Union.

Estimated ordinary revenue for 1953-54 totaled £5,800,000; expenditure, £5,700,000. Primary education is free. Education for European children was provided in 1954 in 53 government schools, with 9,900 pupils, and 15 private schools, with 1,241 pupils. Non-European education, conducted principally by missions, included 7 government native schools; 2 government colored schools; and 119 government-aided mission schools, with 10,816 pupils.

Major economic resources are mining and pastoral industries. The latter includes the production of karakul pelts, 2,700,000 of which were exported in 1954, principally to the United States, Canada, Germany, France, and Italy. Cattle and dairy products, valued at £4 million annually, are exported to the Union of South Africa. In 1954, some 9,400,000 pounds of butter, from a total production of 11,100,000 pounds, were exported.

Total mineral production, valued in 1954 at £20,300,000, included diamonds (550,987 carats, valued at £12 million, exported), copper, lead (149,304 short tons, valued at £6,700,000),

tin, vanadium, zinc, manganese, lithium, and salt.

A record total of £59,400,000 of foreign trade in 1954 comprised exports, £36,800,000; imports, £22,600,000. A 1,470-mile railway system links the territory with the Union.

SOUTHEAST ASIA TREATY ORGANIZATION (SEATO). The designation, Southeast Asia Treaty Organization (SEATO), though commonly used, is unofficial. The Southeast Asia Collective Defense Treaty (and protocol) and the Pacific Charter, signed at Manila, the Philippines, on Sept. 8, 1954, by representatives of the United States, Great Britain, France, Australia, New Zealand, the Philippines, Pakistan, and Thailand, declared the intention of the signatory powers to coordinate efforts for collective defense and the preservation of peace and security against aggression and subversion in the general area of Southeast Asia and the Southwest Pacific. The treaty came into effect on Feb. 19, 1955, when the instruments of ratification were deposited in Manila by the signatory powers.

The first session of the Council of the Southeast Asia Collective Defense Treaty took place at Bangkok, Thailand, Feb. 23-25, 1955, under the chairmanship of Prince Wan Waithayakon, foreign minister of Thailand. The meeting was attended by the foreign ministers of the member nations, with the exception of France, which was represented by Henri Bonnet, former ambassador to the United States. At its initial session the Council reiterated the general aims of the Manila treaty while stressing its defensive character, noted the threat of Communist subversion and infiltration, expressed support for the governments of Cambodia, Laos, and South Viet-Nam, and discussed a program of economic cooperation among the signatory powers.

With regard to the machinery for the implementation of the Manila treaty, the Council decided that its own membership would consist of the member nations' foreign ministers or their representatives, and would meet at least once a year and more often when deemed necessary. Decisions of the Council were to require unanimous agreement. To aid the work of the Council between sessions, and to further the aims of the treaty regarding economic, social, and cultural cooperation, a permanent body of Council representatives was established with headquarters in Bangkok. This body was to be served by a permanent secretariat. The Council also provided for the formation of a permanent group of military advisers to the Council, consisting of one representative from each nation, who were to meet periodically anywhere within the treaty area. A group of experts on subversion and an economic working group were also set up as nonpermanent bodies which would meet whenever required anywhere within the treaty area.

SOUTHERN RHODESIA. See RHODESIA AND NYASALAND, FEDERATION OF.

SOVIET LITERATURE. Although no basic changes took place in Soviet literary life during 1955, its general climate became somewhat milder. There were several indications of this "new look" in literature. It was announced that the collected works of Dostoevsky were to be published by the State Publishing House, despite the Communist rejection of the writer's religious and antirevolutionary views. Hemingway, whose works had been banished for more than 15 years, made a comeback with *The Old Man and the Sea*, and translations of other Western authors were promised by the new magazine *Foreign*

Literature, which enjoys a very large circulation. There was a more lively discussion of literary problems in Moscow periodicals during 1955, and the dullness of current "industrial fiction" was strongly condemned. In his survey published by the *Literary Gazette* in its September issues, Alexander Fadeyev, a prominent novelist and a Communist dignitary, recommended a more critical attitude toward the official school of "socialist realism."

Current Soviet literary production, however, has not yet caught up with modern trends, and only a few writers have moved from the purely social to the psychological novel. Such is the case of Vassily Nekrassov, whose *The Native Town* depicts thoughts and emotions of a veteran who returns home from war and finds the readjustment to civilian life rather painful. *Serezha*, by the excellent writer Vera Panova, portrays the world of adults as seen through the eyes of an eight-year-old child. In general, many Soviet writers have lately been devoting attention to childhood and adolescence. These included Nikolai Dubov in *The Orphan*, Vladimir Smirnov in *The Discovery of the World*, and Nikolai Atarov in *The Tale of the First Love*, who portrayed high-school boys and girls in a delicate, almost Turgenev-like manner.

A strong controversy was provoked in 1955 by Xenia Lvova's *Elena*, a novel of extramarital love. Critics were shocked by its frankness in descriptions of physical passion, while the public, tired by the monotonous procession of virtuous party secretaries and "heroes of labor," made it a best-seller.

The Restless Youth, by Konstantin Paustovsky, one of the best Soviet writers, depicts the author's adventures in 1915-17. This autobiographical narrative was probably the most interesting book of the year.

Other Fiction.—In his *Searchers*, Dmitri Granin tries to revive the battered image of an inventive scientist handicapped by general inertia and conservatism. Anatoly Rybakov tells the story of a woman-captain in his *Ekaterina Voronina*, a vast panoramic novel of the Volga region. Serghei Sergeyev-Tsensky, whose 80th birthday was celebrated in 1955, published *A Morning Explosion*, an episode from a large chronicle of World War I. *Tale on Shaliapin*, by Semen Rosenfeld, who extols the great singer, is indicative of the lenient attitude recently adopted by Moscow toward emigré artists.

Typical expressions of the "party line in literature" were offered by Vladimir Popov's *The Boiling Steel*, a description of a metallurgical plant in the Urals during the war, and by Vassily Azhaev's *The Creative Individual*, a semisatirical exposé of ambitious egotism. Both works were dubbed literary misfits even by the most rigid supporters of socialist realism.

Drama.—While critics continued to deplore the scarcity of new plays on contemporary issues, the public filled the theaters where classical repertory was offered, and favored light comedies or dramas of personal relationships. Box office successes of the season were all plays devoted to love and family conflicts, such as *Svetlana*, by Vassily Lavrentiev; *The Wheel of Happiness*, by the Tur brothers; and *The Love of Ania Berezko*, by Victor Pistolenko. Leonid Leonov's *The Golden Carriage* was often mentioned as the most important theatrical event of the year.

Poetry.—The topical and long-winded epic narrative in verse continued to enjoy the favor of Communist critics. Vissarion Sayanov's 300-page

The Kolobovs, a poetic chronicle of a Russian family against the historical background of recent decades, was 1955's most typical specimen of the genre. Critics and readers paid a great deal of attention to *Meditations*, a collection of lyrical and epic pieces by Nikolai Asseyev, one of the most talented disciples of Mayakovsky. The resumption of Soviet diplomatic relations with Marshal Tito made possible the publication of *Poems on Yugoslavia*, by Nikolai Tikhonov, dean of Soviet poets. Among numerous translations of poetic works by non-Russian authors were excellent versions of English poets by Semen Marshak, and new renditions of Walt Whitman's *Leaves of Grass*.

Essays.—The Academy of Science published three new volumes of its monumental history of Russian literature from its origins to the present. The first four volumes of a new critical edition of Alexander Herzen's collected works were very favorably received by both scholars and the general public. Among numerous monographs, the *Life of Nikolai Leskov*, written by his son, was hailed as a real contribution to the history of 19th century Russian literature.

MARC SLONIM,
Sarah Lawrence College; Author of "Three Loves of Dostoevsky" (1955).

SOVIET UNION. See UNION OF SOVIET SOCIALIST REPUBLICS.

SOYBEANS. See Index entry.

SPACE FLIGHT. While the first half of the present century was devoted to the conquest of the air, the second half will see the conquest of nearby space. But there is a fundamental difference between the two, not only as regards the technological means to be employed, but also, one might say, ideologically. The conquest of the air came about mostly through the private enterprise of individual inventors and took place as a small advance here, a new idea there, and a successful experiment somewhere else. It was only after a number of men had made several successful, if short, flights that a theory of flight could be established which enabled a designer to draw up and build an airplane with predictable performance.

In the case of space flight, the theory came first. It was worked out independently by Professors Robert H. Goddard in the United States and Hermann Oberth in Germany near the end of World War I, and was published as soon as feasible after the conclusion of the war.¹ Both studies predicted the construction of large-size rockets with novel design ideas, and gave the necessary mathematical formulas for determining their performance in advance. With these formulas one could calculate, for example, that a rocket capable of accelerating itself to a velocity of one mile per second while its fuel supply lasted would be able to climb to a hundred miles altitude, and that a rocket capable of attaining 1½ miles per second should ascend to about 250 miles. (Both such rockets have been tested.) They also made it clear how much fuel would be needed to reach a certain speed, which, of course, varied for different fuels. If the exhaust blast of a certain fuel turned out to be 7,000 feet per second, two thirds of a rocket's take-off weight had to be in fuel to produce a rocket

¹ Goddard, Robert H., *A Method of Reaching Extreme Altitudes*, Smithsonian Miscellaneous Collections, Vol. 71, No. 2 (Smithsonian Institution, Washington, D.C., 1920); Oberth, Hermann, *Die Rakete zu den Planetenräumen* (*The Rocket into Interplanetary Space*, Munich 1923).

velocity of 7,000 feet per second (this formula being valid only for empty space outside a gravitational field).

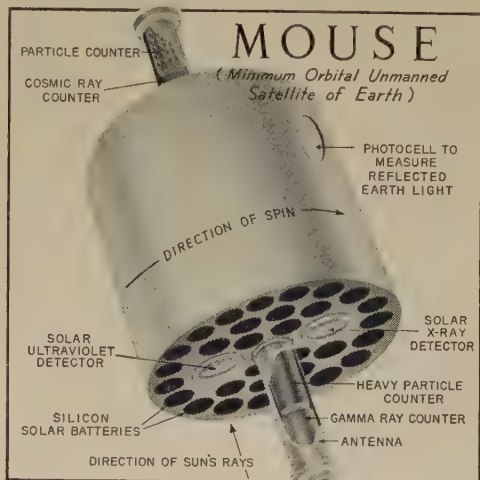
The whole foundation for space flight was actually laid in these works, which were published in 1920 and 1923, respectively. The experimental work that followed was merely a means of finding the best possible ways of translating the equations into metal, fuels, and workable reality. But it soon turned out that this was, even in its beginnings, a much bigger project than were the early airplanes. Private initiative could not go very far because of the large sums of money involved. Although modern rockets, too, began with private experimentation, the first really large rocket built was a (German) government project, and cost the equivalent of one hundred million dollars.

After the first large rocket—which theoretically could be employed as a weapon, as a mail carrier, or as a means of exploring the upper atmosphere—more complicated rockets, consisting of several “stages” or “steps,” could be designed for higher performances. Each “step” would require a complete rocket which could work independently, but the “steps” would be used to boost each other, with the empty rockets dropping off as soon as their fuel supply was exhausted so that their dead weight would not have to be carried along unnecessarily.

To fire a rocket in such a manner that, once outside the atmosphere, it takes up an orbit around the earth, requires a velocity of slightly less than five miles per second. It is impossible to pack enough fuel into a single rocket to attain this velocity, but with a three-stage rocket it could be done. If the first stage dropped off when the whole had reached 1.5 miles per second, the second stage could add another 1.5 miles per second by using up its fuel, and the third stage would then have to produce slightly more than 1.5 miles per second to enable the rocket to climb out of the atmosphere at a shallow angle with enough speed to stay in its orbit. This, of course, is the principle of the “satellite shots” which are to be fired during the International Geophysical Year, 1957–58.² Some of these satellite shots will be fired in such a way that the “satellite” (the instrument-carrying nose of the third stage) continues to encounter a little air resistance in its orbit as it revolves around the earth once approximately every 90 minutes at a speed of 18,000 mph. Because of the air resistance it will slowly lose both speed and altitude, and ultimately will fall into denser layers of the atmosphere and burn up like a meteorite. Another satellite shot will be high enough so that it will not encounter any air resistance and will stay in its orbit permanently.

The return of the satellites into the atmosphere will teach a very important lesson: how an object which was in a satellite orbit and returns to the atmosphere can do so without burning up. This information is needed before a manned and winged rocket can be made to leave the atmosphere. After a number of unmanned artificial sat-

ellites have been launched successfully, a piloted third stage with wings for subsequent landing will be fired into a satellite orbit temporarily. After that has been done, other such piloted third stages will leave portions of a future manned space station in an orbit. The space station will have been built on the ground and disassembled for shipment into an orbit, probably more than 800 miles above sea level. When enough material has been carried up, a few men will begin reassembling the station in space.



"TIME" DIAGRAM BY V. PUGLISI

Artist's drawing of the MOUSE, proposed earth satellite developed by Dr. Fred Singer of the University of Maryland. It is designed to circle the earth in 90 minutes at 18,000 mph. Such satellites, either cylindrical or spherical in shape, are to be launched by the U.S. during the International Geophysical Year, 1957–58.

Research work done on the ground with complicated equipment has shown that the human body can stand even greater strains than would be caused by travel to and from such an orbit. Virtually the only question not yet answered is how man will react to prolonged exposure to an apparent absence of gravity. It is now believed that this “zero-g condition,” to use the technical term, will produce a sensation of falling. What is not known at the moment is whether this sensation of falling will give way after a while to one of floating. But this question will be answered by the crew of the first rocket ship which goes into an orbit temporarily.

Before the 20th century draws to a close, all this will be well known, and other pioneers will be busy investigating—and solving—the next set of problems. (See also *ELECTRONICS*; *PHYSICS*.)

WILLY LEY,

Research Engineer and Author of “*Rockets and Space Travel*,” “*The Conquest of Space*,” etc.

SPAIN. Located on the Iberian Peninsula of southwestern Europe, Spain is bounded on the north by the Bay of Biscay and by France, from which it is separated by the Pyrenees Mountains; on the west by Portugal and the Atlantic Ocean; and on the east and south by the Mediterranean Sea. Including the Balearic and Canary Islands (q.v.), it has an area of 194,232 square miles. The population was estimated at 28,976,000 in July 1955. Leading cities, with their estimated 1955 populations, are Madrid, the capital (1,643,000), Saragossa (268,000), Valencia (516,000),

² It has been announced that 12 such satellite shots will be prepared. Plans for launching the first one, under sponsorship of the National Science Foundation and the National Academy of Sciences, were first announced on July 29, 1955, and further details were released on Jan. 13, 1956. This first satellite will be fired from Patrick Air Force Base, Cocoa, Fla., probably before Sept. 30, 1957. It will be a metallic sphere about 30 inches in diameter, weighing about 21½ pounds, and is expected to supply nonmilitary data for scientists of all nations participating in the International Geophysical Year.

Barcelona (1,188,000), Seville (384,000), Málaga (279,000), Bilbao (230,000), and Murcia (225,000). (See also SPANISH COLONIES).

Government.—The present Spanish regime dates from 1939. The chief of state is Gen. Francisco Franco Bahamonde, who is also head of the official Falange Party. His ministers have administrative and advisory functions. The Cortes (473 members), or Parliament, which meets annually, is admittedly a rubber-stamp body. Elections, in which only heads of households may vote, are limited to municipal offices, for which the candidates are first screened by the government. The country is divided into 50 provinces, including the Balearic and Canary Islands.

On March 31, 1947, Franco promulgated the Law of Succession, which was approved by the Cortes in the following July. This law gave him life tenure as chief of state, and provided for a Regency Council to select a king as his successor. Franco has given some indication that he is willing to accept Juan Carlos, son of Don Juan of Bourbon, the pretender, as king. The young prince is presently being educated in Spain by Franco. No official act of succession has been passed.

Finances.—Annual government receipts for the biennial period 1953-55 were estimated at 26 billion pesetas. Annual government expenditures were budgeted at 28.6 billion pesetas. The budgeted deficit will be made up by United States aid under the mutual defense assistance agreement signed on Sept. 26, 1953.

Education and Religion.—Approximately 20% of the population is illiterate, although Spain has (1951-52) 59,428 public elementary schools with 4,208,651 pupils and 59,917 teachers; 119 government-supported national secondary schools, and 806 private secondary schools, with a total of 221,809 students; and 12 universities with a combined enrollment of 51,633. There are also 53 teacher-training institutions with 21,210 students.

A concordat, signed with the Vatican on Aug. 27, 1953, and ratified by the Cortes on Oct. 26, 1953, recognizes Roman Catholicism as "the only religion of the Spanish people," and provides for the nomination of bishops by the Spanish government and the chief of the Spanish state. The government appropriates funds for the Roman Catholic Church, and clergy are not entirely subject to the ordinary criminal and civil courts. The approximately 26,000 Protestants, 3,000 Jews, and a relatively small number of Moslems cannot be said to enjoy full religious freedom, since both public pressure and official policy prohibit not only proselytizing, but also public or advertised religious services.

National Defense.—The Spanish Army of more than 360,000 is presently being equipped in a more modern manner by the military side of the United States aid program. Except in the case of emergencies, the army is not used for internal police control. The air force and navy are also being modernized under the American aid program.

The United States airbases at Saragossa, Torrejón, San Pablo, and Morón de la Frontera (near Seville), provided for by the 1953 agreement and scheduled for completion in 1957, will accommodate both fighter planes and bombers. At the port of Rota, southern terminal of the 485-mile fuel pipeline which will extend to the airbases, the U.S. Navy is building a small base for the use of its fleet. It is estimated that United States military aid to Spain will exceed \$300 million up to 1957. (See also NAVAL AFFAIRS.)

Economy.—Spain is essentially an agricultural country, with over half the active population engaged in farming; approximately one third of the gross national product is directly attributable to this occupation. The country is more or less self-sufficient (depending on the weather) with respect to food production. Due both to the improved foreign trade position of the economy and to the relatively good harvest year, per capita food consumption in 1955 probably rose slightly above the 2,500 calories per day which has marked the recent past, but is still among the lowest in Europe. Annual per capita income probably does not exceed \$190, although, again due to American aid (\$203 million since 1953), the tendency is upward. In 1952-53 the index of production stood at 117 (1950-51 = 100); in 1953-54, at 113. The general wholesale price level in 1954 stood at 176, a decline from the 1953 high of 195 (1948 = 100). The consumer goods price level stood at 157 in 1954, as compared with 160 in 1953.

Spain built an average of slightly over 2,000 dwelling units per month in 1954, as contrasted with 1,560 in 1953. Nevertheless, the rate of con-

struction was 75% below the estimated national need. Late in 1955 the government announced a 5-year building program, to begin on Jan. 1, 1956, aimed at providing 500,000 low-rent homes.

Agriculture.—The agricultural economy of 1955 continued satisfactory insofar as the home requirements of Spain are concerned. Agricultural yields in 1954 included, in metric quintals (220.46 pounds per quintal), wheat, 48,500,000; hops, 22,000,000; oats, 5,500,000; corn, 5,500,000; and rice, 3,500,000.

In 1954 the U.S. Foreign Operations Administration released \$8.5 million for tractors, soil conditioners, harvesters, and other machinery to aid Spain's agricultural and reforestation programs. As a result of the good crops and the availability of funds for equipment and fertilizers, there is no immediate threat of the reinstitution of food rationing in Spain. Wheat imports, for example, were virtually zero in 1955, while in 1954 they amounted to nearly 400,000 metric tons.

An index to Spain's attempt at economic self-sufficiency is the marked increase in land under cotton, part of which was secured from former vineyards. In 1954-55 about 267,000 acres were devoted to cotton, as compared with 217,000 in 1953-54; acreage in 1955-56 was tentatively estimated at 435,000. The 1954-55 cotton crop totaled 95,000 bales (500 pounds gross), compared with 76,000 bales in 1953-54 and an estimated 150,000 bales for 1955-56. Wine production in 1953 was estimated at nearly 23.5 million hectoliters; in 1954 it fell to 17.8 million hectoliters.

The 1954 citrus crop was poor due to ravages of frost, hail, and the Mediterranean fly. The total crop, originally estimated at 1.7 million metric tons, amounted only to approximately 1 million metric tons. Olive production was similarly affected. Offsetting these was the better than average cereal crop.

Fisheries.—The Spanish household is perennially dependent on the fisheries industry, which is primarily located along the northern coast. In 1953 the total take from all waters was 635,000 metric tons (valued at 3.25 million pesetas or about \$81 million), the major portion of which was cod, herring, sardine, hake, and haddock. The number of boats of all sorts in the fishing fleet in 1953 was 39,700; the tonnage totaled 221,000.

Manufacturing.—The index of industrial production for 1953-54 stood at 113 (1950-51 = 100). The index for 1952-53 was 117, and for 1951-52, it was 124. These statistics indicate that the expected sharp increase in Spanish production did not materialize. (The increases which have occurred in the Spanish economy have been largely due to imports.)

The principal manufacturing industry of Spain is textiles, located almost entirely in Catalonia. Cotton manufacturing, which employs about 2 million spindles in about 25,000 mills, is the most important part of the textile industry. The 1954 average monthly output of cotton yarn was about 4,500 metric tons. Woolen yarn averaged about 1,200 metric tons; rayon yarn was about equal to woolen yarn production. Cement production in 1954 averaged 277,000 metric tons per month.

Also of importance are the manufacture of cigarettes (a government monopoly), tiles, earthenware, glassware, bricks, furniture, leather, and chemicals, as well as flour milling and sugar refining. Heavy industry includes the production of

locomotives, rolling stock, steam and combustion engines, and textile and farm machinery. An attempt is presently being made to increase the production of automobiles, trucks, and aircraft. In 1954 electric power output reached a record total of 3,853,573 kw.; it was estimated that new plant construction would add another 2.5 million kw. by 1958.

Mining.—Monthly output of the leading minerals in 1954 (in metric tons) was as follows: pig iron and ferroalloys, 75,400; lead, 4,720; aluminum, 390; tin, 50; zinc, 1,900; and copper, 480. The Spanish oil monopoly, which has a technical link with the American firm, Caltex, and certain private interests, is presently undertaking a geological survey of Spain in an attempt to discover crude oil in the country. The Calvo Sotelo National Corporation, a government-owned enterprise, is presently reducing oil and fertilizer from shale in a plant located in Ciudad Real Province. It is hoped this operation will yield nearly 27,000 tons of kerosine, an amount which will meet the domestic requirement. Production, however, is still in the experimental stage.

Foreign Trade.—Spain's imports in 1954 were valued at approximately 1,880.9 million gold pesetas (1 gold peseta = U.S.\$0.327; paper peseta rates range from 10.95 to 38.95 pesetas to the dollar, depending on the commodity). The comparative figure for 1953 was 1,825 million gold pesetas. Exports in 1954 were 1,421.6 million gold pesetas, slightly below the 1953 figure of 1,476.2 million. Agricultural products accounted for 60% of Spanish exports; raw materials and manufactured goods comprised the principal imports. The United States was Spain's main supplier of goods (\$113 million), followed by the sterling area (\$83 million), Germany (\$69 million), and the franc area (\$68 million); the principal importers of Spanish products were the sterling area (\$92 million), Germany (\$51 million), and the United States (\$48 million).

Transportation and Communication.—In 1955 Spain's highway system totaled 74,990 miles; there were 115,700 passenger cars, 90,615 trucks, 9,023 buses, and 75,874 motorcycles. The railway network exceeds 11,000 miles and is growing rapidly. The current United States aid program will clearly benefit both the highway and railroad systems. Iberia, the most important Spanish airline, maintains regular service to Europe, South America, and the United States.

Principal Events, 1955.—Despite the United States aid program, which was nearing full swing, Spain remained a poor country in 1955. The expectations aroused probably exceeded the realization, as experienced by most Spaniards. Production increased but not to the extent anticipated, and inflation remained a threat to the Spanish economy.

Since the importance of Spain in the cold war varies directly with its geopolitical and geomilitary position, the Soviet Union's apparent desire to better its relations with the West at the Geneva Conference (q.v.) of the heads of government in July had the temporary effect of reducing the role of Spain in the great Western alliance. With the failure of the conference of foreign ministers in October–November, however, Spain regained its strategic value to the West, a turn highlighted by the visit, on November 1, of U.S. Secretary of State John Foster Dulles to General Franco in Madrid, during which "the spirit of collaboration" between the United States and Spain was reaffirmed.

In North Africa, Spain has undoubtedly prof-

ited both economically and politically from France's inability to solve its colonial problem. The political and military instability of French North Africa, coupled with the French government's lack of policy, has given a real propaganda edge to the Franco regime. Despite its obvious reluctance to interfere with French Moroccan rebel operations in the Spanish Moroccan border area, however, Spain has not developed a program or policy to take full advantage of the power vacuum in North Africa. Decisive Spanish action there undoubtedly would test the solidarity of the Western alliance. But Spain, apparently, is unwilling to take such action, since the dismemberment of the French Empire might very well mark the beginning of the end of the Spanish African Empire.

A further indication of Spain's growing status in international affairs was the approval by the United Nations, on January 25, of the Spanish request to establish a permanent observer with that organization. On December 14, Spain was admitted to the United Nations, along with 15 other countries. This represented a tremendous political victory for the Franco regime.

Early in January 1956 the United States press reported that a morale survey had been made at the University of Madrid, testing the attitudes and reactions of the students to the economic and political regime. The overwhelming majority of the students had little faith or confidence in the integrity and efficiency of the regime, according to the newspaper account. Not only is the fact of such lack of confidence of interest and importance, but perhaps of equal significance is the permission, apparently allowed the United States press representatives, to circulate such information.

SIDNEY C. SUFRIN,

Professor of Economics and Director of the Maxwell Research Center, Maxwell Graduate School, Syracuse University.

SPANISH AMERICAN LITERATURE. See LATIN AMERICAN LITERATURE.

SPANISH COLONIES. Spain's colonial territories, listed in the accompanying table, are located along Africa's north and northwest coasts.

SPANISH COLONIES

Territory	Area (sq. mi.)	Population (est. 1954)
Moroccan Protectorate:		
Northern Zone.....	7,589	1,017,000
Southern Zone ¹	9,040	13,000
Settlements in North Africa ²	82	141,302 ³
Spanish West Africa:		
Ifni.....	741	44,000 ⁴
Spanish Sahara (Rio de Oro and Saguia el Hamra).....	115,234	38,000 ⁴
Spanish Guinea ⁵	10,830	205,000

¹ Administered as part of Spanish West Africa. ² Including the garrison cities of Ceuta (pop. 1955, 60,000) and Melilla (83,000), together with Alhucemas, the Chafarina Islands, and Peñon de Velez de la Gomera. The settlements in North Africa are enclaves within Spanish Morocco and are administered as part of Spain. ³ 1950. ⁴ Including nomads absent during the dry season. ⁵ Including the territory of Rio Muni and the islands of Fernando Poo, Corisco, Annobon, and the Elobeyes.

For an account of Spanish Morocco, see MOROCCO.)

Spanish West Africa.—The politico-military government resides at Cabo Yubi and derives from the Spanish high commissioner of Morocco at Tetuán, Spanish Morocco. In 1951 there were 4 primary schools with 354 pupils.

Ifni is a Spanish enclave on the southwest coast of French Morocco. Sidi Ifni (7,651) is the

capital. Corn, alfalfa, grapes, wheat, oats, fruit, and dates are grown. Fishing is important along the coast.

Spanish Sahara lies south of Morocco and is mainly desert in the interior. Aíun (3,142) is the capital. There is some coastal fishing. Cacao is exported.

Spanish Guinea.—Spanish Guinea is ruled by a governor assisted by territorial administrators. In 1951 there were 85 primary schools (15,906 pupils), and (in 1950) a secondary school (62) and 2 technical schools (150). Cacao exports totaled 16,600 metric tons in 1953. Other products are coffee, vegetables, and wood. Largest of the Spanish islands in the Gulf of Guinea are Fernando Poo (773 sq. mi.). Its chief city is Santa Isabel (9,280), capital of Spanish Guinea. Fishing and cattle raising are the chief occupations.

SPANISH LITERATURE. Fiction.—Spain's most exciting literary productions of 1955 belonged to the field of fiction. The coveted Nadal Prize went to Francisco José Alcántara for his very readable *La muerte le sienta bien a Villalobos*. The Planeta Prize was awarded to Ana María Matute for her *Pequeño teatro*, an imaginative re-creation of a provincial town. The Ateneo Prize went to another promising young woman, María Beneyto, for her powerful saga, *La invasión*.

The literary scandal of 1955 was caused by Camilo José Cela, whose latest novel, *La catira*, was set in a Venezuelan background. Although many Spanish critics hailed it as Cela's ripest creation, 21 Venezuelan writers blasted it in the Caracas newspaper, *El Nacional*, as a grotesque misrepresentation of Venezuelan life, customs, psychology, and language. The fact remains, however, that *La catira* is a most engaging work.

Ignacio Aldecoa's latest works, the novel *El fulgor y la sangre* and the short stories, *Vísperas del silencio*, enhance this promising young man's reputation. They bring to mind Medardo Fraile's truculent *Cuentos con algun humor* and Juan Goytisolo's *Juegos de manos*, which criticises the youth of today, and Goytisolo's *Duelo en el paraíso*, a panoramic picture of the Spanish Civil War which dexterously combines truth with fiction. In *Diario de un cazador*, Mario Delibes depicts with his customary truculence and verve a school janitor who loves hunting to the point of distraction. Using streamlined techniques, José María Espinas presents in *El gandul* a neorealist picture of the denizens of a modest apartment house. Bereft of all humor is Jorge Ferrer Vidal's *El trapecio de Dios*, which deals with the desperately grim existence in a Barcelona suburb, and Elena Quiroga's psychological narrative, *Algo pasa en la calle*.

From Spanish writers in exile came the four superb tales of Paulino Massip, which are included in *La trampa*; two short story volumes of realistic fantasy, *Cuentos ciertos* and *Ciertos cuentos*, by the ubiquitous Max Aub; and a fiercely desperate novel by Sebastián Juan Arbó, *La hora negra*, in the form of memoirs by a student who died insane. For her fruitful activities in the field of fiction, the Menorca Prize (the most generous of all) was awarded to Carmen Laforet.

Poetry.—Another woman, Concha Zardoya, won the Boscán Prize for poetry, a literary form which found adequate representation in 1955 in the work of two other talented young women: *Midas*, a magnificent love poem by Marina Romero, and *Vivientes de los siglos*, which shows Carmen Conde's love of nature and her cosmic preoccupations.

Twenty-five-year-old José Angel Valente won the Adonáis Prize with *A modo de esperanza*, which proves him a consummate craftsman and a most inspired poet. Carlos Murciano's *Viento de la carne* is lustier and more pagan, and at times contains Whitmanesque echoes. In *Hombre y Dios* the veteran Dámaso Alonso appears in dead earnest in his quest for order and clarity. The anthology *Veinte poetas españoles*, edited by Rafael Millán, exhibits the range and diversity of contemporary Spanish lyricism.

Nonfiction.—The Fastenrath Prize of the Spanish Academy was awarded to Luis G. de Valdeavellano for his *Historia de España*, a vivid survey of Spanish life to the Middle Ages. Another equally significant work was the two-volume *Historia universal, cultural y política*, by Antonio Palomeque Torres.

In literary criticism the most informative volume was *Ocho escritores actuales*, in which Antonio de Hoyos analyzes the creative output of four women (Carmen Laforet, Elena Quiroga, Ana María Matute, and Dolores Medio) and of four men (Cela, Gironella, Delibes, and Francisco Alemán Sainz).

There were perceptive studies of the life and work of Miró: *Vida y obra de Gabriel Miró*, by Vicente Ramos; of Unamuno as a poet: Manuel García Blanco's *Don Miguel de Unamuno y sus poesías*; and of the 19th century Galician poetess, Rosalía de Castro: *Siete ensayos sobre Rosalía*, by R. Carballo Valero and other critics. Two separate volumes were published on the great poet, Antonio Machado, by Ramón de Zubiría and S. Serrano Poncela, as well as a survey of contemporary poetry, José Luis Cano's *De Machado a Bousoño*.

Among the various collections of philosophical essays the most outstanding were María Zambrano's inspired *El hombre y lo divino*, which surveys the religious spirit in man; José Ferrater Mora's *Cuestiones disputadas*; and Julián María's *Ensayos de teoría*.

Spain's literary losses in 1955 were extremely heavy, among them José Ortega y Gasset (q.v.), greatest living Spanish philosopher, who died on October 18, and the popular novelist, Concha Espina de Serna, who died on May 19.

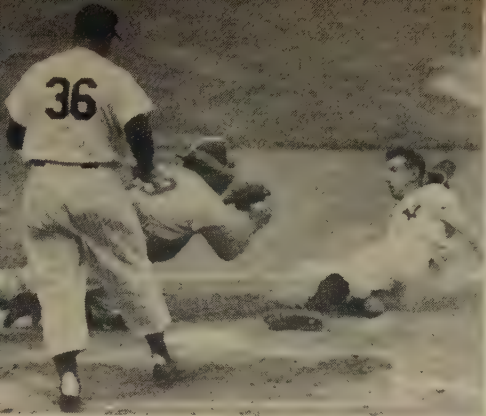
ANGEL FLORES,
Chairman, Latin American Studies, Queens College.

SPANISH MOROCCO. See MOROCCO.

SPECIAL LIBRARIES ASSOCIATION. See SOCIETIES AND ORGANIZATIONS.

SPICES. In 1954 the approximate spice consumption in the United States was 148,770,000 pounds, an increase of 2 million pounds over the preceding year. Imports totaled 131,553,000 pounds, an increase of nearly 11 million pounds. In spite of larger exports (2,050,000 pounds, 1953; 3,595,000 pounds, 1954) American production declined 8 million pounds from the 1953 level of 28 million pounds.

Pepper and mustard registered major import gains. In 1954, 37,938,469 pounds of pepper were imported, as compared with 30,488,129 pounds in 1953. This was the largest increase since 1946, when the spice plantations of Indonesia, formerly a source of 80% of the supply, began to recover from the effects of Japanese destruction during World War II. Pepper consumption in the United States, however, remains below the 56 million-pound average of 1935-39. Mustard's 6 million pound import gain did not compensate for the 8 million pound drop in



UNITED PRESS PHOTOS

(Left) New York Yankee infielder Billy Martin is out while attempting to steal home in the first game of the 1955 World Series. (Center) Pitcher Johnny Podres celebrates Brooklyn Dodgers' first World Series victory. (Right) Spectacular catch by Dodgers' Sandy Amoros of Yogi Berra's 6th inning fly was a crucial play of series' last game.

American production. The production of chili pepper, paprika, red pepper, and herbs increased an estimated million pounds in 1954.

U.S. Department of Commerce import figures for the 10 leading American-imported spices in 1954 are shown in the accompanying table.

Spice	Pounds	Value
Pepper.....	37,938,469	\$28,826,291
Mustard.....	29,665,033	2,080,418
Cinnamon.....	11,869,489	1,108,743
Paprika.....	7,866,233	2,483,686
Poppy seed.....	6,714,091	1,183,730
Caraway seed.....	6,168,360	906,645
Nutmeg.....	5,302,971	1,249,790
Capsicum.....	5,249,350	1,252,365
Cloves.....	3,872,159	1,867,853
Cumin seed.....	3,076,186	334,600

GERRIT LEONARD,

President, American Spice Trade Association.

SPINACH. See VEGETABLES.

SPITSBERGEN. See SVALBARD.

SPORTS, GAMES, AND SHOWS. Upsets, surprises, thrills, records, and tragedy all contributed to the sports scene in 1955. The Brooklyn Dodgers amazed the world by finally winning a world series; an "unknown" professional won the National Open golf championship; a rare match race marked horse racing; boxing had a champion who disproved the adage that they never come back; the 200-mile-an-hour water "barrier" was pierced; and deaths were high in auto racing.

The Dodgers achieved their historic World Series feat by defeating the New York Yankees, 4 games to 3. Brooklyn became the first team to capture the championship after losing the first two games of the classic. Fittingly, the seventh and deciding game was the highlight. In a tense situation, Johnny Podres turned back the Yankees, 2-0, with a stout-hearted exhibition of left-handed pitching. The victory was Podres' second of the series.

In the National League pennant race, Brooklyn had wasted no time in establishing its superiority. The Dodgers won 22 of their first 24 games and set a circuit mark by clinching the flag on September 8.

The American League race was considerably tighter, with four teams in the running for a good portion of the season. The flag was decided in the final week as the Yankees crushed the Boston Red Sox and as the Cleveland Indians lost their chance to win the pennant for the second year in a row by faltering against the Detroit Tigers.

The keen race and the shift of the Athletics from Philadelphia to Kansas City helped bring

about an increase in American League attendance. More than a million fans turned out to see games in the Missouri metropolis and the total attendance in the junior loop was 8,942,971. The National League drew 7,674,412, with Milwaukee again setting the pace in both circuits by attracting 2,005,836.

Oklahoma extended its undefeated and untied string to 29 games and at the end of the season was rated the No. 1 college football team in The Associated Press and The United Press rankings. Michigan State, Maryland, the University of California at Los Angeles, and Ohio State also ranked high. Army pulled a surprise by defeating Navy in their annual encounter. Howard (Hopalong) Cassady, Ohio State back, was generally acclaimed as the top player in college ranks.

Professional football had another big year. The Cleveland Browns, coached by Paul Brown, won the Eastern crown, with the Los Angeles Rams, under a first-year coach, Sid Gillman, taking the Western laurels in the National League. The league attendance mark was broken for the fifth year in a row, 2,722,685 fans attending the 72 regular-season contests.

Spurred by television plums, activity continued at a rapid rate in boxing, with championship fights in each division. Rocky Marciano, the heavyweight titleholder, continued his reign by stopping two challengers, Don Cockell and Archie Moore, but it remained for Sugar Ray Robinson to provide the surprise of the year in fistic circles. Robinson, who had retired as world middleweight champion in 1952, decided on a comeback, which led to a title bout with the then current ruler, Carl (Bobo) Olson, in December. Robinson knocked out Olson in two rounds at Chicago and thereby became the first man to win the 160-pound title three times.

Horse racing had its third \$2 billion betting year in a row, although there was a 2.08% decline in New York over the previous year. The year's headlines went mainly to a 3-year-old colt, Nashua. The Belair Stud racer won 10 of 12 tests and lifted his total earnings to \$945,415, second only to Citation's total of \$1,085,760. One of Nashua's defeats was by Swaps in the Kentucky Derby; the other in a race against older horses in New York. Nashua made amends for his defeat in the Derby by beating Swaps in a match race at Chicago in August.

Later, William Woodward, Jr., the owner of Belair Stud, was killed in a shooting accident, and the stable was sold through sealed bids. A five-man syndicate headed by Leslie Combs, 2d,

acquired Nashua for \$1,251,200. The figure represents a record for a sale in the sport.

Harness racing also enjoyed a banner year. Wagering reached \$476,728,009, and attendance was 19,242,678, both records. Scott Frost, a trotter, was named the harness horse of the year.

An unheralded professional from Davenport, Jack Fleck of Iowa, proved an insurmountable obstacle in Ben Hogan's attempt to become the first golfer to win the United States Open championship five times. Staging a spectacular rally to tie Hogan after the regular 72 holes, Fleck went on to defeat the Texan, 69 to 72, in an 18-hole play-off for the title. The United States swept the two major men's competitions with England, the Walker Cup for amateurs and the Ryder Cup for professionals. Julius Boros was the leading money-winner, with earnings of \$63,121, the major portion of which was supplied by his \$50,000 victory in the Tam O'Shanter world tournament.

Tennis in the United States suffered a major setback during 1955. Eight months after winning the Davis Cup, the United States team lost it back to Australia, 5 to 0. Tony Trabert of Cincinnati, who won the French, Wimbledon, and United States titles, was below his playing peak for the team matches because of an injury. Trabert later turned professional, but tennis promoter Jack Kramer failed to lure the Australian stars, Lewis Hoad and Kenneth Rosewall, into professional ranks.

Mile racing again spotlighted track and field action. Three runners bettered 4 minutes for the distance in a meet at London. They were Laszlo Tabori of Hungary, the winner, in 3:59; Chris Chataway of England, second, 3:59.8; and Brian Hewson of England, third, 3:59.8. Wes Santee, who lowered the American record to 4:00.5, had a good year in indoor competition. He set a world indoor mark of 4:03.8, which was subsequently lowered to 4:03.6 by Gunnar Nielsen of Denmark, who sparkled in competition in the United States during the winter.

The year 1955 saw Navy's crew finally meet defeat. The University of Pennsylvania ended the middies' streak at 31 victories. Cornell won the Intercollegiate Rowing Association regatta. Penn was first in the Grand Challenge Cup event of the Royal Henley regatta in England.

Tragedy struck auto racing. Bill Vukovich, who had won the Indianapolis 500-mile contest two years running, was killed in an attempt to notch his third triumph. Bob Sweikert won the race. The world was shocked by the deaths of more than 80 persons in an accident during the Le Mans (France) 24-hour endurance race.

Donald M. Campbell cut a niche in speedboat racing. On July 23 he became the first to officially reach the 200-mile-an-hour water "barrier" with a two-way clocking of 202.32 mph. at Lake Ullswater, England. He made one other successful attempt during the year, at Lake Mead, Nev., on November 16. He sent his jet-powered *Bluebird* at 239.5 mph. on the first of the two required runs over a measured kilometer, and at 193 mph. on the return trip for an average of 216.2.

The Detroit Red Wings continued their sway in the National Hockey League. They finished first in the circuit race and then subdued the Montreal Canadiens in the Stanley Cup final, 4 games to 3.

Two thousand athletes representing 22 nations took part in the second Pan-American Games, held in Mexico City, Mexico, on March

12-26. The United States, unofficial winner with 1,434½ points, dominated the major track and field and aquatic competitions.

Following are summaries of some of the developments in major sports activities of 1955, together with listings of champions and of many outstanding performances. Team or residential affiliations are provided for each winner, where possible, but are indicated only once for a multiple winner—the first time his name is listed. Special international activities are covered below under the heading, *Pan-American Games*.

ARCHERY

WORLD CHAMPIONSHIPS (Helsinki, Finland)

Men's Target—Nils Andersson, Sweden
Women's Target—Katarzyna Wisnionka, Poland
Men's Team—Sweden
Women's Team—England

UNITED STATES CHAMPIONSHIPS (Oxford, Ohio, August 8-12)

Target

Men—Joe Fries, Los Angeles
Women—Mrs. Ann Clark, Cincinnati
American Round—J. Robert Kest, Santa Ana, Calif.
International Short Round—Joe Fries
Hereford Round—Ann Marston, Wyandotte, Mich.
Junior Boys—Richard Carlson, Sacramento, Calif.
Junior Girls—Nancy Breneman, Columbus, Ohio

Clout (Target)

Men (180 yards)—Dimitri Erdely, Erie, Pa.
Women (140 yards)—Virginia Hersh, Dayton, Ohio
Women (120 yards)—Alice S. Hilton, Dunkirk, N.Y.

Team (Target)

Men—Cleveland Archery Club
Women—Cleveland Archery Club

Flight

Freestyle—Charles Pierson, Cincinnati
Unlimited—Cecil Modlin, Evansville, Ind.
80 Pounds—Irving Baker, Westfield, N.J.
65 Pounds—Irving Baker
50 Pounds—Cecil Modlin

Women

Freestyle—Dorothy Humbert, Springboro, Ohio
Unlimited—Dorothy Humbert
50 Pounds—Eunice Modlin, Evansville, Ind.
35 Pounds—Virginia Hersh, Dayton, Ohio

Field

(Ludington, Mich., July 25-28)

Men—Erwin Ketzler, Flint, Mich.
Women—Mrs. Ann Corby, Boonton, N.J.

Freestyle

Men—Reuben Powell, Chula Vista, Calif.
Women—Ann Marston, Wyandotte, Mich.

AUTO RACING

Auto racing was marred by several major tragedies during 1955. At Le Mans, France, the world's worst automobile racing accident occurred on June 11 during the running of the Le Mans Endurance Race. A German Mercedes, driven by Pierre Levegh of France, smashed into a 5-foot earthwork barrier with such force that its engine ripped loose and hurtled into jammed masses of spectators (300,000 were watching the race), killing 87 and injuring some 108 others.

In the 500-mile Indianapolis race on May 30, 36-year-old Bill Vukovich, winner of the 1953 and 1954 events, was killed while leading the field with his Hopkins Special. His racer crashed into a 4-car tangle of wreckage on the backstretch. The well-known Italian driver, 36-year-old Alberto Ascari, world racing champion in 1952 and 1953, was killed at Monza, Italy, on May 26, while testing a borrowed Ferrari.

One of the results of the tragedies was that the American Automobile Association, the chief ruling power of the sport in the United States, withdrew its support of all types of auto racing.

AMERICAN RACES

Indianapolis Speedway (500 miles)—Bob Sweikert, Indianapolis, driving a John Zink Special (ave. speed, 128.209 mph.; time, 3:53:59.53; winner's share of prize money, \$76,138.63)
President's Cup (Hagerstown, Md.)—Sherwood Johnston, Greenwich, Conn., driving a Jaguar (dist., 100 miles; ave. speed, 87.9 mph.)
Argentine Grand Prix (Buenos Aires)—Juan M. Fangio, Argentina, driving a Mercedes (dist., 375 kilometers, 576.55 meters, or 233 miles; ave. speed, 120.-876 kmph., or 75 mph.; time, 3:38:06.0)

EUROPEAN RACES

Le Mans Endurance (24-hour) Race—Mike Hawthorne, London, and Ivor Bueb, driving a Jaguar (dist., 2,564.28 miles; ave. speed, 106.84 mph.)
 Mille-Miglia (Brescia, Italy)—Stirling Moss, Great Britain, driving a Mercedes (dist., 992 miles; ave. speed, 98.53 mph.; time, 10:07:48.0)
 Grand Prix of Europe (Monte Carlo, Monaco)—Maurice Trintignant, France, driving a Ferrari (dist., 314.5 kilometers, or 196.5 miles; ave. speed, 105.914 kmph., or 65.66 mph.; time, 2:58:09.8)
 British Grand Prix (Aintree)—Stirling Moss, driving a Mercedes (dist., 270 miles; ave. speed, 86.47 mph.; time, 3:07:21.2)
 Italian Grand Prix (Monza)—Juan Fangio, driving a Mercedes (dist., 500 kilometers, or 310.5 miles; ave. speed, 206.791 kmph., or 128.493 mph.; time, 2:25:04.4)

BADMINTON

Thomas Cup (world team championship)—Malaya (defeated Denmark, 8-1) American Badminton Association Open Championships (Long Beach, Calif., tourney ending April 9)—Singles: Joseph Alston, South Pasadena, Calif.; women's singles: Margaret Varner, Mt. Holyoke College; doubles: Joseph Alston and Wynn Rogers, Arcadia, Calif.; women's doubles: Judy and Susan Devlin, Baltimore; mixed doubles: Wynn Rogers and Dorothy Hann, Los Angeles
 All-England (unofficial world) Championships (London, tourney ending March 26)—Singles: Wong Peng Soon, Malaya; women's singles: Margaret Varner, U.S.; doubles: Finn Kobbero and Jorgen H. Hansen, Denmark; women's doubles: Iris Cooley and June White, England; mixed doubles: Finn Kobbero and Kirsten Thordahl, Denmark
 World Professional Championships (Montreal, Que., tourney ending April 19)—Poul Holm, Montreal

BASEBALL

The year 1955 was the year the Brooklyn Dodgers won the World Series. After seven fruitless attempts the National League team from the Borough of Churches finally won the world championship in its eighth attempt. Frosting was added to the cake by the fact that the crown was gained at the expense of the New York Yankees, 4 games to 3. The Yankees had beaten the Dodgers five times in previous World Series.

It was not an easily gained triumph. The Yankees won the first two games behind the stellar pitching of their star left-handers, Whitey Ford and Tommy Byrne, at Yankee Stadium. The classic then moved to Ebbets Field and there the Dodgers rallied to take three consecutive games. Johnny Podres, a 23-year-old southpaw who had been sidelined most of the season by an ailing back, started the Brooklyn surge.

Back at the stadium, the Yankees made it 3-all as Ford registered his second success in the sixth game. In the seventh and final contest, Podres returned to blank the New Yorkers, 2-0, and thereby make Brooklyn's long-cherished dream come true. Podres was easily the outstanding player in the series.

The Brooklyn victory was a signal achievement for Manager Walter Alston. The pilot, after his first year at the helm of the Brooks in 1954, had been severely criticized for his failure to lead the team to the pennant that year.

The Dodgers' drive to the championship and a berth in the World Series was a comparatively easy one. The team led the league race from start to finish. The Brooks won their first 10 games and 22 of their first 24. They took the flag on September 8, the earliest clinching date in National League history. Prominent in the Dodgers' success were Duke Snider, Roy Campanella, and Don Newcombe. Snider and Campanella were effective sluggers, and Newcombe excelled on the mound. Campanella and Yogi Berra of the Yankees, both catchers, each won the most valuable player awards for the third time in their respective leagues.

The Yankees, on the other hand, had a difficult time in capturing their record 21st American League pennant. Stubborn opposition was provided by the Cleveland Indians, the Chicago White Sox, and the Boston Red Sox, with Cleveland apparently having the pennant sewed up early in September. But the Indians dropped three games in a row and the Yankees went on a seven-game winning streak that clinched their sixth flag in seven years under the direction of Casey Stengel.

Six players were named to the Hall of Fame at Cooperstown, N.Y. They were Joe DiMaggio, Ted Lyons, Dazzy Vance, and Gabby Hartnett, recent stars; and Frank (Home Run) Baker and Ray Schalk, both of whom were named by a special committee on baseball veterans.

Following the close of the season there were some managerial changes. Leo Durocher resigned and Bill Rigney succeeded him as pilot of the Giants. Harry (The Hat) Walker, who replaced Eddie Stanky as manager of the St. Louis Cardinals in midseason, was released at the end of the schedule, and Fred Hutchinson was ap-

pointed his successor. The Pittsburgh Pirates dropped Fred Haney and gave the job to Bobby Bragan.

An overall increase of 681,500 over the 1954 attendance figure of 15,935,883 was noted in the majors. This was largely because of the Athletics' shift from Philadelphia to Kansas City, where 1,393,054 fans turned out. Separately, the American League (8,942,971) showed a rise in attendance, while the National League (7,674,412) showed a decline.

PROFESSIONAL—MAJOR LEAGUES

American League (Final Standing)				National League (Final Standing)			
Club	Won	Lost	Pct.	Club	Won	Lost	Pct.
New York...	96	58	.623	Brooklyn...	98	55	.641
Cleveland...	93	61	.604	Milwaukee...	85	69	.552
Chicago...	91	63	.591	New York...	80	74	.519
Boston...	84	70	.545	Philadelphia...	77	77	.500
Detroit...	79	75	.513	Cincinnati...	75	79	.487
Kansas City...	63	91	.409	Chicago...	72	81	.471
Baltimore...	57	97	.370	St. Louis...	68	86	.442
Washington...	53	101	.344	Pittsburgh...	60	94	.390

World Series—Won by Brooklyn Dodgers; attendance (7 games), 362,310; net receipts, \$2,337,515.34; commissioner's share, \$350,627.30; players' share (first 4 games only) \$654,853.59; clubs' and leagues' share, \$1,332,034.45

Standings: Brooklyn (NL) won 4, lost 3, pct. .571; New York (AL) won 3, lost 4, pct. .429.

First Game (Yankee Stadium, Sept. 28): New York 6, Brooklyn 5; Second Game (Yankee Stadium, Sept. 29): New York 4, Brooklyn 2; Third Game (Ebbets Field, Sept. 30): Brooklyn 8, New York 3; Fourth Game (Ebbets Field, Oct. 1): Brooklyn 8, New York 5; Fifth Game (Ebbets Field, Oct. 2): Brooklyn 5, New York 3; Sixth Game (Yankee Stadium, Oct. 3): New York 5, Brooklyn 1; Seventh Game (Yankee Stadium, Oct. 4): Brooklyn 2, New York 0

All-Star Game (Milwaukee, July 12)—National League 6, American League 5 (12 innings)

Most Valuable Players—American: Lawrence P. (Yogi) Berra, New York catcher; National: Roy Campanella, Brooklyn catcher

Rookies of the Year—American: Herb Score, Cleveland pitcher; National: Bill Virdon, St. Louis outfielder

Leading Batters—American: Al Kaline, Boston, .340; National: Richie Ashburn, Philadelphia, .338

Home Runs—American: Mantle, 37; National: Mays, 51
 Runs Batted In—American: Jackie Jensen, Boston, and Ray Boone, Detroit, 116 each; National: Duke Snider, Brooklyn, 136

Leading Pitchers—Best Percentage (10 or more wins)—American: Thomas J. Byrne, New York, 16-5 (.762); National: Don Newcombe, Brooklyn, 20-5 (.800); Most Wins—American: Edward C. Ford, New York, 18-7 (.720); Robert G. Lemon, Cleveland, 18-10 (.643); Franklin L. Sullivan, Boston, 18-13 (.581); National: Robin Roberts, Philadelphia, 23-14 (.622); Earned-Run-Average—American: W. William Pierce, Chicago (won 15, lost 10), 1.97; National: Bob Friend, Pittsburgh (won 14, lost 9), 2.84

Managers of the Year—American: Mike (Pinky) Higgins, Boston; National: Walter Alston, Brooklyn

PROFESSIONAL—MINOR LEAGUES

(When two teams are named, the first won the regular season championship, the second won the play-off; otherwise the team named won both. Asterisk (*) indicates that play-offs determine championship. Letters in parentheses indicate league class.)

Alabama-Florida (D)—Panama City
 American Association (AAA)—Minneapolis
 Appalachian (D)—Salem; play-off series canceled
 Arizona-New Mexico (C)—Cananea; no play-offs
 Big State (B)—Corpus Christi
 California (C)—Stockton (1st half); Fresno (2d half and play-offs)

Carolina (B)—High Point-Thomasville
 Cotton States (C)—Monroe (both halves)
 Eastern (A)—Reading; Allentown
 Evangeline (C)—New Iberia (1st half); Lafayette (2d half and play-offs)

Florida State (D)—Orlando (both halves); no play-offs
 Georgia-Florida (D)—Brunswick (final play-off series was canceled, with Brunswick and Waycross tied with one victory each)

Georgia State (D)—Douglas (final play-off series was canceled, with Douglas and Sanderville tied with three victories and one tie each. Teams declared co-champions)

International (AAA)—Montreal; Rochester
 Kitty (D)—Paducah; no play-offs but Paducah was awarded play-off title on forfeit)

Longhorn (C)—San Angelo
 Mexican (AA)—Mexico City Tigers; no play-offs
 Mississippi-Ohio Valley (D)—Dubuque
 Northern (C)—Eau Claire; St. Cloud
 Northwest (B)—Salem (1st half); Eugene (2d half and play-offs)

SPORTS, GAMES, AND SHOWS

Pacific Coast (open)—Seattle; no play-offs
 Piedmont (B)—Newport News; Lancaster
 Pioneer (C)—Boise; Magic Valley
 Pony (D)—Hamilton
 Provincial (C)—St. John's; Quebec
 Sally (South Atlantic) (A)—Columbia; Augusta
 Sooner State (D)—Lawton*
 Southern Association (AA)—Memphis; Mobile
 Texas (AA)—Dallas; Shreveport*
 Three-I (B)—Keokuk
 Tri-State (B)—Greenville (1st half); Spartanburg (2d half and play-offs)
 Western (A)—Colorado Springs; Wichita
 West Texas-New Mexico (A)—Amarillo; Pampa*
 Junior World Series—Minneapolis (American Association) defeated Rochester (International League), 4 games to 3
 Dixie Series—Mobile (Southern Association) defeated Shreveport (Texas League), 4 games to 3

COLLEGE CONFERENCE

NCAA—Wake Forest
 Eastern Intercollegiate—Yale
 Metropolitan (New York)—St. John's
 Atlantic Coast—Wake Forest
 Southeastern—Alabama
 Southern—West Virginia
 Border—Arizona
 Southwest—Texas A. & M.
 Western (Big Ten)—Ohio State
 Big Seven—Oklahoma
 Missouri Valley—Oklahoma A. & M. and St. Louis (tie)
 Pacific Coast—Southern California

OTHER CHAMPIONS

Little League World Series—Morristown, Pa. (defeated Delaware Township, N.J., 4-3)
 American Legion Junior—Cincinnati (defeated Washington, D.C., 10-4)
 Babe Ruth League—Terre Haute, Ind.
 Pony League—Washington, Pa. (defeated Youngstown, Ohio, 4-0)
 National Amateur Junior—Detroit (defeated Chicago, 7-2)
 American Baseball Congress—Houston (defeated Seattle, 7-2)

BASKETBALL

A surprise team gained the spotlight in collegiate basketball in 1954-55. Overlooked in the preseason predictions, the University of San Francisco capped an outstanding campaign by capturing the National Collegiate Athletic Association title in its first attempt. The Dons defeated La Salle, the defending champion, 77 to 63, in the final. The Pacific Coast squad was picked as the ranking team in the end-of-the-season polls of The Associated Press and The United Press.

Duquesne gave San Francisco a close race for national honors. The team from Pittsburgh won the National Invitation Tournament in New York for the first time in eight attempts, beating Dayton, 70 to 58, in the final.

Princeton took the Ivy League crown after finishing the regular season in a three-way tie with Columbia and Pennsylvania. The Tigers routed Columbia, 86 to 69, for the laurels following a first-round bye.

Georgia Tech accounted for the biggest collegiate upset. On Jan. 8, 1955, the Engineers broke Kentucky's winning streak at 32 games and the Wildcats' home-court winning skein at 129 games. The score was 59 to 58.

The Syracuse Nationals gained the National Basketball Association championship for the first time by downing the Fort Wayne Pistons, 4 games to 3, in the final series of the professional postseason play-offs.

For the third consecutive campaign, Neil Johnston of the Philadelphia Warriors was the NBA scoring leader. He totaled 1,631 points. He set a freethrow record by sinking 589 foul shots.

AMATEUR

Tournaments

NCAA—San Francisco (defeated La Salle, Philadelphia, in final, 77-63)
 National (New York) Invitation—Duquesne (defeated Dayton in final, 70-58)
 National Intercollegiate (NAIA)—East Texas State (defeated Southeastern State, Oklahoma, in final, 71-54)
 Men's AAU—Phillips 66 Oilers, Bartlesville, Okla. (defeated Luckett-Nix, Boulder, Colo., in final, 66-64)
 Women's AAU—Wayland College, Plainview, Texas (defeated Commercial Extension, Omaha, Nebr., in final, 30-21)

College Conferences

(Figures in parentheses are for conference games only)
 Eastern Intercollegiate League—Princeton (won 11, lost 4, including play-off game)
 Southern—West Virginia (won 9, lost 1)
 Southeastern—Kentucky (won 12, lost 2)

Yankee—Connecticut (won 7, lost 0)
 Atlantic Coast—North Carolina State (won 12, lost 2)
 Southwestern—Southern Methodist (won 9, lost 3)
 Western (Big Ten)—Iowa (won 11, lost 3)
 Midwestern—Cornell, Iowa (won 11, lost 1)
 Big Seven—Colorado (won 11, lost 1)
 Missouri Valley—Tulsa and St. Louis (each won 8, lost 2)
 Border—West Texas State and Texas Tech (each won 9, lost 3)
 Skyline—Utah (won 13, lost 1)
 Rocky Mountain—Idaho State (won 10, lost 1)
 Pacific Coast—Northern Division: Oregon State (won 15, lost 1); Southern Division: U.C.L.A. (won 11, lost 1); play-offs: Oregon State (won 2, lost 0)
 Canadian Intercollegiate—Western Ontario

Other

A.P. and U.P. Rankings—1. San Francisco; 2. Kentucky; 3. La Salle
 Herald-Tribune East-West All-Star College Game—East 83, West 68

PROFESSIONAL

National Basketball Association
 (Final standings, March 14)

Eastern Division			Western Division		
Won	Lost	Pct.	Won	Lost	Pct.
Syracuse...	43	29	Fort Wayne...	43	29
New York...	38	34	Minneapolis...	40	32
Boston...	36	36	Rochester...	29	43
Philadelphia...	33	39	Milwaukee...	26	46

NBA Play-offs—Eastern Division (semifinals): Boston defeated New York (2 games to 1); (finals): Syracuse ousted Boston (3-1); Western Division (semifinals): Minneapolis eliminated Rochester (2-1); (finals): Fort Wayne defeated Minneapolis (3-1)
 Interleague: Syracuse defeated Fort Wayne (4-3)

BILLIARDS

WORLD CHAMPIONS

Pocket—Willie Mosconi, Philadelphia

INTERCOLLEGIATE

Individual—3-Cushion: Robert Strange, Michigan State; straight rail: Bob Blackham, Utah; pocket: Rodney Boyd, Ohio State; coed pocket: Judy Ferles, Arizona; Team—3-Cushion: Oregon; straight rail: Michigan State; pocket: Arizona; coed pocket: Arizona

BOBSLEDDING

World Championships (1,600-meter course, St. Moritz, Switzerland)—2-Man (Jan. 22-23): Switzerland (pilot, Fritz Feierabend; brake, Harry Warbourton; total time for 4 heats: 5:33.28); 4-Man (Jan. 29-30): Switzerland (pilot, Franz Kapus; 5:10.52)
 AAU Championships (mile course, Lake Placid, N.Y.—2-Man (Feb. 5): pilot, Bud Washbond, Keene Valley, N.Y.; brake, Pat Martin, Massena, N.Y. (total time for 4 heats: 5:04.06); 4-Man (Feb. 6): pilot, Monroe Flagg; brake, Jim Lamy; and Bud Miller and Chuck Randolph, all of Saranac Lake, N.Y. (4:46.67)

BOWLING

American Bowling Congress Championships (Fort Wayne, Ind., March 26-June 5)—All-Events: Fred Bujack, Detroit (1,993 pts.); singles: Eddie Gerzine, Milwaukee (738); doubles: Harry Zoeller and George Pacropis, Wilkes-Barre, Pa. (1,365); open 5-man team: Pfeiffer's Beer, Detroit (3,136)

National All-Star Bowling Tournament (Chicago, tourney ending Dec. 18, 1955)—Men: Bill Lillard, Chicago (won 39, lost 25; 23,280 pins; 304.30 pts.; women: Anita Cantaline, Detroit (won 23, lost 9; 6,090 pins; 144.40 pts.)

Women's International Bowling Congress Championships (Omaha, Nebr.)—All-Events: Mrs. Marion Ladewig, Grand Rapids, Mich. (1,890); singles: Mrs. Nellie Vella, Rockford, Ill. (695); doubles: Mrs. Marion Ladewig and Wyllis Ryskamp, Grand Rapids (1,264); team: Fallstaff, Chicago (2,991)

U.S. Doubles Champions—Men: George Young and Therm Gibson, Detroit; women: Helen Shablis and Dorothy Aldred, Detroit

ABC Masters Tournament—Buzz Fazio, Stroh's Beer Team, Detroit (won 7, lost 0)

U.S. Duckpins Tournament—All-Events: Tom Fitzgerald, Fall River, Mass. (1,284); singles: Walter Surowiecki, Meriden, Conn. (445); doubles: Tom Fitzgerald and George Vetos, Fall River (861); team: Guida's Dairy-Blue Ribbons, New Britain, Conn. (1,988); mixed doubles: Frances Kupec, Windsor, Conn., and George Pelletier, Danielson, Conn. (792); women's all-events: Elizabeth Barger, Baltimore (1,152); women's singles: Edith Christensen, Washington, D.C. (420); women's doubles:

Julie Dubiel and Ann Plude, Avon, Conn. (766); women's team: Brunswick Red Crowns-Pimlico, Baltimore (1,800).

BOXING

Boxing had an interesting year in 1955. The unbeaten world heavyweight champion, Rocky Marciano, made two defenses of his crown and extended his string of victories to 49. One of his opponents was Archie Moore, the light heavyweight titleholder, and the other was Don Cockell of England. Marciano won both fights by ninth-round knockouts.

The Marciano-Moore encounter was held at Yankee Stadium, New York, on September 21, and drew a crowd of 61,574, the top fight gathering of the year. The gate receipts were \$948,117.95, putting the bout high on the all-time money list.

Moore furnished surprising resistance before capitulating to the pulverizing blows of the champion. The challenger sent Marciano to the canvas for a count of 4 in the second round. It was the first time the heavyweight king had been felled since Joe Walcott dropped him in Philadelphia in 1952.

The light heavyweight champion made one successful title defense before meeting Marciano. Moore stopped Carl (Bobo) Olson, the middleweight titleholder, in the third round at New York on June 22. On December 10, Olson's reign as 160-pound ruler was ended by Sugar Ray Robinson, who had retired as champion of the class in 1952. Robinson, by halting Olson in the second round at Chicago, became the first middleweight champion to hold the title three times.

The welterweight division also commanded considerable attention. Tony DeMarco of Boston captured the crown by knocking out Johnny Saxton in the 14th round on April 1. DeMarco, however, held the title for only 70 days, the shortest reign in the class. Carmen Basilio took the laurels by stopping DeMarco in the 12th at Syracuse, N.Y., on June 10. In a return match, at Boston on November 30, Basilio again stopped DeMarco in the 12th.

WORLD PROFESSIONAL

(As of Dec. 31, 1955)

Heavyweight—Rocky Marciano, Brockton, Mass
Light Heavyweight—Archie Moore, Miami, Fla.
Middleweight—Ray Robinson, New York
Welterweight—Carmen Basilio, Canastota, N.Y.

Lightweight—Wallace Smith, Cincinnati, Ohio
Featherweight—Sandy Saddler, New York
Bantamweight—Robert Cohen, France
Flyweight—Pascual Perez, Argentina

NATIONAL AAU CHAMPIONSHIPS

(Kansas City, Mo., May 5-7)
112 Pounds—Heji Shimabukuro, Honolulu, Hawaii
119 Pounds—John Cereghin, U.S. Air Force
125 Pounds—Joe Charles, U.S. Air Force
132 Pounds—Joe Pucas, Portland, Ore.
139 Pounds—Robert Cofer, Philadelphia
147 Pounds—Walter Sabbath, Detroit
156 Pounds—Frank Davis, Fort Wayne, Ind.
165 Pounds—Paul Wright, U.S. Air Force
178 Pounds—John Horne, Washington, D.C.
Heavyweight—George Moore, Detroit
Team—U.S. Air Force

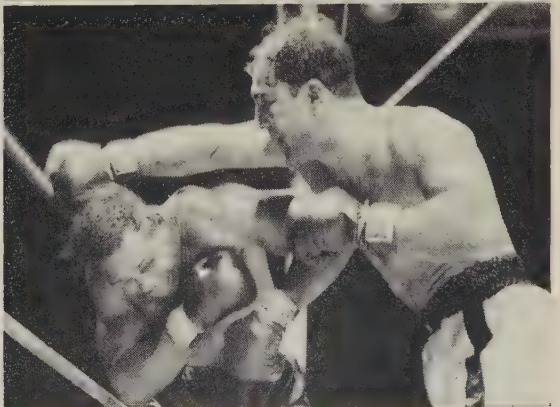
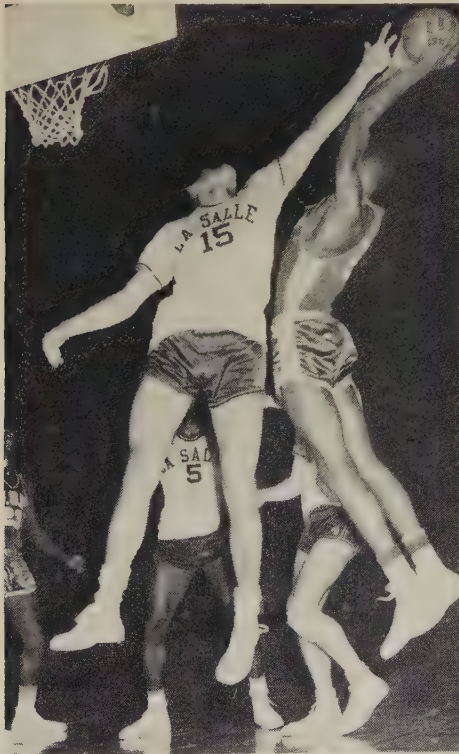
NATIONAL COLLEGIATE AA CHAMPIONSHIPS

(Pocatello, Idaho, April 1-2)
119 Pounds—Bobby McCullom, Idaho State
125 Pounds—Seija Naya, Hawaii
132 Pounds—Vince Palumbo, Maryland
139 Pounds—John Granger, Syracuse
147 Pounds—Herb Odom, Michigan State
156 Pounds—Tony DiBiase, Virginia
165 Pounds—Max Voshall, San Jose State
178 Pounds—Gordon Gladson, Washington State
Heavyweight—Crowe Peele, Louisiana State
Team—Michigan State

BRIDGE, CONTRACT

World Team Championships (New York; final hand, Jan. 14)—Great Britain
Monte Carlo International (Monte Carlo; tournament ending March 27)—*Individual*: Frits Goudsmit, Netherlands; *open pairs*: Frank Bodier and Pierre Figeac, France; *team of four*: Italy (Eugenio Chinradia, Pietro Forquet, Walter Avarelli, Gian-Carlo Manca)
Harold S. Vanderbilt Cup (Knockout Team of Four)—Howard Schenken, B. Jay Becker, George Rapee, all of New York, and John R. Crawford and Sidney Silodor, Philadelphia
Life Masters (New York, Feb. 7)—Norman Kay, Merchantville, N.J.
Senior Masters (New York, Feb. 7)—W. W. Williams, Raleigh, N.C.

(Left) A battle for the ball in NCAA's 1955 championship final, in which La Salle College lost to the University of San Francisco. (Top right) The 1955 U.S. Open golf champion, Jack Fleck (l.), and playoff loser Ben Hogan. (Bottom right) Winner Rocky Marciano misses Archie Moore's head in world heavyweight championship bout, Sept. 21, 1955.



(UPPER RIGHT) WIDE WORLD; (OTHERS) UNITED PRESS

SPORTS, GAMES, AND SHOWS

SUMMER NATIONALS

(Chicago, Ill., Tournament ending August 17)
 World Masters Pairs—Paul Hodge, Abilene, Texas, and Ben Fain, Houston
 World Masters Team of Four—Samuel Stayman, Lee Hazen, Richard Kahn, and Myron Field, all of New York, and Charles Solomon, Philadelphia
 National Women's Pairs—Mrs. Margaret Wagar, Atlanta, and Mrs. Kay Rhodes, Trenton
 National Men's Pairs—Eric Murray, Hamilton, Ont., and Douglas Drury, Toronto
 World's Mixed Team of Four—Mrs. Gratian Goldstein, Harold Harkavy, and Leland Ferer, all of Miami Beach, and Mrs. Terry Michaels and Alvin Roth, Washington, D.C.

WINTER NATIONALS

(Miami Beach, Fla., November 26–December 5)
 Open Pairs—Emanuel Hochfeld and Miton Q. Ellenby, Chicago
 Mixed Pairs—Mrs. Helen Sobel, New York, and Sidney Silodor
 National Men's Teams of Four—Ralph Hirschberg and Edgar Kaplan, New York, Norman Kay, and Alvin Roth and Richard Freeman, Washington, D.C.
 National Women's Team of Four—Peggy Adams and Carlyn Brall, New York, Juanita Stritch, Los Angeles, Shirley Johnson, Kansas City, Mo., and Louise Eisenman, Richmond
 National Open Team of Four—Oswald Jacoby, Pfc. James Jacoby and George Heath, Dallas, Ben Fain, Houston, and Paul H. Hodge

CANOEING

International Challenge Cup—United States (defeated England, 2 races to 1)

U.S. SENIOR PADDLING CHAMPIONSHIPS

(Washington, D.C., July 31)
 1-Man Single Blade—George Byers, Samoset C.C.
 Tandem Single Blade—John Pagkos and Tom Budrock, Yonkers (N.Y.) C.C.
 4-Man Single Blade—Philadelphia C.C. (H. Retzell, R. Harrington, J. Barnitz, F. Krick)
 1-Man Double Blade—John Pagkos
 Tandem Double Blade—John Pagkos and Russell Dermond, Yonkers C.C.
 4-Man Double Blade—Yonkers C.C. (J. Pagkos, A. Geraty, G. Barker, J. Anderson)
 Team (high point trophy)—Yonkers C.C. (44)
 Goodenough Trophy—Ed Houston, Inwood C.C. (8½ pts.)

U.S. SAILING CHAMPIONS

Decked—Adolph Morse, Phoenix C.C., Lindenhurst, N.Y.
 Cruising—Stephen Lysak, Yonkers C.C.

CHECKERS

World Champion—Marion Tinsley, Columbus, Ohio
 World Blindfold Champion—Newell W. Banks, Detroit
 U.S. Champion—Marion Tinsley
 U.S. Co-As-You-Please Champion—Tom Wiswell, Brooklyn

CHESS

Men's World—Mikhail Botvinnik, USSR
 World Junior—Boris Spassky, USSR
 Women's World—Mrs. Elizabeth Bykova, USSR
 United States—Arthur B. Bisguier, New York
 U.S. Open—Nicholas Rossolimo, Paris, France; *women*: Mrs. Sonja G. Stevenson, Palm Springs, Calif.
 U.S. Speed—Donald Byrne, Ann Arbor, Mich., and Larry Evans, New York (co-champions)
 U.S. Junior—Charles Kalme, Philadelphia
 Women's U.S.—Mrs. Gisela K. Gresser, New York, and Mrs. Nancy Roos, Los Angeles (co-champions)
 National Amateur—Clinton Parmelee, Newark, N.J.

COURT TENNIS

U.S. Amateur—Alastair B. Martin, Glen Head, N.Y.; *doubles*: William F. Van Alen and F. Hastings Griffin, Philadelphia, Pa.
 American Open—Albert B. Johnson, New York
 World Open—James Dear, London, England
 Tuxedo Gold Racquet—Alastair B. Martin
 Intercollegiate Team (Van Alen Trophy)—Harvard

CRICKET

"The Ashes" (World Championship)—England (defeated Australia 3 matches to 1)

CROSS-COUNTRY

AAU (10,000 meters)—Horace Ashenfelder, New York Athletic Club (time, 31:39.1)
 AAU Team—New York A.C. (28 pts.)
 NCAA (4 miles)—Charles Jones, Iowa (19:57.4)
 NCAA Team—Michigan State (46)
 ICAAAA (5 miles)—*Individual*: Henry Kennedy, Michigan State (24:30.3); *team*—Pittsburgh (99)

Heptagonal (5 miles)—*Individual*: Dave Eckel, Cornell (25:46.6); *team*—Cornell (36)
 Western Conference (4 miles)—*Individual*: Henry Kennedy, Michigan State (19:06); *team*—Michigan State (36)

CURLING

North American Championship (unofficial)—Avonlea, Sask. (Campbell Brothers) defeated Hibbing, Minn. (Fran Kleffman rink), 2 matches to 0.
 Gordon International Medal—Canada (Canadian Branch of Royal Caledonian Curling Club) defeated United States (Grand National Curling Club of America), 603 to 373.
 Canadian Champion—Saskatchewan (Campbell Brothers, Avonlea)
 Midwest Champion—Hibbing, Minn.
 Northwest Champion—Superior, Wis.
 Women's U.S. Champion—Wauwatosa (Wis.) Granites
 Detroit International Bonspiel (grand aggregate)—Wauwatosa, Wis.
 Manitoba Bonspiel (grand aggregate)—Manitou, Manitoba
 Quebec International Bonspiel (international championship)—Club Jacques-Cartier, Quebec; grand aggregate and Omega Trophy: Bathurst, N.B.
 Herries Maxwell Trophy—Scotland

CYCLING

Tour de France (2,805 miles)—Louison Bobet, France (time, 130:29:26)

WORLD CHAMPIONSHIPS

(Rome and Milan, Italy, August 27–September 3)

PROFESSIONAL

Road—Stan Ockers, Belgium
 Sprint—Antonio Maspes, Italy
 Pursuit—Guido Messina, Italy
 Motor-Paced—Guillermo Throner, Spain

AMATEUR

Road—Sante Ranucci, Italy
 Sprint—Guiseppe Ogna, Italy
 Pursuit—Norman Sheil, England

U.S. AMATEUR CHAMPIONSHIPS

(New York, August 27–28)
 Senior Open—Jack Disney, Altadena, Calif. (21 pts.)
 ½-Mile—Jack Disney (1:07.2)
 Mile—Jack Disney (2:34.3)
 5 Miles—Jack Disney (13:09.4)
 10 Miles—Arthur Longsjo, Fitchburg, Mass. (23:48.0)
 Junior Open—Pat DeCollibus, Buffalo, N.Y.
 Girls' Open—Jeanne Robinson, Detroit

DOG SHOWS

Indoor Bench (Westminster Kennel Club show, New York, N.Y., Feb. 14–16)—*Best in show*: Bulldog, Champion Kippax Fearnought, owned by Dr. John A. Saylor, Long Beach, Calif. (2,537 dogs shown)
 Outdoor Bench (Morris and Essex Kennel Club show, Madison, N.J., June 2)—*Best in show*: Boxer, Champion Baroque of Quality Hill, owned by Mr. and Mrs. John P. Wagner, Chicago (2,397 dogs shown)

FENCING

WORLD CHAMPIONSHIPS

(Rome, Italy, October 5–21)
 Individual—*Foil*: Josef Gyurkza, Hungary; *épée*: Giorgio Anglesio, Italy; *saber*: Aladar Gerevich, Hungary; *women's foil*: Lidia Domolki, Hungary
 Team—*Foil*: Italy; *épée*: Italy; *saber*: Hungary; *women's foil*: Hungary

UNITED STATES CHAMPIONS

(New York, N.Y., June 9–17)
 Individual—*Foil*: Albert Axelrod, Salle Santelli, New York; *épée*: Abram Cohen, Fencers Club, New York; *saber*: Richard Dyer, Salle Csiszar, Philadelphia; *women's foil*: Mrs. Maxine Mitchell, Hollywood (Calif.) A.C.
 Team—*Foil*: Fencers Club, New York; *épée*: Salle Santelli; *saber*: Salle Santelli; *women's foil*: Salle Santelli; *3-weapon*: Fencers Club, New York

NATIONAL COLLEGIATE AA CHAMPIONSHIPS

(East Lansing, Mich., March 25–26)
 Individual—*Foil*: Herman Velasco, Illinois; *épée*: Donald Tadrawski, Notre Dame; *saber*: Barry Pariser, Columbia
 Team—*3-Weapon*: Columbia (62 pts.)

INTERCOLLEGIATE FENCING ASSOCIATION CHAMPIONSHIPS (New York, N.Y., March 11–12)

Individual—*Foil*: Aubrey Seeman, C.C.N.Y.; *épée*: Richard Pew, Columbia; *saber*: John Parker, Navy
 Team—*3-Weapon*: Cornell (70 pts.); *foil*: Navy (27 pts.); *épée*: Columbia (22 pts.); *saber*: Columbia (28 pts.)

FLY AND BAIT CASTING

NATIONAL ASSOCIATION CHAMPIONS
(St. Louis, August 17-21)

All-Around—Marion Garber, Toledo
 All-Distance—Jon Tarantino, San Francisco (3,334 ft.)
 Distance Baits—William J. Lovely, St. Louis (2,311 ft.)
 Distance Flies—Jon Tarantino (1,105 ft.)
 All-Accuracy—Robert Budd, Jeffersonville, Ind., and Jim Kangas, Toledo (391 pts. each)
 Accuracy Baits—Rolland Williams, Baytown, Texas (197 pts.)
 Accuracy Flies—Jim Kangas (197 pts.)

Women

All-Accuracy—Mel Gavin, St. Louis (384 pts.)
 Accuracy Baits—Mel Gavin (190 pts.)
 Accuracy Flies—Mel Gavin (194 pts.)

* Total distance for three longest of five casts made in each of two events, involving different baits or flies.

FOOTBALL

Oklahoma, Michigan State, Maryland, and the University of California at Los Angeles, in that order, were rated the top college football teams in the United States in 1955. Oklahoma and Maryland had perfect (10-0) records, but Michigan State and U.C.L.A. suffered one setback apiece. Oklahoma defeated Maryland, 20 to 6, in the Orange Bowl, and Michigan State won the Rose Bowl classic by snatching victory from U.C.L.A. with a 41-yard field goal in the closing seconds of the game.

Oklahoma has won eight consecutive Big Seven Conference championships since Bud Wilkinson became coach. The Sooners have notched 53 victories in a row in the circuit under Wilkinson.

Michigan State rebounded from an early defeat by Michigan to take the runner-up spot in the season-end polls of The Associated Press and The United Press. The Spartans, under Duff Daugherty, beat five Big Ten opponents, but lost the title to Ohio State, which was undefeated in six circuit games.

Jim Tatum developed another powerhouse at Maryland, but the Terps were tied by Duke for the Atlantic Coast Conference crown. U.C.L.A., which bowed to Maryland, 7-0, easily won the Pacific Coast Conference title. Princeton beat Yale and went on to win its first Ivy League championship since 1951. Yale topped Harvard, 21-7, in their classic, and Army upset Navy, 14 to 6.

Howard (Hopalong) Cassidy, Ohio State halfback, was selected for the two major awards, the Heisman and the Maxwell trophies, as the outstanding college player of the year. The Heisman runner-up was Jim Swink, a Texas Christian back, with George Welsh, Navy's talented quarterback, third.

Attendance at college games increased over 1954 in every section of the country except the East, where rain and snow were chiefly responsible for a drop of about 10%. The professionals had another big year at the gate, attracting 2,722,685 spectators during their 72 regular-season games, for a 12.7% increase over 1954. Close races were the rule in both divisions of the National Football League.

MAJOR BOWL GAMES

(Games played Jan. 2, 1956, unless otherwise indicated)
 Rose (Pasadena, Calif.)—Michigan State 17, U.C.L.A. 14

Sugar (New Orleans)—Georgia Tech 7, Pittsburgh 0
 Cotton (Dallas, Texas)—Mississippi 14, Texas Christian 13

Orange (Miami, Fla.)—Oklahoma 20, Maryland 6
 Blue-Gray Game (Montgomery, Ala., Dec. 31, 1955)—South (Gray) 20, North (Blue) 19

Senior Bowl (Mobile, Ala., Jan. 7, 1956)—South 12, North 2

Shrine North-South Game (Miami, Fla., Dec. 26, 1955)—South 20, North 7

Shrine East-West Game (San Francisco, Calif., Dec. 31, 1955)—East 29, West 6

Gator (Jacksonville, Fla., Dec. 31, 1955)—Vanderbilt 25, Auburn 13

Sun (El Paso, Texas)—Wyoming 21, Texas Tech 14

Tangerine (Orlando, Fla.)—Juniata (Pa.) 6, Missouri Valley 6

Prairie View (Houston, Texas)—Prairie View 59, Fisk 0

COLLEGE CONFERENCE AND LEAGUE CHAMPIONS

National (A.P. and U.P. polls)—Oklahoma
 Eastern (Lambert Trophy)—Pittsburgh
 Ivy League—Princeton

Atlantic Coast Conference—Duke and Maryland (tie)
 Southeastern Conference—Mississippi

Southern Conference—West Virginia

Southwest Conference—Texas Christian

Western Conference—Ohio State

Big Seven Conference—Oklahoma

Skyline Conference—Colorado A. & M.

Missouri Valley Conference—Detroit and Wichita (tie)

Rocky Mountain Conference—Idaho State

Border Conference—Texas Tech

Pacific Coast Conference—U.C.L.A.
 Canadian (Grey Cup)—Edmonton Eskimos
 Canadian Intercollegiate—Queen's

NATIONAL FOOTBALL LEAGUE (PROFESSIONAL)

(Final Standings, Regular 1955 Season)

Eastern Conference	W.	L.	T.	Pct.	Points For	Points Agst.
Cleveland Browns*	9	2	1	.818	349	218
Washington Redskins	8	4	0	.667	246	222
New York Giants	6	5	1	.545	267	223
Philadelphia Eagles	4	7	1	.364	248	231
Chicago Cardinals	4	7	1	.364	224	252
Pittsburgh Steelers	4	8	0	.333	195	285

Western Conference

Los Angeles Rams*	8	3	1	.727	260	231
Chicago Bears	8	4	0	.667	294	251
Green Bay Packers	6	4	0	.500	258	276
Baltimore Colts	5	6	1	.455	214	239
San Francisco Forty-Niners	4	8	0	.333	216	298
Detroit Lions	3	9	0	.250	230	275

* The NFL title was won at Los Angeles on Dec. 26, 1955, by Cleveland, who defeated Los Angeles, 38-14.

GOLF

For the second time in a row, a little-known professional captured the United States Open championship. Jack Fleck of Davenport, Iowa, succeeded Ed Furgol, the 1954 titleholder, after a stirring struggle. Playing at the Olympic Country Club, San Francisco, Calif., Fleck finished the regulation 72-hole tournament in a tie for first place at 287 with Ben Hogan, who was after an unprecedented fifth triumph in the 1955 event. In an 18-hole play-off, Fleck, who had not previously won a major tourney, defeated the most successful golfer of this generation, 69 to 72, with a brilliant display of putting.

The United States Amateur crown went to Harvie Ward, who crushed William Hyndman by 9 and 8 in the final at the Country Club of Virginia in Richmond.

Making his first appearance in the tournament, Doug Ford annexed the Professional Golfers' Association national title. The Yonkers (N.Y.) athlete turned back Cary Middlecoff, 4 and 3, in the championship round. Middlecoff earlier in the year won the Masters tournament at Augusta by a record seven strokes, with a total of 279.

Julius Boros captured the richest event of the year by taking the professional division prize in the Tam O'Shanter "world" tourney. The 1952 National Open champion played 72 holes in 281 and earned \$50,000 in cash and a \$50,000 exhibition contract.

A U.S. Air Force officer gained the British Amateur laurels. Lieut. Joe Conrad beat Alan Slater of England, 3 and 2, in the scheduled 36-hole final. In the British Open championship, Peter Thomson of Australia was victorious for the second year in a row. His 72-hole total of 281 won by two strokes.

A United States team turned back Great Britain, 8 to 4, in the men's professional team matches for the Ryder Cup. The United States also defeated a British squad of amateurs, 10 to 2, to take the Walker Cup for the 14th time in 15 attempts. The American professional team of Ed Furgol and Chick Harbert captured the Canada Cup with a total of 560.

American professionals also annexed the Hopkins International Trophy by beating Canada, 17 points to 10. The triumph was the fourth straight for the United States.

Pat Lesser became the women's United States Amateur champion by halting Jane Nelson, 7 and 6, in the final. Fay Crocker of Uruguay shot 299 to take the women's National Open crown.

MEN'S INDIVIDUAL CHAMPIONS

U.S. Open—Jack Fleck, Davenport, Iowa
 U.S. Amateur—Harvie Ward, San Francisco
 PGA—Doug Ford, Yonkers, N.Y.

"World Open" (Tam O'Shanter)—Julius Boros, Southern Pines, N.C.

"World Amateur" (Tam O'Shanter)—Doug Sanders, Cedartown, Ga.

All-American (Tam O'Shanter) Professional—Doug Ford
 All-American (Tam O'Shanter) Amateur—Doug Sanders
 Tournament of Champions—Gene Littler, Palm Springs, Calif.

U.S. Public Links—Sam Kocis, Detroit

Augusta Masters—Cary Middlecoff, Kiamasha Lake, N.Y.

Western Open—Cary Middlecoff

Western Amateur—Eddie Merrins, Meridian, Miss.

Eastern Open—Frank Stranahan, Toledo, Ohio

Southern Amateur—Charlie Harrison, Atlanta

NCAA—Joe Campbell, Purdue University

British Open—Peter Thomson, Australia

British Amateur—Lieut. Joe Conrad, San Antonio

French Open—Byron Nelson, Denton, Texas

French Amateur—Henri de Lamaze, France

Canadian Open—Arnold Palmer, Latrobe, Pa.

Canadian Amateur—Moe Norman, Kitchener, Ont.

Canadian PGA—Al Balding, Toronto Credit Valley, Ont.

Mexican Open—Roberto de Vicenzo, Argentina

SPORTS, GAMES, AND SHOWS

Mexican Amateur—Doug Sanders
Australian Open—Bobby Locke, South Africa

MEN'S TEAM CHAMPIONS

Ryder Cup (professionals)—U.S. 8, Great Britain 4
Walker Cup (amateurs)—U.S. 10, Great Britain 2
Hopkins Trophy (professionals)—U.S. 17, Canada 10
Canada Cup (professionals)—U.S. (Ed Furgol, 279; Chick Harbert, 281)
National Public Links (Harding Trophy)—Miami, Fla. (Joe Sam Filippo, 72; Marshall Carlson, 75; Ralph Allen, 77)

NCAA—Louisiana State (574 pts.)
Devonshire Cup (seniors)—U.S. 37, Canada 8

WOMEN'S INDIVIDUAL CHAMPIONS

U.S. Open—Fay Crocker, Montevideo, Uruguay
U.S. Amateur—Pat Lesser, Seattle
PGA—Beverly Hanson, Indio, Calif.
"World Open"—(Tam O'Shanter)—Patty Berg, Chicago
"World Amateur"—(Tam O'Shanter)—Wiffi Smith, St. Clair, Mich.

All-American Professional (Tam O'Shanter)—Patty Berg
All-American Amateur (Tam O'Shanter)—Wiffi Smith
Titleholders—Patty Berg
Eastern Amateur—Mary Ann Downey, Baltimore
Southern Amateur—Mrs. Scott Probasco, Chattanooga
Western Open—Patty Berg
Western Amateur—Pat Lesser
U.S. Intercollegiate—Jackie Yates, Univ. of Redlands
Canadian Amateur Closed—Marlene Stewart, Fonthill, Ont.
Canadian Amateur Open—Marlene Stewart
British Amateur Open—Jessie Valentine, Scotland

GYMNASTICS

NATIONAL AAU CHAMPIONSHIPS

(Rochester, N.Y., April 29–30)

All-Around—John Miles, Florida State Gymkana, and Karl Schwenzfeier, Penn State (327 pts. each)
Tumbling—James Sebbio, Jersey City (N.J.) Department of Recreation (28.1)
Horizontal Bar—Abie Grossfeld, West Side YMCA, New York (56.2)
Long Horse—John Miles (55.4)
Free Exercise—John Beckner, U.S. Army (56.7)
Trampoline—Robert Elliott, Maverick Boy's Club, Texas (27.8)
Side Horse—James Brown, Los Angeles State College (55.3)
Parallel Bars—Edward Scrobie, St. Mary's Recreation Center, New York (56.7)
Still Rings—John Miles (56.4)
Rope Climb—Robert Hammond, U.C.L.A., and John Goldman, Pasadena (Calif.) City College (tied; time, 0:03.2)
Swinging Rings—Samuel Bailie, U. of Iowa (28.8)
Team—Florida State Gymkana (41%)

Women

All-Around—Ernestine Russell, Windsor (Ont.) Gym Club (27.7)
Individual Free Calisthenics—Ernestine Russell (57.1)
Balance Beam—Ernestine Russell (56.6)
Side Horse—Ernestine Russell (57.7)
Uneven Parallel Bars—Ernestine Russell (55.6)
Swinging Rings—Doris Fuchs, CYO, Rochester, N.Y. (54.0)
Tumbling—Barbara Galleher, Dallas (Texas) A.C. (28.1)

NATIONAL COLLEGIATE AA CHAMPIONSHIPS

(Los Angeles, March 25–26)

All-Around—Karl Schwenzfeier, Penn State (1,620 pts.)
Horizontal Bar—Carlton Rintz, Michigan State (284)
Parallel Bars—Carlton Rintz (283)
Side Horse—Carlton Rintz (286)
Flying Rings—George Wikler, Southern California (286)
Rope Climb—Robert Hammond, U.C.L.A. (time, 0:03.1)
Trampoline—Richard Albershardt, Indiana (284)
Tumbling—Lloyd Cochran, Southern California (277)
Free Exercise—Don Faber, U.C.L.A. (286)
Team—Illinois (82); second: Penn State (69)

HANDBALL

World Team Champion—Germany (defeated Switzerland in final, 25–13)
National AAU—1-Wall Singles: Harold Hanft, Rockaway (N.Y.) H.C.; 1-wall doubles: Oscar and Rubrecht Obert, McBurney YMCA, New York; 4-wall singles: Sam Costa, Brooklyn Central YMCA; 4-wall doubles: Joseph Ingrassia and John Abate, New York A.C.
U.S. Handball Association—4-Wall Singles: Jimmy Jacobs, Los Angeles A.C.; 4-wall doubles: Sam Haber and Ken Schneider, Irving Park YMCA, Chicago; 4-wall masters doubles: Alex Boisseres and Joe Shane, Los Angeles A.C.; team: Los Angeles Fire Department

HARNESS RACING

Scott Frost, a 3-year-old trotter owned by Saul A. Camp of Shafter, Calif., and Adios Harry, a 4-year-old

pacer owned by J. Howard Lyons of Greenwood, Del., were the standouts in light harness racing in 1955.

Scott Frost, on his way to a single-season money-winning record of \$186,101, swept the four richest events for trotters. He emulated his sire, Hoot Mon, by winning the \$86,863 Hambletonian and then captured the \$75,000 American Classic, the \$73,840 Yonkers Futurity, and the \$62,702 Kentucky Futurity. In his 28 starts, Camp's star won 23 races, was second twice, and third once. The previous earnings mark of \$110,299 was set by Good Time in 1952.

Adios Harry topped the pacers in the money department with winnings of \$97,000, and entered his name in the record book when he equaled Billy Direct's world mark of 1:55 on a mile track. Billy Direct also was a 4-year-old when he set his record in a time trial at Lexington, Ky., on Sept. 28, 1938. Adios Harry sped on one-mile courses in 1:55% and 1:56½ shortly before he became the first to hit the 1:55 mark in a race at Vernon Downs, N.Y., on July 16, 1955. Adios Harry's stake victories included the Nassau Pace, the Good Time, and the American Pacing Derby.

The tracks offered the record amount of \$20,626,774 in purses in 1955, and wagering showed an increase over the previous year.

CHAMPIONS—MILE TRACK

Two-Year-Olds—Pacer: Greentree Adios (time, 2:00%); trotter: Egyptian Princess (2:02)
Three-Year-Olds—Pacer: Meadow Ace and Frisco Creed (each 1:59); trotter: Scott Frost (1:59%)
Four-Year-Olds—Pacer: Adios Harry (1:55); trotter: Prince Victor (1:59%)
Aged—Pacer: Times Square (1:58½); trotter: Kimberly Kid and Gayleway (each 1:59%)

CHAMPIONS—HALF-MILE TRACK

Two-Year-Olds—Pacer: Belle Actor (2:02%); trotter: Gratis Hanover (2:05%)
Three-Year-Olds—Pacer: Dottie's Pick (2:00); trotter: Galophone (2:01%)
Four-Year-Olds—Pacer: Adios Harry (1:59%); trotter: Lady's First (2:01%)
Aged—Pacer: B'Haven (2:00); trotter: Kimberly Kid and Lady Dunn (each 2:02%)

STAKE WINNERS

Trotting

American Championship—Jamie
American Classic—Scott Frost
Castleton Farm—Saboteur
Californian—Sharp Note
Gotham Trot—Kimberly Kid
Hambletonian—Scott Frost
Horseman Futurity—Galophone
Horseman Stake—Saboteur
Illinois Colt (two-year-old)—Peggy Key
Illinois Colt (three-year-old)—Marathon Hanover
Kentucky Futurity—Scott Frost
Roosevelt Trot—Gene Mac
Yonkers Futurity—Scott Frost

Pacing

American Classic—Hillsota and Times Square (tie)
American Derby—Adios Harry
W. H. Cane Futurity—Quick Chief
Fox Stake—Bachelor Hanover
Good Time—Adios Harry
Horseman Futurity—Meadow Ace
Illinois Colt (two-year-old)—Double Mc
Illinois Colt (three-year-old)—Frisco Flyer
Little Brown Jug—Quick Chief
McMahon Memorial—Buckeye
Motor City—Pearl Creed
Nassau—Adios Harry
National Derby—Adios Boy
New York Championship—Torrid and Adios Boy (dead-heat)
Roosevelt Tournament—Adios Boy

HOCKEY

The Detroit Red Wings extended their record to seven consecutive National Hockey League titles by defeating the Montreal Canadiens, 6 to 0, on the final night of the 1954–55 season. Detroit finished with 95 points, two more than Montreal, the runner-up.

The Red Wings then made it two Stanley Cups in a row with a 4-games-to-3 victory over the Canadiens in the final round of the series that is emblematic of the world professional championship. En route, the Motor City sextet set a circuit mark of 15 triumphs in a row.

Montreal was seriously handicapped during the late stages of the regular season and the play-offs by the loss of Maurice (the Rocket) Richard. The fiery Canadian forward was suspended on March 16 for the remainder of the season for punching a linesman and attacking a rival player during a game with Boston.

The suspension had violent repercussions in Montreal. During a game at Montreal's Forum on March 17, Clarence Campbell, the league president, who had suspended Richard, was attacked by Canadian fans. The outburst flared into a riot, which spread to the streets of the Canadian city. Property damage was high, and more

than 100 persons were arrested before the police were able to restore order after seven hours.

A number of managerial changes were made after the close of the season. Frank Boucher resigned as general manager of the Rangers, and was succeeded by Murray (Muzz) Patrick. Phil Watson replaced Patrick as the club's coach. Hector (Toe) Blake became manager of the Canadiens, replacing Dick Irvin, who moved to a similar capacity in Chicago.

NATIONAL HOCKEY LEAGUE

(Final Standings, March 20)

Team	Won	Lost	Tied	Points	Goals for	Goals against
Detroit.....	42	17	11	95	204	134
Montreal.....	41	18	11	93	228	157
Toronto.....	24	24	22	70	147	135
Boston.....	23	26	21	67	169	188
New York.....	17	35	18	52	150	210
Chicago.....	13	40	17	43	161	235

Stanley Cup Play-Offs

Semifinals—Detroit defeated Toronto, 4 games to 0;
Montreal defeated Boston, 4 games to 1
Finals—Detroit defeated Montreal, 4 games to 3

Individual National Hockey League Awards

Hart Trophy (most valuable player)—Ted Kennedy, Toronto
Ross Trophy (leading scorer)—Bernie Geoffrion, Montreal
Lady Byng Trophy (sportsmanship)—Sid Smith, Toronto
Calder Trophy (outstanding rookie)—Eddie Litzenberger, Montreal-Chicago
Vezina Trophy (leading goal tender)—Terry Sawchuk, Detroit
Norris Trophy (best defenseman)—Doug Harvey, Montreal

OTHER PROFESSIONAL CHAMPIONS

American Hockey League—Pittsburgh (won 31, lost 25, tied 8); *Calder Cup play-offs*: Pittsburgh (defeated Buffalo in finals, 4 games to 2)
Western Hockey League—Edmonton (won 39, lost 20, tied 11); *play-offs*: Edmonton defeated Calgary in finals, 4 games to 0)

AMATEUR CHAMPIONS

World—Canada (Penticton V's) defeated USSR, 5-0
International League—*Regular season*: Cincinnati
U.S. Amateur—*Senior*: New Haven (Conn.) Delise Coffee Raiders; *junior*: Lewiston (Me.) St. Dominicks

Canadian

Allan Cup (senior amateur)—Kitchener-Waterloo Dutchmen
Memorial Cup (junior amateur)—Toronto Marlboros
Intercollegiate—Toronto

United States Intercollegiate

NCAA—Michigan (defeated Colorado College in final, 5-3)
Pentagonal League—Harvard (won 7, lost 0, tied 1)

HORSE RACING

A two-colt struggle for the laurels in the 3-year-old division highlighted the year in horse racing. The principals were William Woodward, Jr.'s Nashua and Rex Ellsworth's Swaps. Nashua, the Eastern champion, won the title on the strength of a six-and-a-half-length triumph over Swaps, the Western ruler, in a match race for a \$100,000 purse at Washington Park on August 31.

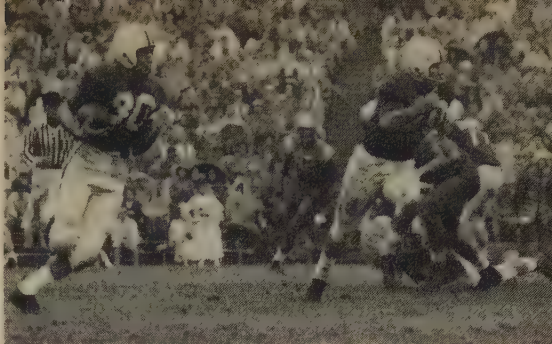
Swaps had beaten Nashua by a length and a half in the Kentucky Derby in May for Nashua's only setback in the division during the year. After that race Nashua was unbeaten until he finished third to High Gun and Jet Action in the Sysonby Stakes at Belmont Park. The Woodward color-bearer won such noted events as the Preakness Stakes, the Belmont Stakes, the Dwyer Stakes, the Arlington Classic, and the Jockey Club Gold Cup. Nashua set a single-season earnings record of \$752,550 and lifted his career mark to \$945,415, second only to Citation (\$1,085,760) on the list.

Woodward did not live to see Nashua crowned horse of the year in the annual polls. The owner was shot dead on October 30 by his wife, Mrs. Ann E. Woodward, who mistook him for a prowler.

The King Ranch's High Gun was rated the top handicap horse. He was closely pressed for the honors by William Helis, Jr.'s Helioscope.

Willie Hartack captured the riding title and became the second jockey in history to pass the 400 mark. Willie Shoemaker was the first, with 485 winners in 1953. Hartack rode his 400th at Gulfstream Park, Coral Gables, Fla., on Dec. 3, 1955. Johnny Longden reached a milestone in his brilliant career when he rode his 4,600th winner on September 14.

Major improvements were planned in the New York area, starting in 1956, with the formation of the Greater New York Racing Association, headed by B. A. Tompkins.



WIDE WORLD

University of Maryland halfback carries the ball against UCLA, which Maryland defeated, 7-0, on Sept. 24, 1955.

The group purchased all the stock in the tracks with the purpose of constructing a "super" course at Belmont Park.

In 1955, according to a United Press survey, 28,402,459 persons (0.06% less than in 1954) wagered \$2,066,102,588 (an increase of 1.4% over 1954) during 3,054 racing days in 1955.

THOROUGHBRED RACING ASSOCIATIONS CHAMPIONS

American Champion—Nashua
Handicap Division—High Gun
Handicap Filly or Mare—Parlo
3-Year-Old Colt—Nashua
3-Year-Old Filly—Misty Morn
2-Year-Old Colt—Nail
2-Year-Old Filly—Nasrina
Steeplechaser—Neji

STAKES WINNERS

American Derby (Washington Park)—Swaps
Arlington Classic (Arlington Park)—Nashua
Arlington Futurity (Arlington Park)—Swoon's Son
Arlington Handicap (Arlington Park)—Platan
Beldame Handicap (Aqueduct)—Lalun
Belmont Futurity (Belmont Park)—Nail
Belmont Stakes (Belmont Park)—Nashua
Breeders' Futurity (Keeneland)—Jovial Jove
Brooklyn Handicap (Aqueduct)—High Gun
Carter Handicap (Aqueduct)—Bobby Brocato
Coaching Club American Oaks (Belmont Park)—High Voltage
Delaware Handicap (Delaware Park)—Parlo
Dwyer Stakes (Aqueduct)—Nashua
Flamingo Stakes (Hialeah Park)—Nashua
Florida Derby (Gulfstream Park)—Nashua
Gallant Fox (Jamaica)—Misty Morn
Garden State Stakes—Prince John
Gardenia Stakes (Garden State)—Nasrina
Hawthorne Gold Cup (Hawthorne Park)—Hasseyampa
Hollywood Gold Cup (Hollywood Park)—Rejected
Hopeful Stakes (Saratoga)—Needles
Jersey Stakes (Garden State)—Dedicate
Jockey Club Gold Cup (Belmont Park)—Nashua
John B. Campbell Memorial Handicap (Bowie)—Social Outcast

Kent Stakes (Delaware Park)—Westward Ho
Kentucky Derby (Churchill Downs)—Swaps
Ladies' Handicap (Belmont Park)—Manotick
Lassie Stakes (Arlington Park)—Vudy Rullah
Lawrence Realization (Belmont Park)—Thinking Cap
Leonard Richards Stakes (Delaware Park)—Saratoga
Massachusetts Handicap (Suffolk Downs)—Helioscope
Matron (Arlington Park)—Arab Actress
Matron (Belmont Park)—Doubledogdare
Narragansett Special (Narragansett Park)—Wise Margin
Pimlico Futurity—Nail
Pimlico Special—Sailor
Princess Pat (Washington Park)—Supple
Preakness Stakes (Pimlico)—Nashua
Santa Anita Derby (Santa Anita Park)—Swaps
Santa Anita Handicap—Poonia II
Santa Anita Maturity—Miz Clementine
Saratoga Special—Polly's Jet
Suburban Handicap (Belmont Park)—Helioscope
Travers Stakes (Saratoga)—Thinking Cap
United Nations Handicap (Atlantic City)—Blue Choir
Washington, D.C., International (Laurel)—El Chama
Washington Park Futurity—Swoon's Son
Washington Park Handicap—Jet Action
Widener (Hialeah Park)—Hasty Road
William P. Kyne Handicap (Bay Meadows)—Mister Gus
Withers Stakes (Belmont Park)—Traffic Judge
Wood Memorial Stakes (Jamaica)—Nashua

FOREIGN WINNERS

Epsom Derby (England)—Phil Drake
Grand National Steeplechase (England)—Quare Times
Irish Grand National Steeplechase—Umm
King George VI and Queen Elizabeth (England)—Vimy
Melbourne Cup (Australia)—Toparoa

SPORTS, GAMES, AND SHOWS

Prix de l'Arc de Triomphe (France)—Ribot
Grand Prix de Paris (France)—Phil Drake

HORSE SHOWS

NATIONAL HORSE SHOW CHAMPIONSHIPS
(Madison Square Garden, New York, N.Y., Nov. 2-8)
International Individual Championship—Brig. Gen. Humberto Mariles, Mexico, with Chihuahua II
International Perpetual Challenge Trophy (team jumping)—Mexican Army
Open Jumper—Mr. and Mrs. Bernie Mann's Riviera Wonder, Fort Washington, N.Y.
Conformation Hunter—Mrs. Morton W. Smith's Jazz Session, Cobham, Va.
Working Hunter—Eleonora R. Sears' Reno, Pride's Crossing, Mass.
Green Conformation Hunter—John S. Pettibone's The Duke of Paeonian, Middleburg, Va.
National Horse Show Equitation—Mikee McCormack, Mountain Lakes, N.J.
A.S.P.C.A. Equitation (MacLay Trophy)—Wilson Dennehy, Lake Forest, Ill.
A.H.S.A. Medal (saddle seat)—Sandra Harris, Indianapolis
A.H.S.A. Medal (hunter seat)—Dennehy
Three-Gaited Grand Championship Stake—Delaine Farm's Foolish Notion, Morton Grove, Ill.
Five-Gaited Grand Championship Stake—Delaine Farm's Something Wonderful

HORSESHOE PITCHING

World Champions—Men: Ted Allen, Boulder, Colo.; women: Mrs. Hazel Harris, Denver
National AAU Champions—Singles: Glen Riffle, Dayton, Ohio; doubles: M. Shadley and K. Poff

ICE SKATING

FIGURE SKATING

World Championships
(Vienna, Austria, February 15-18)
Men—Hayes Alan Jenkins, Colorado Springs, Colo.
Women—Tenley Albright, Newton Center, Mass.
Pairs—Frances Dafoe and Norris Bowden, Toronto
Dance—Jean Westwood and Lawrence Demmy, England

European Championships

(Budapest, Hungary, January 27-29)
Men—Alain Giletti, France
Women—Hanna Eigel, Austria
Pairs—Marianne and Laszlo Nagy, Hungary
Dance Pairs—Jean Westwood and Lawrence Demmy

North American Championships

(Regina, Saskatchewan, March 15-16)
Men—Hayes Alan Jenkins
Women—Tenley Albright
Pairs—Frances Dafoe and Norris Bowden
Dance—Carmel and Edward Bodel, Orinda, Calif.

United States Championships

(Colorado Springs, Colo., March 30-April 2)
Men—Hayes Alan Jenkins
Women—Tenley Albright
Senior Pairs—Carole Anne Ormaca and Robin Greiner, Berkeley, Calif.
Gold Dance—Carmel and Edward Bodel
Silver Dance—Barbara Stein and Ray Sato, Los Angeles
Junior Pairs—Maribel Owen and Charles Foster, Boston
Junior Men—Tom Moore, Seattle, Wash.
Junior Women—Nancy Heiss, New York

Canadian Championships

(Toronto, Ont., January 20-22)
Men—Charles Snelling, Toronto
Women—Carol Jane Pacht, Ottawa
Pairs—Frances Dafoe and Norris Bowden
Dance—Lindis and Jeffery Johnston, London, Ont.

SPEED SKATING

World Championships—Men

(Moscow, USSR, February 19-20)
500 Meters—Toivo Salonen, Finland (time, 0:42.6)
1,500 Meters—Oleg Goncharenko, USSR (2:20.6)
5,000 Meters—Knut Johannessen, Norway (8:33.0)
10,000 Meters—Sigge Ericsson, Östersund, Sweden (17:09.8)
Champion—Sigge Ericsson

World Championships—Women

(Kuopio, Finland, February 12-13)
500 Meters—Tamara Rylova, USSR (0:48.9)
1,000 Meters—Sofia Kondakova, USSR (1:40.9)
3,000 Meters—Mrs. Rimma Zhukova, USSR (5:33.1)
5,000 Meters—Mrs. Rimma Zhukova, USSR (9:26.4)
Champion—Mrs. Rimma Zhukova

European Championships—Men

(Eauln, Sweden, February 5-6)
500 Meters—Eugenij Grischin, USSR (0:44.7)
1,500 Meters—Eugenij Grischin and Hroar Elvenes, Norway (tied at 22:27.8)
5,000 Meters—Sigge Ericsson (8:57.2)

10,000 Meters—Sigge Ericsson (18:32.8)
Champion—Sigge Ericsson

North American Outdoor Championships

(Saranac Lake, N.Y., February 12-13)

Senior Men

220 Yards—Jay Hasbrouck, Newburgh, N.Y. (0:20.2)
440 Yards—Jay Hasbrouck (0:37.9)
880 Yards—Jay Hasbrouck (1:28.3)
¾ Mile—Jay Hasbrouck (3:12.8)
¾ Miles—Dick Walton, New York (6:24.3)
5 Miles—Alex Crogan, Pittsfield, Mass. (16:25.6)
Champion—Jay Hasbrouck

Senior Women

220 Yards—Pat Gibson, Madison, Wis. (0:21.7)
440 Yards—Pat Gibson (0:42.8)
880 Yards—Jeanne Robinson, Detroit (1:35.4)
¾ Mile—Pat Gibson (2:35.5)
1 Mile—Pat Gibson (3:26.0)
Champion—Pat Gibson

Other Champions

Junior Boys—Dave Arends, Cedar Rapids, Iowa
Junior Girls—Mary Novak, Chicago
Intermediate Boys—Kenneth Lebel, Lake Placid, N.Y.
Intermediate Girls—Jeanne Ashworth, Wilmington, Mass.

North American Indoor Championships

(Milwaukee, Wis., March 6-8)

Senior Men

440 Yards—Bill Disney, Pasadena, Calif. (0:39.8)
880 Yards—Bill Disney (1:23.1)
¾ Mile—Jim Campbell, Chicago (2:09.2)
1 Mile—Jim Campbell (2:59.1)
2 Miles—Bill Disney (6:04.8)
Champion—Bill Disney

Senior Women

440 Yards—Pat Underhill, Edmonton, Alberta (0:43.2)
880 Yards—Barbara M. DeSchepper, Detroit (1:26.4)
¾ Mile—Barbara M. DeSchepper (2:18.3)
1 Mile—Barbara M. DeSchepper (3:11.8)
Champion—Barbara M. DeSchepper

United States Outdoor

(Lake Como, St. Paul, Minn., January 29-30)

Senior Men

220 Yards—Bill Carow, West Allis, Wis. (0:18.4)
440 Yards—Ken Bartholomew, Minneapolis (0:38.8)
880 Yards—Ken Bartholomew (1:21.2)
¾ Mile—Ken Bartholomew (2:36.2)
1 Mile—Arnold Uhrless, Newburgh, N.Y. (3:30.7)
2 Miles—Gene Sandvig, Minneapolis (5:46.8)
5 Miles—Ken Bartholomew (15:57.8)
Champion—Ken Bartholomew

Senior Women

220 Yards—Pat Gibson (0:20.2)
440 Yards—Pat Gibson (0:40.8)
880 Yards—Pat Gibson (1:36.8)
¾ Mile—Pat Gibson (2:27.6)
1 Mile—Pat Gibson (3:33.8)
Champion—Pat Gibson

Other Champions

Intermediate Boys—Allen Olson, Illinois S.A., and Floyd Bedbury, Eastern Minnesota S.A. (tied)
Intermediate Girls—Karen Smith, Minnesota S.A.
Junior Boys—Ron Eikaas, Minnesota S.A.
Junior Girls—Mary Novak, Chicago S.A.

United States Indoor

(Saranac Lake, N.Y., February 26-27)

Senior Men

440 Yards—Bill Disney (0:40.1)
880 Yards—Bob Olson, Glendale, Calif. (1:16.0)
¾ Mile—Jay Hasbrouck (2:06.6)
1 Mile—Jay Hasbrouck (2:56.3)
2 Miles—Stan Fail, Paramount, Calif. (6:14.3)
5 Miles—Bill Disney (15:49.1)
Champion—Bill Disney and Jay Hasbrouck (tied)

Senior Women

440 Yards—Barbara M. DeSchepper (0:43.4)
880 Yards—Barbara M. DeSchepper (1:29.3)
¾ Mile—Barbara M. DeSchepper (2:21.6)
1 Mile—Barbara M. DeSchepper (3:15.2)
Champion—Barbara M. DeSchepper

Other Champions

Intermediate Boys—Ken Lebel
Intermediate Girls—Jeanne Ashworth
Junior Boys—Don Prather
Junior Girls—Mary Lou Bromback

JUDO

(National AAU Championships)

(Los Angeles, Calif., May 28-29)
130-Pound—Ben Takahashi, Hollywood, Calif.
150-Pound—Kenji Yamada, Seattle, Wash.
180-Pound—John Osako, Chicago
Unlimited—Eugene Le Bell, Hollywood
Tournament Champion—Eugene Le Bell

LACROSSE

National Open—Mt. Washington Club, Baltimore
 Intercollegiate—(rankings) (1) Maryland, (2) Navy,
 (3) Yale, (4) Rutgers and Hofstra (tied), (5)
 Princeton; (division champions) *Cy Miller*, Mary-
 land; *Laurie Cox*, Rutgers and Hofstra (tied); *Roy*
Taylor, New Hampshire
 North-South Game (Baltimore, June 10)—South 12,
 North 11
 Canadian Senior Box Lacrosse Championship and Mann
 Cup—Victoria (B.C.) Shamrocks

LAWN BOWLING

NATIONAL CHAMPIONS

Singles—Harry P. Hope, St. Petersburg, Fla.
 Doubles—Jeff Smith and Frank Wilson, London, Ont.
 Triples—John Chisholm, Isaac Balmain, and Alexander
 Ripley, New York

MOTORBOATING

INBOARD CHAMPIONS

Gold Cup—*Gale V*, J. Lee Schoenith, driver; Joseph L.
 Schoenith, owner
 President's Cup—*Tempo VII*, Danny Foster, driver; Guy
 Lombardo, owner
 Silver Cup—*Tempo VII*
 Detroit Memorial Trophy—*Gale IV*, W. J. Cantrell,
 driver; Joseph L. Schoenith, owner
 Maple Leaf Trophy—*Miss Cadillac*, owned and driven
 by Frank Saile, Jr.
 International Cup—*Tempo VII*
 Imperial Gold Cup (seven-litre)—*Miss De Soto*, owned
 and driven by George Byers, Jr.
 Unlimited Class (championship regatta)—*Tempo VII*
 Unlimited Class (high point total)—*Gale V* (2,050 pts.)

NATIONAL CHAMPIONS

Inboard Hydroplanes

48 Cubic Inch—George Moniz, Hayward, Calif.
 91 Cubic Inch—E. B. Davidson, Tampa, Fla.
 135 Cubic Inch—John S. Corea, Dos Palos, Calif.
 136 Cubic Inch—Don DeVault, Glen Burnie, Md.
 225 Cubic Inch—Tom Stenger, Jr., Dayton, Ohio
 266 Cubic Inch—Frank Hearn, Toledo, Ohio
 Seven-Litre—Louis Nutt, Sr., Miami, Fla.
 Pacific One-Design—Marion Beaver, Parker, Ariz.
 Crackerbox—Byron Herman, Glendale, Calif.

Inboard Racing Runabouts

44 Cubic Inch—Frank Buck, Mendenhall, Pa.
 Class B—Woody Eldredge, Merced, Calif.
 Class C—William Seldon, St. Petersburg, Fla.
 Class E—Ed Fletchall, Bell, Calif.
 Class D Service—Harry Bickford, Hampton, Va.
 Class E Service—Enoch Walker, Hampton, Va.
 Class F Service—H. G. Hibbert, Miami, Fla.
 Jersey Speed Skiff—James Camp, Newark, N.J.

Outboard Hydroplanes

Class A—Orlando Torgiani, Bakersfield, Calif.
 Class B—W. L. Tenney, Dayton, Ohio
 Class C—Bob McGinty, Corpus Christi, Texas
 Class F—Hap Owens, Bedford, Ind.
 Class M—Mrs. Dorothy Mayer, College Point, N.Y.
 Class C Service—Steve Gantner, St. Louis

Outboard Runabouts

Class C Racing—Bob McGinty
 Class C Service—Jack Cohen, Chicago
 Class F Racing—Bill Siemsen, Santa Rosa, Calif.

Stock Outboard Runabouts

AU—Billy Schumacher, Seattle, Wash.
 BU—Don Baldaccini, Miami, Fla.
 CU—Ron Loomis, Santa Barbara, Calif.
 DU—Paul Woodroffe, Salem, Oreg.
 EU—Dean Mahaffey, Salem, Oreg.
 JU—Billy Schumacher
 ASH—Don Benson, Seattle, Wash.
 BSH—Don Baldaccini
 DSH—Bud Sullivan, Seattle, Wash.

PAN-AMERICAN GAMES

(Mexico City, Mexico, March 12-26)

Baseball—Dominican Republic (won 6, lost 2)
 Basketball—Men: U.S. (won 4, lost 1); women: U.S.
 (won 8, lost 0)
 Boxing—Heavyweight: Pablo M. Ochoa, Argentina; light
 heavyweight: Luis Ignacio, Brazil; middleweight:
 Orville Pitts, U.S.; light middleweight: Paul Wright,
 U.S.; welterweight: Joey Dorando, U.S.; light welter-
 weight: Carlos R. Fernandez, Argentina; lightweight:
 Angel P. Silva, Argentina; featherweight: Oswaldo
 C. Infrann, Argentina; bantamweight: Salvador J.
 Enrique, Venezuela; flyweight: Hilario Correa, Mex-
 ico; team: Argentina
 Cycling—1-kilometer race: Jorge Batis, Argentina; 1,000
 meters: Antony Di Michelli, Venezuela (time, 1:
 09.8; world record); 4,000-meter 4-man pursuit:
 Argentina (time, 4:43.2); 175 kilometers: Ramon
 Hoyos, Colombia (time, 4:33.1)

Equestrian—Dressage: Capt. Hector Clavel, Chile; cao-
 alry and hunter: Walter Staley, Jr., U.S.; steeple-
 chase: Lieut. Carlos de la Serna, Argentina; Prize
 of Nations: Mexico

Fencing—Individual saber: Antonio H. Oliva, Mexico
 (8-2); team saber: U.S.; individual foils: Harold
 Goldsmith, U.S.; team foils: Argentina; individual
 epee: Raul Martinez, Argentina (8-0); team epee:
 Argentina; women's individual foils: Maxine Mitch-
 ell, U.S.

Gymnastics—Side horse: John Beckner, U.S.; long horse:
 Joseph Kotys, U.S.; parallel bars: John Beckner and
 Richard Beckner, U.S. (tie); horizontal bar: Abie
 Grossfield, U.S.; three rings: Richard Beckner, U.S.;
 trampoline: Donald Harper, U.S.; tumbling: William
 Roy, U.S.; free hand exercises: John Beckner, U.S.;
 Indian club: Francisco J. Alvarez, Jr., Mexico; rope
 climbing: Donald Perry, U.S.; all-around: John Beck-
 ner, U.S.

Pentathlon—Individual: Jose Perezmier, Mexico; team:
 Mexico

Rowing—Single sculls: Jack Kelly, Jr., U.S. (time, 4:
 28.5); double sculls: U.S. (Walter Hoover, Jr., and
 James Gardiner; 4:35.1); pairs without coxswain:
 Argentina (4:15.5); pairs with coxswain: Argentina
 (5:10.1); fours without coxswain: Argentina (4:
 21.5); fours with coxswain: Argentina (4:01.1);
 8-oared shells: U.S. (Vesper Club, Philadelphia; 4:
 00.2); team: Argentina

Shooting—Skeet: Kenneth Pendergras, U.S.; 22-caliber
 rifle: Arthur Jackson, U.S.; 22-caliber rifle (3-po-
 sition): Pedro Armella, Argentina; rapid fire at sil-
 houettes: Carlos Valiente, Argentina (589 pts.;
 world record); 25-meter pistol: Sgt. Huellet Benner,
 U.S.; 50-meter pistol: Sgt. Huellet Benner, U.S.;
 individual 300-meter free rifle (3-position): Pedro
 Armella, Argentina; team 300-meter free rifle (3-
 position): U.S.; individual military rifle 300 meters:
 R. Hagen, Argentina; team military rifle 300 meters:
 Chile

Soccer—Argentina

Swimming (MEN)—100-meter freestyle: Clarke Scholes,
 U.S. (time, 0:57.7); 400-meter freestyle: Jimmy
 McLane, U.S. (4:51.3); 1,500-meter freestyle:
 Jimmy McLane, U.S. (20:04); 100-meter back-
 stroke: Frank McKinney, Jr., U.S. (1:07.1); 200-
 meter butterfly: Eulalio Rios, Mexico (2:39.8); 200-
 meter breaststroke: Hector Dominguez, Argentina
 (2:46.9); 400-meter medley relay: U.S. (Frank
 McKinney, Jr., Fred McGuire, Buddy Baarcke,
 Clarke Scholes; 4:29.1); 800-meter relay: U.S.
 (Martin Smith, Bill Yorzyk, Wayne Moore, Jimmy
 McLane; 9:00.6); 3-meter diving: Joaquin Capilla,
 Mexico; 10-meter platform diving: Joaquin Capilla

Swimming (WOMEN)—100-meter freestyle: Helen Stew-
 art, Canada (1:07.7); 200-meter freestyle: Wanda
 L. Werner, U.S. (2:32.5); 400-meter freestyle: Beth
 Whittall, Canada (5:32.4); 100-meter butterfly:
 Beth Whittall, Canada (1:16.2); 100-meter back-
 stroke: Leonore Fisher, Canada (1:16.7); 200-meter
 breaststroke: Mary L. Elsenius, U.S. (3:08.4); 400-
 meter relay: U.S. (Gretchen Kluter, Carolyn Green,
 Judy Roberts, Wanda L. Werner; 4:31.8); 400-
 meter medley relay: U.S. (Coralie O'Connor, Mary
 J. Sears, Betty Mullen, W. L. Werner; 5:11.6);
 3-meter diving: Patricia K. McCormick, U.S.; 10-
 meter platform diving: P. K. McCormick, U.S.

Synchronized Swimming—Individual: Beulah Gundling,
 U.S.; pairs: U.S. (Ellen Richards and Connie Todo-
 roff); team: U.S. (Athens Club, Oakland, Calif.;
 Loretta Barrious, Dawn Bean, Joan and Lynn Paw-
 son, Sally Phillips)

Tennis—Singles: Art Larsen, U.S.; doubles: Gustavo
 Palafox and Mario Llamas, Mexico; women's singles:
 Rosa M. Reyes, Mexico; women's doubles: Rosa M.
 and Esther Reyes, Mexico; mixed doubles: Yolanda
 Ramirez and Gustavo Palafox, Mexico

Track and Field (MEN)—100 meters: Rodney Richard,
 U.S. (time, 0:10.3); 200 meters: R. Richard, U.S.
 (0:20.7); 400 meters: Louis Jones, U.S. (0:45.4;
 world record); 800 meters: Arnold Sowell, U.S.
 (1:49.7); 1,500 meters: Juan Miranda, Argentina
 (3:53.2); 5,000 meters: Oswaldo Suarez, Argen-
 tina (15:30.6); 10,000 meters: O. Suarez, Argen-
 tina (32:42.6); marathon (26 miles, 385 yds.):
 Doroteo Flores, Guatemala (2:59:09.2); 110-meter
 high hurdles: Jack Davis, U.S. (0:14.3); 400-meter
 high hurdles: Josh Culbreath, U.S. (0:51.5); broad
 jump: Roselyn Range, U.S. (26 ft. 4½ in.); high
 jump: Ernest Shelton, U.S. (6 ft. 7 in.); pole vault:
 Robert Richards, U.S. (14 ft. 9¼ in.); shot-pult:
 Parry O'Brien, U.S. (57 ft. 8½ in.); discus: Fortune
 Gordien, U.S. (174 ft. 2½ in.); javelin: Franklin
 Held, U.S. (228 ft. 11 in.); hop, step and jump:
 Adhemar Ferreira da Silva, Brazil (54 ft. 4 in.;
 world record); decathlon: Rafer Johnson, U.S.
 (6,994 pts.); hammer throw: Robert Backus, U.S.
 (180 ft. 1¼ in.); 3,000-meter steeplechase: Guil-
 lermo Sola, Chile (9:46.8); 400-meter relay: U.S.
 (Willie Williams, John Bennett, Charley Thomas,
 R. Richard; 0:40.7); 1,600-meter relay: U.S. (Jesse

SPORTS, GAMES, AND SHOWS

Mashburn, Lon Spurrier, Jim Lea, Louis Jones; 3; 07.2)

Track and Field (WOMEN)—60 meters: Bertha Diaz, Chile (0:07.5); 100 meters: Barbara Jones, U.S. (0:11.5); 80-meter low hurdles: Eliana Gaete, Chile (0:11.7); high jump: Mildred McDaniel, U.S. (5 ft. 6¼ in.); discus: Ingeborg Pfuller, Argentina (141 ft. 8½ in.); javelin: Karen Anderson, U.S. (141 ft. 3 in.); 400-meter relay: U.S. (Isabel Daniels, Mabel Landry, Mae Faggs, B. Jones; 0:47)

Volleyball—Men: U.S. (won 6, lost 0); women: Mexico (won 6, lost 0)

Water Polo—Argentina

Weightlifting—Heavyweight: Norbert Schemansky, U.S. (1,039.5 pounds); middle heavyweight: David Shepard, U.S. (974.5); light heavyweight: Tommy Kono, U.S. (962.5); middleweight: Pete George, U.S. (891); lightweight: Joseph Pitman, U.S. (781); featherweight: Carlos Chaves, Panama (731.9); bantamweight: Charles Vinci, U.S. (660)

Wrestling—Heavyweight: William Kerslake, U.S.; light heavyweight: Alfred Paulekas, U.S.; middleweight: Leon Genuth, Argentina; welterweight: Melvin Northrup, U.S.; lightweight: Jay T. Evans, U.S.; featherweight: Omar Bledel, Argentina; bantamweight: Jack Blubaugh, U.S.; flyweight: Manuel Vavela, Argentina

Team Point Scores (unofficial; compiled by The Associated Press on the basis of 10 points for each first place, 5 for second, 4 for third, 3 for fourth, 2 for fifth, and 1 for sixth)—U.S., 1,434½; Argentina, 574½; Mexico, 450; Venezuela, 155; Chile, 154; Brazil, 138½; Cuba, 131; Canada, 109; Colombia, 45; Uruguay, 42½; Puerto Rico, 33½; Netherlands Antilles, 29½; Guatemala, 22; Dominican Republic, 20; Jamaica, 19; Panama, 15; Trinidad, 9½; El Salvador, 5; Paraguay, 4; Costa Rica, 0; Bahamas, 0; Haiti, 0

PENTATHLON, MODERN

World Champions—Men: Konstantin Salnykov, USSR; women: Alexandra Chudina, USSR; team: Hungary

POLO

OUTDOOR CHAMPIONS

National Open—Triple C (A.D. Beveridge, Dr. William Linfoot, Paul Barry, Harold Barry)

National 20-Goal—San Antonio Triple C (Vic Graber, William Wayman, Dr. William Linfoot, Harold Barry)

National 12-Goal—White Swan of California (Rufus Hayden, Leslie Linfoot, L. R. Linfoot, Herschel Crites)

Paul Butler Handicap—Meadow Brook (Hugo Dalmar, George H. Bostwick, Alan L. Corey, Jr., Devereux Milburn, Jr.)

National Intercircuit—Woodside, Calif. (Rufus Hayden, Leslie Linfoot, L. R. Linfoot, Robert Bahr)

INDOOR CHAMPIONS

National Senior—Squadron A, New York (Philip Brady, John F. Ivory, Jr., George C. Sherman, Jr.)

National 12-Goal—New York Athletic Club (Fred Rice, Zenas Colt, Herb Pennell)

National Intercollegiate—Cornell (A. Mitchell, C. Saenz, A. Santa Maria)

Sherman Memorial Tournament—Huntington (Raymond Koch, Vincent Rizzo, Joseph Rizzo)

Eastern 12-Goal—New York A. C. (Rice, Pennell, Colt)

RACQUETS

U.S. Amateur—Geoffrey Atkins, Chicago; doubles: Geoffrey Atkins and William W. Prince, Chicago

Canadian Amateur—Geoffrey Atkins; doubles: Geoffrey Atkins and J. A. Wagg, London

Tuxedo Gold Racquet—Geoffrey Atkins

ROLLER SKATING

U.S. AMATEUR ROLLER SKATING ASSOCIATION CHAMPIONSHIPS

(Mineola, N.Y., August 1-6)

Singles—Senior: Billy Ferraro, Jr., Livonia, Mich.; women's senior: Margie Adair, Trenton, N.J.

Pairs—Senior mixed: Jack Crichton, Levittown, N.Y., and Margie Adair; women's senior: Margie Adair and Dawn Brown, Trenton, N.J.; senior dance: Edward O'Donnell and Barbara McCusker, Mineola, N.Y.

Senior Fours—Elizabeth, N.J. (Heisler, Bonocore, Schmitt, and Loeffler)

Speed—Senior: Albert Eckworth, Mount Vernon, N.Y.; women's senior: Furn Walton, Washington, D.C.

ROLLER SKATING RINK OPERATORS ASSOCIATION CHAMPIONSHIPS

(Toledo, Ohio, July 24-30)

Singles—Senior: Edgar Watrous, Hartford, Conn.; women's senior: Suean Cowan, Greeley, Colo.

Pairs—Senior: Warren Colozzo and Patricia Benedict, Brooklyn, N.Y.; senior dance: Gary Castro and Marilyn Roberts, San Diego, Calif.

Senior Fours—Long Beach, Calif. (Glatz, Sakowicz, Pennington, and Hess)

Speed—Senior: Earl Wilmot, Richmond, Ind.; women's senior: Evalyn Olson Kelly, Tulsa, Okla.

ROWING

INTERCOLLEGIATE CHAMPIONS

I.R.A. Regatta (Syracuse, N.Y., June 18)—Varsity: Cornell; junior varsity: Cornell; freshman: Cornell; James Ten Eyck Trophy (team point total)—Cornell (20)

Yale-Harvard (New London, Conn., June 17)—Varsity: Yale; junior varsity: Yale; freshman: Yale

Eastern Association (Washington, D.C., May 14)—Varsity: Pennsylvania; junior varsity: Cornell; freshman: Cornell; Rowe Cup (team point total): Cornell (18)

Adams Cup—Pennsylvania

Blackwell Cup—Pennsylvania

Carnegie Cup—Cornell

Chilts Cup—Pennsylvania

Compton Cup—Harvard (Wisconsin won the race, but was not eligible to compete for the cup. Harvard finished second.)

Dad Vail Trophy—Dartmouth R.C.

Goes Trophy—Navy

Penn-Cornell—Pennsylvania

Oxford-Cambridge—Cambridge

Washington-California—Washington

Western Sprint—Navy

Wright Trophy—Pennsylvania

Goldthwait Cup—Princeton

UNITED STATES CHAMPIONSHIPS

(Philadelphia, July 16-17)

Single Sculls—John B. Kelly, Jr., Philadelphia

Association Single Sculls—Thomas McDonough, Philadelphia

¼-Mile Single Sculls—William Knecht, Philadelphia

Double Sculls—Walter Hoover, Jr., and James McIntosh, Detroit

Quadruple Sculls—Vesper B.C., Philadelphia

Pair-Oared Shell without Coxswain—Robert and Ambrose Callahan, New York

Pair-Oared Shell with Coxswain—Fairmount R.A., Philadelphia

4-Oared Shell without Coxswain—West Side R.C., Buffalo

4-Oared Shell with Coxswain—West Side R.C.

8-Oared Shell—Vesper B.C.

Intermediate 8-Oared Shell—Vesper B.C.

150-Pound Single Sculls—Tom Smith, Hamilton, Ont.

150-Pound ¼-Mile Single Sculls—Rudy Jezek, New York

150-Pound Double Sculls—Tom Darcy and Tom Langan, Philadelphia

150-Pound Quadruple Sculls—Vesper B.C.

150-Pound 4-Oared Shell without Coxswain—West Side R.C.

150-Pound 4-Oared Shell with Coxswain—West Side R.C.

150-Pound 8-Oared Shell—West Side R.C.

Team (Barnes Trophy)—Vesper B.C.

BRITISH HENLEY

Diamond Sculls—Teodor Kocherka, Poland

Grand Challenge Cup—University of Pennsylvania

Thames Challenge Cup—Massachusetts Institute of Technology

RUGBY

British Rugby Union—England (defeated Scotland, 9-6)

Rugby League—Warrington (defeated Oldham, 7-3)

SHOOTING

RIFLE

National Outdoor Champions

Smallbore—Mrs. Viola Pollum, Brookville, Pa.

High-Power (NRA match rifle)—Sgt. First Class Lloyd G. Crow, Jr., U.S. Army

High-Power (M-1 service rifle)—Capt. John W. Kolb, U.S. Army

Women's Smallbore—Mrs. Viola Pollum

Women's High-Power (NRA match rifle)—Marlene Beltinger, Seattle

Women's High-Power (M-1 service rifle)—Ruth I. Sawyer, Dayton, Ohio

Civilian High-Power (NRA match rifle)—Ammon F. Bell, Hummelstown, Pa.

Civilian High-Power (M-1 service rifle)—Paul Sullivan, Washington, Ill.

Junior Smallbore—William J. Grater, Oxnard, Calif.

Junior High-Power (NRA match rifle)—George M. Van Orden, Triangle, Va.

Junior High-Power (M-1 service rifle)—Walter L. Johnson, Warwick, Va.

National Indoor Smallbore Champions

Men—Verle F. Wright, Fort Wayne, Ind.

Women—Ruth I. Sawyer



(LEFT AND RIGHT) WIDE WORLD; (CENTER) UNITED PRESS

(Left) Nashua—sold for \$1,251,200, an all-time high, from the estate of the late William Woodward, Jr., on Dec. 16, 1955—wins the \$100,000 match race against Swaps at Washington Park, Ill., on August 31. (Center) Canada defeats the Soviet Union for the world hockey championship at Krefeld, Germany, on March 6, 1955. (Right) Tenley Albright, winner of the world figure skating crown in February 1955 at Vienna, Austria.

Junior—Richard Grymes, Washington, D.C.
Intercollegiate—Leonard Puccinelli, U. of California
Team—Minneapolis R.C. (H. Woltman, E. D. Swanson, R. K. Sandager, O. C. Helseth)
Junior Team—Kent League Junior R.C., Grand Rapids, Mich. (Paul Gogulski, Ron Insley, Jim Greenhoe, Russell Brown)
Intercollegiate Team—California (John Ward, Francis X. Clasby, Tao-Yuan Wu, James Carter, Charles Quesnoy)

PISTOL

National Outdoor Champions

Men—Master Sgt. Huelet Benner, U.S. Army
Women—Mrs. Gertrude E. Backstrom, Hoquiam, Wash.
Civilian—Robert K. Fisher, Los Alamos, N. Mex.
Police—Joseph C. White, Jr., U.S. Border Patrol

National Indoor Champions

Men—Charles E. Hery, Everett, Mass.
Women—Mrs. Gertrude E. Backstrom
Team—Bu-Ord Club, Washington, D.C. (H. D. Thomte, Paul E. Ebersole, Jr., Leonard M. Rizzolla, Albert N. Beardslee)

SKEET

National Championships

(Waterford, Mich., August 29—September 4)
Open All-Around (4 guns aggregate)—Robert E. Rath, Winnetka, Ill. (540 × 550)
Women's All-Around—Mrs. Alphonso Ragland, Jr., Dallas, Texas (522 × 550)
Industry All-Around—Fred Missildine, Sea Island, Ga. (535 × 550)
Open All-Gauge—Alex H. Kerr, Beverly Hills, Calif. (250 × 250)
Women's All-Gauge—Mrs. Leon Mandel, Chicago (248 × 250)
Industry All-Gauge—Fred Missildine (250 × 250)
Open 20-Gauge—Benjamin Dilorio, Jr., Utica, N.Y. (100 × 100)
Women's 20-Gauge—Mrs. Leon Mandel (100 × 100)
Industry 20-Gauge—Fred Missildine (98 × 100)
Open Small Gauge—Alex H. Kerr (100 × 100)
Women's Small Gauge—Mrs. Alphonso Ragland, Jr. (94 × 100)
Industry Small Gauge—Fred Missildine (96 × 100)
Open Sub-Small Gauge—Robert E. Rath (95 × 100)
Women's Sub-Small Gauge—Mrs. Alphonso Ragland, Jr. (87 × 100)
Industry Sub-Small Gauge—Fred Missildine (91 × 100)
Champion of Champions—Louis Gordon, Texarkana, Ark. (100 × 100)
Intercollegiate—Jack Horner, U. of California (249 × 250)

TRAP

Grand American Championships

(Vandalia, Ohio, August 19—26)
Grand American Handicap—Logan Bennett, Hodgenville, Ky. (19 yds., 99 × 100)
Women's Grand American—Mrs. Dolly Isetts, Kenosha, Wis. (20 yds., 93 × 100)
Professional Grand American—George Heaney, Speedway, Ind. (24 yds., 94 × 100)
Preliminary Handicap—F. B. Reese, Heyworth, Ill. (20 yds., 98 × 100)
Women's Preliminary Handicap—Mae Ramey, Miamisburg, Ohio (19 yds., 93 × 100)

Professional Preliminary Handicap—Cliff Doughman, Morrow, Ohio (26 yds., 91 × 100)
Champion of Champions—Tony Biagi, Highland Park, Ill. (99 × 100)
Women's Champion of Champions—Mrs. Ruth Winterrowd, Chicago (99 × 100)
North American Clay Target—Ned Lilly, Stanton, Mich. (200 × 200)
Women's North American Clay Target—Helen C. Thomas, Los Angeles (197 × 200)
Professional North American Clay Target—D. Lee Braun, San Francisco (199 × 200)
High-Over-All—Ned Lilly (962 × 1,000)
Women's High-Over-All—Joan Pflueger, Miami, Fla. (902 × 1,000)
Professional High-Over-All—Cliff Doughman (941 × 1,000)
National Doubles—Hugh McKinley, Harrisburg, Ohio (97 × 100)
Women's National Doubles—Helen C. Thomas (82 × 100)
Professional National Doubles—Homer Clark, Jr., Alton, Ill. (96 × 100)
All-Around—Morrell Feltus, Washington, Miss. (384 × 400)
Women's All-Around—Joan Pflueger (357 × 400)
Professional All-Around—Cliff Doughman (381 × 400)

SKIING

UNITED STATES CHAMPIONSHIPS

Jumping (Leavenworth, Wash., Feb. 6)—Rudy Maki, Ishpeming, Mich. (jumps of 270 and 259 ft.)
Cross-Country (Willamette Pass, Oreg., Feb. 12—13)—18 kilometers: Tauno Pulkkinen, Finnish Ski Club, Flushing, N.Y. (time, 1:20:29.1); 30 kilometers: Tauno Pulkkinen (1:53:10.0)
Downhill (Franconia, N.H., March 12)—Chiharu Igaya, Dartmouth, and Billy Beck, Mt. Mansfield, Vt. (tied: 1.6-mile course: 1:55.3); women (North Conway, N.H., March 12): Mrs. Andrea M. Lawrence, Parshall, Colo. (mile course: runs of 1:07.4 and 1:06.1)
Slalom (Franconia, N.H., March 13)—Ralph Miller, Hanover, N.H. (2,000-ft. course: runs of 57.4 and 51.4); women (North Conway, N.H., March 13): Mrs. Andrea M. Lawrence (½-mile course; total time for 2 runs: 2:12.0)
Combined—Chiharu Igaya; women: Mrs. Andrea M. Lawrence
Giant Slalom (Seattle, Wash., April 3)—Ralph Miller (½-mile course: 2:10.0); women: Jeannette B. Bray (approx. ¾-mile course: 1:37.0)

CANADIAN CHAMPIONSHIPS

(Mont Tremblant, Que., Feb. 26—27)
Downhill—Ralph Miller, Hanover, N.H. (1:50.9 and 1:50.9); women: Carlyn Kruger, Montreal Nordic Ski Club (one run: 2:06.5)
Slalom—Art Tommy, Ottawa (1:07.7 and 1:09.9); women: Monique Langlois, Quebec
Combined—Ralph Miller; women: Lucille Wheeler, St. Jovite (Que.) Ski Club

NORTH AMERICAN CHAMPIONSHIPS

Jumping (St. Paul, Minn., Jan. 30)—Ansten Samuelstuen, Steamboat Springs, Colo. (jumps of 190 and 189 ft.)
18-Kilometer Cross-Country (Minneapolis, Minn., Jan.

SPORTS, GAMES, AND SHOWS

29)—Sven S. Johansson, Anchorage, Alaska (1:12:27.0)
 Downhill (Norden, Calif., April 16)—Bill Beck, Mt. Mansfield, Vt., and Ralph Miller, Camp Hale, Colo. (tied with identical runs of 57.5 and 57.0); *women*: Cathy Carey, Denver (one run: 1:06.5)
 Slalom (Norden, Calif., April 17)—Ralph Miller (52.1 and 50.1); *women*: Gladys Werner, Steamboat Springs, Colo. (59.2 and 1:02.6)
 Combined—Ralph Miller; *women*: Gladys Werner

NATIONAL INTERCOLLEGIATE (NCAA) CHAMPIONS
 Slalom—Chiharu Igaya, Dartmouth
 Downhill—Chiharu Igaya
 Cross-country—Larry Damon, Vermont
 Jumping—Bill Olson, Denver (jumps of 122 and 119 feet)
 Team—Denver (567,050 points)

SOCCER

National Challenge Cup—Eintracht, Astoria, N.Y.
 National Amateur Cup—Heidelberg (Pa.) Tornados
 National Junior Cup—Gotschee, New York, and Schwaaben, Chicago (co-champions)
 American League—Philadelphia Uhriks
 Lewis Cup—Philadelphia Uhriks
 New York State Cup—Lithuanians, New York
 German-American League—German Hungarians, New York
 National League—Ukrainians, New York
 Dr. Manning Cup—Great Neck, N.Y.

BRITISH CHAMPIONS

British International—England
 Scottish Cup—Clyde
 Welsh Cup—Barry Town
 Irish Cup—Dundela
 Football Association Cup—Newcastle United
 Football Association Amateur Cup—Bishop Auckland

SOFTBALL

AMATEUR SOFTBALL ASSOCIATION CHAMPIONS
 Men—Raybestos Cardinals, Stratford, Conn.
 Women—Orange (Calif.) Lionettes

SQUASH RACQUETS

Lapham International Trophy (men)—Canada (defeated U.S., 7-6)
 Wolfe-Noel Cup (women)—England (defeated U.S., 4-1)
 U.S. Professional—Hashim Khan, Pakistan
 U.S. Open—G. Diehl Mateer, Jr., Philadelphia
 U.S. Amateur—Henri Salaun, Boston; *veterans singles*: Germain Glidden, New Canaan, Conn.; *doubles*: Ed and Joe Hahn, Detroit; *women*: Janet Morgan, London, England; *women's doubles*: Janet Morgan and Sheila Speight, Cheltenham, England
 Gold Racquet—G. Diehl Mateer, Jr.
 U.S. Intercollegiate—*Singles*: Roger Campbell, Princeton; *team*: Princeton
 Canadian—G. Diehl Mateer, Jr.
 Canadian (Toronto) Pro-Amateur—G. Diehl Mateer, Jr.
 British Open—Hashim Khan, Pakistan

SQUASH TENNIS

National Singles—H. Robert Reeve, Jr., New York A.C.

SWIMMING

Long-distance swimming blossomed into a fad during 1955. Crossings of all sorts of bodies of water throughout the world were attempted. The old stand-by, the English Channel, as usual, cast its spell over would-be masters.

One of the notable conquerors of the stretch of water between England and France was Marilyn Bell. The 17-year-old Toronto (Canada) schoolgirl swam from Cape Gris-Nez, France, to a point between Folkestone and Dover, England, a distance of approximately 20 miles as the crow flies, in 14 hours 36 minutes on July 31. Marilyn, who crossed Lake Ontario in 1954, became the youngest person to achieve the channel feat.

On August 15 a field of 16 competed in a cross-channel race. Abdel Latif Abu Heif of Egypt won the test, France to England, in 11 hours 45 minutes. Thomas Laurie Park of the United States, second, and Damian Beltran, Mexico, third, were the only other official finishers. Bill Pickering of England set an England-to-France record of 14 hours 6 minutes on August 10, but the record lasted only until October 12, when Florence Chadwick of San Diego, Calif., the only woman to swim the channel both ways, lowered the mark to 13 hours 55 minutes.

A former U.S. Marine frogman, Bert Thomas, became the first person to traverse the 18.3-mile Juan de Fuca Strait on July 8. He covered the stretch of icy water between Port Angeles, Wash., and Victoria, B.C., in 11 hours 10 minutes. It was his 13th attempt. A two-day, 42-mile international marathon along the Nile River, Egypt, was won by Hamed Mustafa of Egypt.

Helga Weiss of West Berlin, Germany, was the women's division victor. In the Canadian National Exhibition marathon on Lake Ontario on September 9, Cliff Lumsden of New Toronto was the only finisher.

The National Amateur Athletic Union's outdoor championships at Los Angeles spurred American hopes for success in the 1956 Olympic Games. New records were set, and two new diving stars appeared. Bob Mattson set an American mark for the 200-meter breaststroke, and Yoshinobu Oyakawa set one for the 200-meter backstroke. Don Harper and Gary Tobian won the 3-meter and 10-meter diving titles, respectively. Oyakawa also took the 100-meter backstroke crown. The New Haven Swim Club captured both the outdoor and indoor team laurels.

In the indoor meet, Ford Konno annexed two titles, as did Oyakawa. These established stars also paced Ohio State to a successful defense of the National Collegiate AA honors. Yale continued its dual-meet success by going through the season undefeated and extending its string of victories to 127 in a row. (See also above, under *Pan-American Games*.)

MEN'S AAU OUTDOOR CHAMPIONSHIPS

(Los Angeles, Calif., July 20-22)
 100-Meter Freestyle—Hendrick Gideonse, New Haven S.C. (time, 0:57.6)
 200-Meter Freestyle—Bill Woolsey, Honolulu (2:08.2)
 400-Meter Freestyle—Ford Konno, Hawaii S.C. (4:38.7)
 1,500-Meter Freestyle—George Onekea, Jr., Hawaii S.C. (18:52.3)
 100-Meter Backstroke—Yoshi Oyakawa, Hawaii S.C. (1:05.3)
 200-Meter Backstroke—Yoshi Oyakawa (2:26.1; American record)
 200-Meter Breaststroke—Robert Mattson, North Carolina State (2:46.8; American record)
 200-Meter Butterfly—William Yorzyk, New Haven S.C. (2:29.1)
 400-Meter Individual Medley—George Harrison, Berkeley, (Calif.) City Club (5:23.3; American record)
 400-Meter Medley Relay—New Haven S.C. (P. Kennedy, Charles Hardin, W. Yorzyk, H. Gideonse; 4:28.6)
 800-Meter Freestyle Relay—New Haven S.C. "A" Team (John Phair, W. Yorzyk, David Armstrong, Martin Smith; 8:54.2)
 3-Meter Diving—Don Harper, Columbus, Ohio (597.85 pts.)
 10-Meter Diving—Gary Tobian, Los Angeles A.C. (551.10 pts.)
 Leading Scorer—George Onekea (15 pts.)
 Team Champion—New Haven S.C. (65 pts.)

MEN'S AAU INDOOR CHAMPIONSHIPS

(New Haven, Conn., March 30-April 2)
 100-Yard Freestyle—John Glover, New York A.C. (0:49.8)
 220-Yard Freestyle—Ford Konno, Columbus, Ohio (2:04.0)
 440-Yard Freestyle—Ford Konno (4:28.2)
 1,500-Meter Freestyle—George Breen, Cortland State (18:52.4)
 100-Yard Backstroke—Yoshi Oyakawa, Columbus (0:57.2)
 220-Yard Backstroke—Yoshi Oyakawa (2:22.5)
 220-Yard Breaststroke—Robert Gawboy, Minneapolis (2:36.0; world record)
 220-Yard Butterfly Stroke—Eulalio Rios, Mexican Swimming Federation (2:30.2; world record)
 400-Yard Individual Medley—Jack Wardrop, Ann Arbor, Mich. (4:36.9; world record)
 400-Yard Medley Relay—North Carolina State A.A. (R. Mattson, D. McIntyre, R. Fadgen, W. Sonner; 3:51.5)
 400-Yard Freestyle Relay—New Haven S.C. "A" Team (D. Armstrong, H. Gideonse, R. Aubrey, K. Donovan; 3:21.8)
 1-Meter Diving—Gerry Harrison, Columbus (521.85 pts.)
 3-Meter Diving—Gerry Harrison (576.90 pts.)
 Leading Scorer—Jack Wardrop (17 pts.)
 Team—New Haven (Conn.) Swim Club (72 pts.)

WOMEN'S AAU OUTDOOR CHAMPIONSHIPS

(Philadelphia, Pa., August 11-14)
 100-Meter Freestyle—Wanda Werner, Walter Reed S.C. (1:06.1)
 400-Meter Freestyle—Dougie Gray, Walter Reed (5:16.1)
 800-Meter Freestyle—Carolyn Green, Ft. Lauderdale (Fla.) S.A. (10:54.3)
 1,500-Meter Freestyle—Carolyn Green (21:15.4)
 100-Meter Backstroke—Carin Cone, Ridgewood, N.J. (1:15.6)
 200-Meter Backstroke—Carin Cone (2:45.6)
 100-Meter Butterfly—Betty Mullen, Walter Reed (1:15.0)
 200-Meter Breaststroke—Mary J. Sears, Walter Reed (3:01.4)
 400-Meter Individual Medley—Marie Gillett, Walter Reed (6:01.5)
 400-Meter Medley Relay—Walter Reed (Shelley Mann,

Mary J. Sears, Betty Mullen, Wanda Werner (5:07.0)
 800-Meter Freestyle Relay—Walter Reed (Shelley Mann, Marie Gillett, Dougie Gray, Wanda Werner; 10:10.3)
 1-Meter Diving—Mrs. Patricia McCormick, Los Angeles A.C. (446.10 pts.)
 3-Meter Diving—Mrs. Patricia McCormick (525.15 pts.)
 10-Meter Diving—Mrs. Juno Irwin, Pasadena A.C. (262.95 pts.)
 Leading Scorer—Dougie Gray (21 pts.)
 Team Champion—Walter Reed S.C. (109 pts.)

WOMEN'S AAU INDOOR CHAMPIONSHIPS (Daytona Beach, Fla., April 7-9)

100-Yard Freestyle—Shelley Mann, Walter Reed S.C., Washington, D.C. (0:58.7)
 250-Yard Freestyle—Shelley Mann (2:49.4; American record)
 500-Yard Freestyle—Carol Tait, Santa Clara (Calif.) S.C. (6:01.4)
 100-Yard Backstroke—Coralie O'Connor, Lafayette (Ind.) S.C. (1:07.8)
 200-Yard Backstroke—Maureen Murphy, Multnomah A.C., Portland, Ore. (2:27.4)
 100-Yard Butterfly Stroke—Betty Mullen, Walter Reed (1:05.4; American record)
 250-Yard Breaststroke—Mary J. Sears, Walter Reed (3:29.8)
 400-Yard Individual Medley—Shelley Mann (5:19.7)
 400-Yard Medley Relay—Walter Reed (S. Mann, M. J. Sears, B. Mullen, W. Werner, 4:33.5; American record)
 400-Yard Freestyle Relay—Walter Reed (B. Mullen, M. Gillett, W. Werner, S. Mann; 4:02.3)
 1-Meter Diving—Mrs. Patricia McCormick, Los Angeles A.C. (439.15 pts.)
 3-Meter Diving—Mrs. Patricia McCormick (570.90 pts.)
 Leading Scorer—Shelley Mann (25 pts.)
 Team—Walter Reed Swim Club (95 pts.)

NATIONAL COLLEGIATE AA CHAMPIONSHIPS

(Oxford, Ohio, March 24-26)
 50-Yard Freestyle—Kerry Donovan, Yale (0:22.8)
 100-Yard Freestyle—Rex Aubrey, Yale (0:50.7)
 220-Yard Freestyle—Jack Wardrop, Michigan (2:04.2)
 440-Yard Freestyle—Ford Konno, Ohio State (4:31.1)
 1,500-Meter Freestyle—Ford Konno (18:16.1)
 100-Yard Backstroke—Yoshi Oyakawa, Ohio State (0:58.0)
 200-Yard Backstroke—Yoshi Oyakawa (2:16.7)
 200-Yard Butterfly Stroke—Philip Drake, North Carolina (2:13.7)
 200-Yard Orthodox Breaststroke—Robert Mattson, North Carolina State (2:26.0)
 150-Yard Individual Medley—Albert Wiggins, Ohio State (1:26.5)
 300-Yard Medley Relay—Ohio State (Y. Oyakawa, A. Wiggins, E. Kawachika; 2:42.2; American record)
 400-Yard Freestyle Relay—Yale (D. Cornwell, M. Aldrich, R. Aubrey, H. Gideonse; 3:24.9)
 1-Meter Diving—Fletcher Gilders, Ohio State (535.05 pts.)
 3-Meter Diving—Gerry Harrison, Ohio State (590.25 pts.)
 Team—Ohio State (90 pts.)

CONFERENCE TEAM CHAMPIONS

Eastern Intercollegiate—Yale
 Eastern Collegiate—Pittsburgh
 Atlantic Coast—North Carolina State
 Southern—Virginia Military Institute
 Southeastern—Georgia
 Southwestern—Texas
 Western (Big Ten)—Ohio State
 Big Seven—Oklahoma
 Pacific Coast—Northern Division: Washington; Southern Division: Stanford

TABLE TENNIS

WORLD CHAMPIONSHIPS

(Utrecht, Netherlands, April 15-24)
 Men's Team (Swaythling Cup)—Japan
 Women's Team (Corbillion Cup)—Rumania
 Singles—Tashiaki Tanaka, Japan; women: Mrs. Angelica Rozeanu, Rumania
 Doubles—Ivan Andreadis and Ladislav Stipek, Czechoslovakia; women: Mrs. Angelica Rozeanu and Ella Zeller, Rumania; mixed: Kalman Szepesi and Eva Koczian, Hungary

UNITED STATES CHAMPIONSHIPS (Rochester, N.Y., March 18-20)

Singles—Richard Miles, New York; women: Mrs. Leah Neuberger, New York
 Doubles—Erwin Klein, Los Angeles, and Richard Bergman, London, England; women: Mrs. Leah Neuberger and Peggy Foulke, New York; mixed: Mildred Shahian, Chicago, and Richard Miles

TENNIS

Australia's recapture of the Davis Cup and Tony Trabert's remarkable individual play held the spotlight in tennis during 1955.

Only eight months after losing the Davis Cup to the United States, 3-2, the Australians regained the trophy that represents the world team championship, 5 matches to 0. At the West Side Tennis Club, Forest Hills, N.Y., in August, Ken Rosewall defeated E. Victor Seixas, Jr., of Philadelphia, and Lewis Hoad beat Trabert in the opening singles matches. The Aussies clinched the cup when Hoad and Rex Hartwig toppled Trabert and Seixas in the doubles test. Hoad downed Seixas, and Rosewall halted Hamilton Richardson in the final two singles matches.

The United States team was handicapped because Trabert was not in prime condition. Several weeks before the cup matches Tony suffered a shoulder injury, which prevented him from competing in a number of tournaments which preceded the cup test.

Prior to the injury Trabert had been almost invincible in competition at home and abroad. After being beaten by Rosewall, the eventual title winner, in the Australian national championships in January, the Cincinnati athlete did not suffer defeat until upset by Orland Sirola in a match in Germany on May 20.

Trabert began his triumphant march by capturing the United States indoor singles title. After sweeping through numerous nontitle tournaments, he added the French singles crown to his collection in June. From Paris he went to Wimbledon, where he crushed Kurt Nielsen in the All-England final. He went through the tournament without the loss of a set. Returning home, Tony gained his third successive title by winning the United States clay court honors in July.

Shortly thereafter Trabert suffered the injury which was to handicap him in the Davis Cup challenge round. By the time the United States outdoor championships rolled around in September, Tony was back at his peak competitive edge. He annexed the national title for the second time to cap the finest record in amateur tennis in many years. On October 11, the world's foremost amateur signed a professional contract calling for a record guarantee of \$75,000.

Louise Brough of Beverly Hills, Calif., made a brilliant comeback to win the women's singles title at Wimbledon for the fourth time. Doris Hart took the United States crown for the second year in a row. Before the year was out, Doris accepted a contract to become a teaching professional.

The United States women's team won the Wightman Cup for the 19th straight time, by beating Great Britain, 6 to 1.

MAJOR AMATEUR TOURNAMENTS

Davis Cup—Australia (defeated United States, 5-0, at Forest Hills, N.Y., Aug. 26-28)
 Wightman Cup (Women)—United States (defeated Great Britain, 6-1, at Rye, N.Y., Aug. 14-15)
 U.S. Outdoor (Forest Hills, N.Y.; finals, Sept. 11)—Tony Trabert, Cincinnati; women's singles: Doris Hart, Coral Gables, Fla.; mixed doubles: E. Victor Seixas, Jr., Philadelphia, and Doris Hart
 U.S. Clay Court (Atlanta, Ga.; finals, July 16-17)—Tony Trabert; doubles: Tony Trabert and Hamilton Richardson, Baton Rouge; women's singles: Mrs. Dorothy H. Knode, Alameda, Calif.; women's doubles: Mrs. Dorothy H. Knode and Janet Hopps, Seattle; mixed doubles: Yola Ramirez, Mexico City, and Sam Giammalva, Houston
 U.S. Hard Court (La Jolla, Calif.; finals, Dec. 12)—Herb Flam, Beverly Hills, Calif.; women's singles: Miami Arnold, Redwood City, Calif.
 U.S. Men's Indoor (New York, N.Y.; finals, Feb. 22)—Tony Trabert; doubles: E. Victor Seixas, Jr., and Tony Trabert
 U.S. Women's Indoor (Brookline, Mass.; finals, March 24)—Kay Hubbell, Conway, N.H.
 U.S. Doubles (Brookline, Mass.; finals, Aug. 28)—Kosei Kamo and Atsushi Migayi, Japan; women's doubles: Louise Brough, Beverly Hills, Calif., and Mrs. Margaret du Pont, Wilmington, Del.
 Canadian National (Quebec City; finals, Aug. 14)—Bob Bedard, Sherbrooke, Que.; women's singles: Mrs. Hanna Sladek, Montreal
 Australian Amateur (Adelaide; finals, Jan. 29-31)—Ken Rosewall, Sydney; doubles: E. Victor Seixas, Jr., and Tony Trabert; mixed doubles: George Worthington and Thelma Long
 Wimbledon (England; finals, July 1-2)—Tony Trabert; doubles: Lew Hoad and Rex Hartwig, Australia; women's singles: Louise Brough; women's doubles: Angela Mortimer and Ann Shilcock, England; mixed doubles: E. Victor Seixas, Jr., and Doris Hart
 French International (Paris; finals, June 4-5)—Tony Trabert; doubles: E. Victor Seixas, Jr., and Tony Trabert; women's singles: Angela Mortimer; women's doubles: Darlene Hard, Montebello, Calif., and Mrs. Beverly B. Fleitz, Long Beach, Calif.; mixed doubles: Hope G. Forbes, South Africa, and Darlene Hard

MAJOR PROFESSIONAL TOURNAMENTS

World Professional (Cleveland, Ohio; finals, April 2)—Richard Gonzales, Los Angeles
 U.S. Clay Court (Fort Lauderdale, Fla.; finals, April 17)

SPORTS, GAMES, AND SHOWS

—Donald Budge, New York; *doubles*: Donald Budge and Bobby Riggs

MAJOR COLLEGIATE CHAMPIONS

NCAA—Jose Agüero, Tulane; *doubles*: Pancho Contreras and Joaquin Reyes, S. California; *team*: S. California

Eastern Association—Yale

Atlantic Coast—North Carolina

Southern Conference—Davidson

Southeastern Conference—Tulane

Southwest Conference—Texas

Missouri Valley Conference—Houston

Western (Big Ten) Conference—Michigan

Big Seven Conference—Oklahoma

Pacific Coast Conference—*Northern Division*: Washington; *Southern Division*: Southern California

TRACK AND FIELD

Spectators at a meet in White City Stadium, London, England, on May 28, 1955, had the great good fortune of seeing one of history's magnificent foot races. On that day three men bettered 4 minutes for the mile distance. Laszlo Tabori, a 24-year-old Hungarian soldier, won the race in 3 minutes 59 seconds. Tabori finished six feet ahead of Chris Chataway and Brian Hewson, both of England. Chataway crossed the line inches in front of Hewson. Each of the latter two was timed at 3:59.8. The three runners joined Roger Bannister of England and John Landy of Australia in the under-4-minutes' circle.

An American, Wes Santee, made several gallant but vain attempts to join the select group. His best effort was 4:00.5, an American record, at the Texas Relays.

Another Hungarian, Sandor Iharos, burst brilliantly on the scene. An army lieutenant, he surpassed five world records during the year. His feats were: 3,000 meters, 7:55.6; 2 miles, 8:33.4; 1,500 meters, 3:40.8; 3 miles, 13:14.2; and 5,000 meters, 13:40.6.

The New York Athletic Club captured the National Amateur Athletic Union outdoor team title with 111 points, while the Pioneer Club of New York took the indoor crown with 24 points. The University of Southern California annexed the National Collegiate AA (outdoor) laurels with 42 points. Manhattan College won both the indoor and outdoor ICAAAA championships. Hideo Hamamura of Japan finished first in the 59th annual Boston Marathon in the record time of 2:18:22.

Harrison Dillard of Cleveland, track star of the 1948 and 1952 Olympics, was named winner on Dec. 31, 1955, of the 1955 James E. Sullivan Memorial Trophy, as the amateur athlete of the year. (See also above, under *Cross-Country*; *Pan-American Games*.)

NATIONAL AAU TRACK AND FIELD CHAMPIONSHIPS

Senior Outdoor—Men

(Boulder, Colo., June 24-25)

100-Yards—Bobby Morrow, Abilene Christian College (time, 0:09.5)

220-Yards—Rod Richard, U.S. Army (0:21.0)

440-Yards—Charles Jenkins, Villanova (0:46.7)

880-Yards—Arnold Sowell, U. of Pittsburgh (1:47.6)

1 Mile—Wes Santee, U.S. Marine Corps (4:11.5)

3-Miles—Horace Ashenfelter, New York A.C. (14:45.2)

6-Miles—Dick Hart, Collegiate Track and Field Club, Philadelphia (31:58.5)

2-Mile Steeplechase—Ken Reiser, Eugene (Oreg.) Town Club (10:20.7)

2-Mile Walk—Henry Laskau, N.Y.C. 92d St. YMHA (15:09.4)

120-Yard High Hurdles—Milt Campbell, U. of Indiana (0:13.9)

220-Yard Low Hurdles—Charles Pratt, N.Y. Pioneer Club (0:23.5)

440-Yard Hurdles—Josh Culbreath, Morgan State College (0:52.0)

Hammer Throw—Harold Connolly, Boston A.A. (199 ft. 8 in.; American record)

Shot-Put—Parry O'Brien, U.S. Air Force (58 ft. 5¾ in.)

Discus Throw—Parry O'Brien (175 ft. 7 in.)

56-Pound Weight Throw—Bob Backus, New York A.C. (43 ft. 5 in.; American record)

Hop, Step, and Jump—Victor Paredes, Cuba (50 ft. 4 in.)

Running Broad Jump—Gregory Bell, Terre Haute (26 ft. ½ in.)

High Jump—Ernie Shelton, Los Angeles A.C., and Charles Dumas, Compton, Calif. (tied at 6 ft. 10 in.)

Pole Vault—Robert Richards, Los Angeles A.C. (15 ft.)

Javelin Throw—Franklin Held, San Francisco Olympic Club (260 ft. 3 in.)

Team—New York A.C. (111 pts.)

Senior Outdoor Relays

1⅞-Mile Medley Relay—U. of Chicago Track Club (K. Stapley, J. Brown, B. Conrardy, and P. Coleman; 7:21.1)

1 Mile Relay—N.Y. Pioneer Club (Frank Bowens, Harry Bright, Reginald Pearman, and Richard Maiocco; 3:16.0)

440-Yard Relay—N.Y. Pioneer Club (Arnold Budd, Thomas Beach, James Gathers, Andy Stanfield; 0:41.5)

Long-Distance Events

Marathon (26 miles, 385 yards)—Nicholas Costes, Farrell, Pa. (time, 2:31:12.4); *team*: N.Y. Pioneer Club

15-Kilometer Run—Browning Ross, Penn A.C. (54:02)

20-Kilometer Run—Charles Robbins, N.Y. Pioneer Club (1:10:47)

25-Kilometer Run—Browning Ross (1:24:35)

30-Kilometer Run—Browning Ross (short course, 1:21:25)

10-Kilometer Walk—Henry Laskau, N.Y.C. (92d St.) YMHA (48:43:3)

15-Kilometer Walk—Henry Laskau (1:14:46)

20-Kilometer Walk—Henry Laskau (1:44:08)

25-Kilometer Walk—James Hewson, Buffalo, N.Y. (2:14:32)

30-Kilometer Walk—Alex Oakley, Ontario, Canada (2:36:11)

35-Kilometer Walk—Leo Sjogren, Finnish-American A.C., New York (3:17:57)

40-Kilometer Walk—Guillermo Weller, Argentina (3:40:58)

50-Kilometer Walk—Leo Sjogren (4:30:57)

Other Events

All-Around—Lyman Frasier, Baltimore Olympic Club (6,733 pts.)

Decathlon—Robert Richards, Los Angeles A.C. (6,873)

Pentathlon—Des Koch, U. of S. California (3,216 pts.)

Senior Indoor—Men

(Madison Square Garden, New York, N.Y., February 19)

60 Yards—John Haines, U. of Pa. (time, 0:06.1; equals world indoor record)

60-Yard High Hurdles—Harrison Dillard, Cleveland (0:07.3)

600 Yards—Charles Jenkins, Villanova (1:11.9)

1,000 Yards—Arnold Sowell, Pittsburgh (2:08.2; equals world indoor record)

1 Mile—Wes Santee, Lawrence, Kans. (4:07.9)

1 Mile Walk—Henry Laskau (6:30.4)

(Left) Lew Hoad of Australia—which won the Davis Cup in 1955—exchanges volley with Tony Trabert of the U.S. (facing camera). (Center) Pitt's Arnold Sowell wins the 1,000-yard run in 2:08.2 in the 1955 AAU indoor track and field championship on February 19. (Right) Paul Anderson of the U.S. lifts 320 pounds at the 1955 world weight-lifting championships at Munich, Germany, October 16. He set a world record with a three-event lift of 1,130 pounds.



(LEFT AND RIGHT) UNITED PRESS; (CENTER) WIDE WORLD

3 Miles—Horace Ashenfelter, N.Y.A.C. (13:54)
 1,060-Yard Sprint Medley Relay (440-100-220-300)—
 N.Y. Pioneer Club (Frank Bowens, James Ryan,
 James Gathers, Andy Stanfield; 1:53.8)
 Mile Relay—Morgan State (Herman Wade, Rudy Solom-
 on, James Rogers, Josh Culbreath; 3:18.5)
 2-Mile Relay—Syracuse (Bob Milner, Les Vielbig, Steve
 Armstrong, Don Shupe; 7:39.7)
 Running Broad Jump—Roselyn Range, U.S. Armed
 Forces (25 ft. 1 in.)
 High Jump—John Hall, U.S. Armed Forces, and Ernie
 Shelton, Los Angeles (tied at 6 ft. 8¾ in.)
 Pole Vault—Robert Richards (15 ft. 4 in.)
 16-Pound Shot-Put—Parry O'Brien, Los Angeles A.C.
 (59 ft. 5½ in.; new world indoor record)
 35-Pound Weight Throw—Robert Backus, N.Y.A.C. (60
 ft. 4½ in.)
 Team—N.Y. Pioneer Club (24 pts.)

Senior Outdoor—Women

(Ponca City, Okla., June 17-18)

50-Yards—Isabel Daniels, Tennessee State (time, 0:
 06.0)
 100-Yards—Mae Faggs, Tennessee State (0:10.8)
 220-Yards—Mae Faggs (0:25.1)
 80-Meter Hurdles—Bertha Diaz, Cuba (0:11.5; Ameri-
 can record)
 440-Yard Relay—Tennessee State (Martha Hudson, Lu-
 cinda Williams, Isabel Daniels, and Mae Faggs;
 0:49.1)
 Running Broad Jump—Mrs. Nancy Phillips, German-
 American A.C., N.Y.C. (17 ft. 5¾ in.)
 Running High Jump—Mildred McDaniel, Tuskegee (5 ft.
 6½ in.; American record)
 Baseball Throw—Amelia Wershoven, Equitable Life,
 N.Y.C. (249 ft. 1¼ in.)
 Discus Throw—Alejandra Ibarra, Cuba (117 ft. 8 in.)
 Javelin Throw—Karen Anderson, Mercury A.C., Lans-
 downe, Pa. (150 ft. 1¼ in.)
 Shot-Put—Wanda Wejzgowicz, Polish Falcons, Clevel-
 and (37 ft. 4¾ in.)
 Team—Tennessee State (87½ pts.)
 Pentathlon—Barbara Mueller, Chicago (3,539 pts.)

Senior Indoor—Women

(Chicago, Ill., February 5)

60 Meters—Isabel Daniels, Tennessee State (0:07.9)
 100 Meters—Barbara Jones, Chicago Comets (0:12.3)
 220 Yards—Alfrances Lyman, Chicago Comets (0:26.2)
 80-Meter Hurdles—Mrs. Nancy Phillips, German-Ameri-
 can A.C., N.Y.C. (0:12.0)
 440-Yard Relay—Chicago Comets (Hazel Watkins, A.
 Lyman, Mabel Landry, Barbara Jones; 0:50.5)
 440-Yard Medley Relay—Chicago Comets (Margaret
 Matthews, M. Landry, Rebecca Ayars, B. Jones;
 0:52.8)
 Broad Jump—Shirley Hereford, Holland Recreation Club,
 Cleveland (8 ft. 11¼ in.)
 High Jump—Mildred McDaniels, Tuskegee Institute (5
 ft. 2 in.)
 4-Kilogram Shot-Put—Lois Testa, Red Diamond A.C.,
 Boston (37 ft. 6¾ in.)
 Basketball Throw—Amelia Wershoven, N.Y. Equitable
 Life (93 ft. 2 in.)
 Javelin Throw—Amelia Wershoven (138 ft. 10 in.)
 Discus Throw—Marjorie Larney, Equitable Life (122 ft.
 2 in.)

NATIONAL COLLEGIATE AA OUTDOOR

(Los Angeles, Calif., June 17-18)

100-Yards—Jim Golliday, Northwestern (0:09.6)
 220-Yards—Jim Golliday (0:21.1)
 440-Yards—Jim Mashburn, Oklahoma A. & M. (0:46.6)
 880-Yards—Tom Courtney, Fordham (1:49.5)
 Mile—Jim Bailey, Oregon (4:05.6)
 2 Miles—Ken Reiser, Oregon (9:04.5)
 120-Yard High Hurdles—Milt Campbell, Indiana (0:
 13.9)
 220-Yard Low Hurdles—Charles Pratt, Manhattan (0:
 23.1)
 Shot-Put—Bill Nieder, Kansas (57 ft. 3 in.)
 Broad Jump—Joel Shankle, Duke (24 ft. 3¼ in.)
 Javelin Throw—Les Bitner, Kansas (246 ft. 1 in.)
 Discus Throw—Des Koch, U.S.C. (176 ft. ¾ in.)
 Pole Vault—Don Bragg, Villanova (15 ft. 1 in.)
 High Jump—Ernie Shelton, U.S.C. (6 ft. 11½ in.)
 Team—University of Southern California (42 pts.)

INTERCOLLEGIATE AAAA OUTDOOR CHAMPIONSHIPS

(Randalls Island, New York, N.Y., May 27-28)

100 Yards—John Haines, U. of Pa. (time, 0:09.5)
 220 Yards—Art Pollard, Penn State (0:20.8)
 440 Yards—Charles Jenkins, Villanova (0:47.2)
 880 Yards—Arnold Sowell, Pittsburgh (1:49.1)
 Mile—Burr Grim, Maryland (4:09.9)
 2 Miles—George King, New York University (9:15.7)
 120-Yard High Hurdles—Joel Shankle, Duke (0:14.1)
 220-Yard Low Hurdles—Charles Pratt, Manhattan (0:
 23.0)
 Mile Relay—Villanova (James Moran, Eugene Maliff, Al
 Peterson, Charles Jenkins; 3:15.2)
 Discus Throw—Roosevelt Grier, Penn State (170 ft.
 6 in.)

Hammer Throw—Donald Seifert, Brown (186 ft. 10 in.)
 Javelin Throw—Al Cantello, LaSalle (228 ft. 8½ in.)
 Shot-Put—Roosevelt Grier (55 ft. 11 in.)
 Broad Jump—Joel Shankle (24 ft. 8 in.)
 High Jump—Wilfred Lee, U. of Pa. (6 ft. 6½ in.)
 Pole Vault—Don Bragg, Villanova (14 ft. 6 in.)
 Team—Manhattan (38 pts.); second: Penn State (35¼)

INTERCOLLEGIATE AAAA INDOOR CHAMPIONSHIPS

(Madison Square Garden, New York, N.Y.,

February 27-28)

60 Yards—John Haines, U. of Pa. (time, 0:06.3)
 600 Yards—Charles Jenkins, Villanova (1:11.2)
 1,000 Yards—Arnold Sowell, Pittsburgh (2:14.7)
 Mile—Alex Breckenridge, Villanova (4:19.9)
 2 Miles—George Terry, Boston U. (9:16.8)
 60-Yard High Hurdles—Charles Pratt, Manhattan (0:
 07.4)
 Mile Relay—Pittsburgh (Ed Saunders, Joe Dudas, Wil-
 liam Green, Arnold Sowell; 3:19.8)
 2-Mile Relay—Syracuse (Robert Milner, Les Vielbig,
 Steve Armstrong, Don Shupe; 7:49.1)
 Broad Jump—Bernard Bruce, Boston U. (23 ft. 10¼ in.)
 High Jump—Wilfred Lee, U. of Pa. (6 ft. 6 in.)
 Pole Vault—Don Bragg, Villanova, and Dave Seed, Cali-
 fornia (tied at 14 ft.)
 16-Pound Shot-Put—Roosevelt Grier, Penn State (53 ft.
 4½ in.)
 35-Pound Weight Throw—Stewart Thomson, Yale (58
 ft. 11¼ in.)
 Team—Manhattan (27 pts.); second: Villanova (22½)

OTHER COLLEGE TEAM CHAMPIONS

Heptagonal Games—Outdoor and indoor: Cornell
 Metropolitan (New York) Association—Outdoor and in-
 door: Manhattan
 Middle Atlantic Association—St. Joseph's
 Atlantic Coast Conference—Outdoor and indoor: North
 Carolina
 Southern Conference—Outdoor and indoor: V.M.I.
 Southeastern Conference—Auburn
 Southwest Conference—Texas
 Central Collegiate Conference—Michigan
 Western (Big Ten) Conference—Outdoor and indoor:
 Michigan
 Missouri Valley Conference—Oklahoma A. & M.
 Big Seven Conference—Outdoor and indoor: Kansas
 Pacific Coast Conference—Southern California

VOLLEYBALL

National Open (U.S. Volleyball Association, Oklahoma
 City, May 11-14)—Men: Stockton (Calif.) YMCA;
 women: Santa Monica (Calif.) Mariners; intercol-
 legiate: Florida State; YMCA: Stockton; YMCA
 veterans: Central Houston (Texas); armed forces:
 Los Alamitos, Calif.
 AAU—Chicago Wilson YMCA (won 12, lost 0)

WATER POLO

AAU—Indoor: Illinois A.C. (defeated New York A.C. in
 final, 9-7; outdoor: Illinois A.C. (defeated Mexico
 in final, 10-2)

WATER SKIING

National Championships (Lakeland, Fla., August 26-28)
 —Men: Butch Rosenberg, Winter Haven, Fla.;
 women: Willa McGuire, Winter Haven

WEIGHTLIFTING

WORLD CHAMPIONSHIPS

(Munich, Germany, October 12-16)

Bantamweight—Vladimir Stogov, USSR
 Featherweight—Rafael Tchimichikjan, USSR
 Lightweight—Nikolau Kostylev, USSR
 Middleweight—Pete George, U.S.
 Light Heavyweight—Tommy Kono, U.S.
 Middle Heavyweight—Arkadi Vorobiev, USSR
 Heavyweight—Paul Anderson, U.S.
 Team—USSR (29 pts.); second, U.S. (25)

NATIONAL AAU CHAMPIONSHIPS

(Cleveland, Ohio, June 4-5)

123-Pound Class—Charles Vinci, Cleveland (690
 pounds)
 132-Pound Class—Isaac Berger, New York (705)
 148-Pound Class—Joseph Pitman, Vero Beach, Fla.
 (765)
 165-Pound Class—Richard Giller, Akron, Ohio (810)
 181-Pound Class—Tommy Kono, Sacramento, Calif.
 (940)
 198-Pound Class—David Sheppard, Astoria, L.I. (965)
 Heavyweight Class—Paul Anderson, Toccoa, Ga. (1,145)
 Team—York (Pa.) Barbell Club
 "Mr. America" Contest—Steve Klisanin

WRESTLING

NATIONAL AAU CHAMPIONSHIPS

(Amityville, L.I., N.Y., March 31-April 3)

Freestyle

114.5 Pounds—Katsuhoshi Yakayama, Japan
 125.5 Pounds—Shuhei Iwano, Japan

136.5 Pounds—Motoichi Matohashi, Japan
 147.5 Pounds—Joseph Scandura, New York A.C.
 160.5 Pounds—Dr. Melvin Northrup, Olympic Club, San Francisco
 174 Pounds—Wenzel Hubel, Ft. Campbell, Ky.
 191 Pounds—Tim Woodin, Ithaca (N.Y.) Grapplers
 Heavyweight—William Kerslake, Cleveland
 Team—New York Athletic Club (19 pts.)

Greco-Roman

114.5 Pounds—Katsuhoshi Yakayama, Japan
 125.5 Pounds—Epsuma Imada, Japan
 136.5 Pounds—Tadashi Mumajiri, Japan
 147.5 Pounds—Newton Copple, New York A.C.
 160.5 Pounds—Henrik Hansen, McBurney YMCA
 174 Pounds—Jim Peckham, Boston YMCA
 191 Pounds—Bob Steckle, Kitchener YMCA, Toronto
 Heavyweight—William Kerslake, Cleveland
 Team—Fort Campbell, Kentucky (22 pts.)

NATIONAL COLLEGIATE AA CHAMPIONSHIPS (Ithaca, N.Y., March 25-26)

115 Pounds—Terrence McCann, Iowa
 123 Pounds—Ed Peery, Pittsburgh
 130 Pounds—Myron Roderick, Oklahoma A. & M.
 137 Pounds—Lawrence Fornicola, Penn State
 147 Pounds—Edward Eichelberger, Lehigh
 157 Pounds—Bill Weick, Iowa State Teachers
 167 Pounds—Fred Davis, Oklahoma A. & M.
 177 Pounds—Dan Hodge, Oklahoma
 191 Pounds—Peter Blair, Navy
 Heavyweight—William Oberly, Penn State
 Team—Oklahoma A. & M. (40 pts.)

YACHTING

NATIONAL CHAMPIONS

Mallory Cup (men's North American)—Bill Buchan, Jr., Seattle
 Adams Trophy (women's national)—Manhasset Bay Yacht Club, New York (Toni Monetti, skipper)
 Sears Cup (national junior)—Royal Canadian Y.C., Toronto

ONE-DESIGN CLASSES

World Star—Carlos de Cardenas, Havana, Cuba
 North American Star—Jorge de Cardenas, Havana
 World Snipe—Mario Capio, Italy
 National Snipe—Harry Allen, Westport, Conn.
 National Raven—P. James Roosevelt, Oyster Bay, N.Y.
 110-Class International—Cornelius Shields, Jr., Larchmont, N.Y.
 Comet International—Howard Lippincott, Riverton, N.J.
 Rebel National—Dr. Robert Wilson, Grenville, Ohio
 Moth National—Sonny Cabell, Norfolk, Va.

OTHER CHAMPIONS

One-ton Cup (six-meter)—Andre Firmenich's *Ylliam IX*, Sweden
 British-American Cup (six-meter)—United States
 Gold Cup (5.5-meter)—M. Oerti's *Twins VII*, Italy
 Norway—Manhasset Bay, N.Y.—Norway
 Buzzards Bay Bowl—Canada
 Bermuda—Long Island Sound (Amorita Cup)—Spring; Bermuda; fall: United States

DISTANCE RACING

Newport-to-Marstrand, Sweden—Richard S. Nye's *Carina* (yaw), Greenwich, Conn.
 Havana-San Sebastian, Spain—Enrique Urrutia's *Mare Nostrum* (yaw), Spain
 Los Angeles-Honolulu—Ira P. Fulmor's *Staghound* (ketch), Newport Beach, Calif.
 Fastnet Race (England)—*Carina*
 Gotland Race (Sweden)—W. S. Gubelmann's *Windige* (yaw), United States
 Port Huron-Mackinac Island—Jim Carlin's *Glory Bea II* (sloop)
 New London-Annapolis—Henry Sears' *Actaea* (sloop), New York
 Southern Ocean Racing Conference—Worth Brown's, Charles Ulmer's, and Woody Pirie's *Hoot Mon* (yaw), Miami, Fla.

NEW YORK YACHT CLUB CRUISE

Queen's Cup—John N. Matthews' *Vim* (12-meter), New York
 Astor Cup—Gilbert Verney's *Sea Lion* (yaw), Nantucket, Mass.

PETER BRANDWEIN,

Managing Editor, "The Encyclopedia of Sports" (New and Revised Edition).

SQUASH RACQUETS AND TENNIS. See SPORTS, GAMES, AND SHOWS.

STAMPS. See PHILATELY; POST OFFICE DEPARTMENT.

STANDARDS, National Bureau of. See NATIONAL BUREAU OF STANDARDS.

STANDARDS OF LIVING (LEVELS OF LIVING). United States.—A strong and maintained rise in

levels of living was the major force behind the record activity achieved by the United States economy in 1955. More than three fifths of the unusually sharp increase in the gross national product which occurred between the second quarter of 1954 (the low point of the 1953-54 recession) and the third quarter of 1955 was due to consumption expenditures. Consumer demand also brought home-building close to the all-time record of 1950, and stimulated a sharp upward revision in business investment programs.

Consumer buying of goods and services during the first three quarters of 1955 exceeded the record set in 1954 by some \$14 billion, or 6%, on a seasonally-adjusted annual rate basis. The increase in the volume of goods bought was at least as great, since average consumer prices edged slightly downward. It also was evident that the better quality goods were in relatively greater demand. In housing, too, there was a definite trend toward larger homes with more quality features.

The most notable increase in consumer demand was for automobiles, with some 6.3 million sold domestically during the first 10 months of 1955 (see also AUTOMOBILES). Rising incomes, the movement of the population to the suburbs, and an increase in two-car families, with easier credit terms, lower prices, and the attractiveness of the new models, helped account for the record volume. Registered passenger cars rose about 2½ million during the year to 51 million, or one car for every 3.21 civilians.

Demand for other consumer durable goods also expanded strongly and was at least 10% greater than in 1954, which had been as good a year as any on record. Output of major household goods during the first three quarters of 1955 was somewhat greater than in the earlier record year of 1950, when both consumers and retailers were building stocks for anticipated war shortages. Output of laundry and refrigeration appliances was well above earlier peaks, and furniture, television, and heating apparatus production also was very high.

Expenditures for nondurable goods continued to move upward, reaching a record annual rate of \$127 billion in the third quarter, some \$6 billion higher than a year earlier. Expenditures for clothing and shoes, which had remained almost stable in dollar terms since 1951, also increased somewhat. Apparel output reached a postwar peak, and leather goods output equaled the best postwar year. As in earlier years, food accounted for a large part of the rise.

The energy value of the American diet exceeded 3,200 calories per capita in 1955, which was about the same as in most postwar years and well above the daily allowance of about 2,700 calories recommended by the Food and Nutrition Board of the National Research Council. The largest change in civilian food habits over the year was a sharp rise in meat consumption to a new record of 161 pounds per capita. In recent years there has been a slight upward trend in calories derived from fat, due to increased use of meats and dairy products (excluding butter), but this has been offset in calories by a decline in carbohydrates as a result of the long downtrend in the importance of cereals and potatoes. In 1955, carbohydrates supplied 47% of the calories consumed; fats, 41%; and protein, 12%. In 1935-39 the ratios had been 53%, 36%, and, 11%, respectively.

Expenditures for services in 1955 rose at a rate of well over a billion dollars a quarter, due

partly to increased costs of various services, but mainly reflecting population growth and increasing demand. Residential power consumption during the first 8 months was 11% greater than in 1954, and had doubled since 1949.

A little over 1.1 million new dwelling units were started by private builders in the first 10 months of 1955—a record exceeded only in 1950. Public housing activity continued to decline, however, with only 15,000 units placed under construction. (See also BUILDING AND CONSTRUCTION; HOUSING.)

Purchasing power to support the new levels of demand also reached new highs in 1955. Personal income after taxes was 5% higher in the first 9 months of the year than in the similar period of 1954, reaching a record seasonally adjusted annual rate of \$272 billion in the third quarter. While the gains were greatest in labor income, rises were widespread in all sectors except farming, reflecting new employment records, longer hours of work, and increased returns to both capital and labor. Average hourly earnings of factory workers rose 10 cents between October 1954 and October 1955, and weekly earnings were up about \$6.50.

The gain in income more than kept pace with the rapid population rise, so that per capita average disposable income rose to \$1,642 for the third quarter of 1955 from \$1,563 a year earlier. In real terms, this average was nearly 5% higher than the record established in 1953.

The rise in consumer buying (see CONSUMER CREDIT) in 1955 exceeded the rise in income, however. Credit was available and was used freely, and the ratio of spending to income was higher than in any year since the outbreak of the Korean War. Current savings made by individuals in the form of currency, deposits, securities, and private insurance reserves amounted to \$7.4 billion in the first half of 1955, compared with \$6.2 billion in the same period of 1954. But at the same time, mortgage debt rose nearly \$6 billion and short-term debt rose \$2.2 billion, resulting in the largest margin of new debt over new savings since 1948.

The paradox of the low-income population was studied by the Joint Committee on the Economic Report, which issued a report assembling currently available data. The number of families with incomes under \$2,000 (in 1948 dollars) appeared to have remained about the same in 1954 as in 1948 (about 9½ million), while there had been a large increase in the number of families with \$5,000 or more. (See accompanying table.)

INCOME (IN 1948 DOLLARS) OF U.S. FAMILIES AND INDIVIDUALS, 1948 AND 1954

(Numbers in thousands)

	1948		1954	
	Families	Individuals	Families	Individuals
Total money income (1948 dollars)				
Total.....	38,530	8,140	41,934	9,623
Under \$1,000.....	4,020	4,090	4,269	4,598
\$1,000 to \$2,000.....	5,580	1,830	5,143	1,958
\$2,000 to \$3,000.....	7,950	1,240	6,128	1,436
\$3,000 to \$5,000.....	12,970	810	13,698	1,255
\$5,000 and over.....	8,010	170	12,696	376
Per cent.....	100	100	100	100
Under \$1,000.....	10	50	10	48
\$1,000 to \$2,000.....	15	23	12	20
\$2,000 to \$3,000.....	20	15	15	15
\$3,000 to \$5,000.....	34	10	33	13
\$5,000 and over.....	21	2	30	4

(Source: Bureau of the Census, U.S. Department of Commerce.)

(See also CENSUS DATA, U.S.; COST OF LIVING; INCOME; INDUSTRIAL PRODUCTION; LABOR;

RETAIL STORE SALES; SAVINGS; SOCIAL WELFARE.)

Western Europe.—Data from the Organization for European Economic Cooperation on the volume of private consumption in its member countries showed combined per capita consumption in 1954 to be 11% higher than in the prewar period, and almost 5% higher than in 1953. The most striking increase occurred in France and the Saar combined, with Germany and the Netherlands in second and third place, respectively. The only one of the 13 reporting countries which showed no increase between 1953 and 1954 was Portugal.

Information for the first six months of 1955 indicates that the rise in consumption levels in Western Europe was continuing. Unemployment for the latest month reported in 1955 was lower than in the comparable month of 1954, except in Denmark and Italy. The number unemployed in Denmark was small in comparison to the total labor force. In Italy the number of the unemployed and underemployed remains a perennial problem, particularly in the south. However, the economic situation in southern Italy in 1955 showed improvement over the previous year at about the same rate as the rest of the country. Progress in land reform in Italy has resulted in the settlement since 1950 of about 90,000 families.

Price levels in mid-1955 were somewhat higher than in 1954 in most Western European countries. Wages had increased somewhat more than retail prices in all those nations for which figures are available. Inflation appeared to be a rising problem in a number of countries. In Great Britain, an excess of imports was accompanied by a great increase in domestic purchases of consumer durable goods. Measures taken early in 1955 did not solve the problem. In October 1955, a new government budget was adopted which considerably increased existing sales taxes on consumer goods and imposed new ones, reduced subsidies for low-cost housing, and raised taxes on distributed profits.

The 1955 report of the U.N. Food and Agriculture Organization showed that the nutritional content of diets in Western Europe continued to improve through 1953–54. Average calorie consumption, average protein intake, and average intake of animal protein all rose moderately in 1955. Consumption of potatoes and other starchy roots continued to decline, and there was some indication that the per capita consumption of cereals was declining.

Canada, Australia, and New Zealand.—In these Commonwealth countries, high levels of consumption continue. In 1955 the rise in levels of living in Canada was resumed after a slight drop in 1954. The seasonal rise in unemployment which always characterizes the Canadian economy in the winter and early spring was more severe than usual in 1953–54, but it declined sharply in 1955. Meanwhile, average weekly earnings of the employed have risen. In both Australia and New Zealand employment is at very high levels and unemployment negligible.

Latin America.—An increase of less than 1% from 1951 to 1954 in the consumption of goods and services available per capita in Latin America is shown in the July 1955 report of the U.N. Economic Commission for Latin America. The largest increase over this period (6.4%) occurred in Venezuela, which is in a favorable position to import both capital and consumer goods in return for its exports of petroleum. The next larg-

est increase (4.9%) was in the countries exporting coffee and cocoa (Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, and Nicaragua). In the remaining countries of Latin America the commission estimated a decline of 2.9% in the availability of consumer goods per capita. In these countries the increase of population had outstripped economic growth.

In 1954 there was much more than average increase (on a per capita basis) in the consumer goods and services produced and imported. The annual growth rate was 13.3% in the coffee- and cocoa-exporting countries, 7.5% in Venezuela, and 1.3% in the rest of the area.

USSR and Eastern Europe.—In 1955 the Soviet Union completely reversed the economic policy of increasing the rate of investments in consumer goods production. The reversal in 1955 means that except for the favored few, the population of the Soviet Union and satellites will have little hope for improvement of living levels in the near future. The 1955 budget reflected the newly announced policy of greater emphasis on heavy industry production at the expense of consumer goods, and doubled the 1954 amount of compulsory bond purchases by the Soviet people. In addition, the 1955 budget allocation for the production and distribution of consumer goods dropped to about 76% of the 1954 figure: from 36.6 billion rubles to 27.9 billion.

The critical state of the Soviet consumer goods situation was confirmed by the failure of the government to announce a price cut in 1955. (Since 1947 there had been annual price cuts affecting many types of consumer commodities.) Virtually frozen wage rates in the Soviet Union and the satellites have continued to limit purchasing power. In striking contrast to previous years, only one price cut decree affecting consumer goods was announced in the Soviet orbit. That was in Czechoslovakia, early in 1955.

Asia and the Far East.—Progress in both agricultural and industrial production in this area during 1954 brought the very low average consumption to higher levels. Production of food grains was 11% higher than in 1934–38, and total consumption of cotton piece goods in the whole area (outside of mainland China) was 50% higher than in 1951. Higher cement production provided material for much needed new housing, schools, hospitals, and roads, as well as for factories. The energy and protein content of food intake per capita per day continued to rise in 1953–54 in the 5 Asian countries reporting to the FAO (Ceylon, India, Japan, Pakistan, and the Philippines). Cereal consumption was nearly up to the prewar quantity. Average consumption of animal products did not increase and appeared to be still somewhat below the very low levels prevailing before the war.

In Japan, the most highly industrialized of the Asian countries, average levels of living are probably higher than in any other part of the area. In spite of the postwar decline in the Japanese birth rate, pressure of population on resources remains a serious problem.

In India, consumption of all types of food in 1954 was still lower on a per capita basis than in the prewar period. Industrial production continued to rise and in the first half of 1955 was at the highest level ever recorded. Meanwhile government programs for village improvement were being actively continued in a number of the Indian States.

Africa.—An analysis by the U.N. Department

of Economic and Social Affairs of data on economic growth in Africa from 1950 to 1954 shows that agricultural production in Africa in 1954 was over 10% higher than the 1948–50 average. There has been a general increase in the availability of electric power, with 1953 electric energy output being 30% above that for 1950. Wide regional differences in the continent and lack of information about consumption levels of the people make it impossible to generalize about changes in their status.

(See also **COST OF LIVING; LABOR FORCE, WORLD;** and articles on the countries mentioned in this article.)

FAITH M. WILLIAMS and LEONARD R. LINSENMAYER,

Bureau of Labor Statistics, U.S. Department of Labor.

STARS. See **ASTRONOMY.**

STASSEN, Harold Edward, American public official: b. West St. Paul, Minn., April 13, 1907. A three-time governor of Minnesota, he later served in a number of key positions in the Eisenhower administration. On March 19, 1955, he was appointed by President Eisenhower as special assistant to the president for disarmament, an unprecedented post with cabinet rank, and on July 29, he was nominated to become the American deputy representative on the U.N. Disarmament Commission.

Educated at the University of Minnesota (B.A. 1927 and LL.B. 1929), he was admitted to the Minnesota bar in 1929 and began practicing law in South St. Paul. In 1930 and again in 1934 he was elected attorney for Dakota County; and in 1937, as head of the Minnesota Young Republican League and as a reform candidate, he became the youngest governor ever to gain office in his state. Stassen's sweeping reform program won him national attention and subsequent reelection in 1940 and 1942. He resigned the governorship on April 27, 1943, to enter the U.S. Navy as a lieutenant commander. He served with distinction in the Pacific campaign of World War II as assistant chief of staff and flag secretary on the staff of Admiral William F. Halsey, and in 1945 was discharged as a captain. From April 25 to July 6, 1945, he served as a member of the American delegation to the San Francisco Conference of the United Nations. On July 29, 1948, he was appointed president of the University of Pennsylvania, a post he held until Jan. 20, 1953.

Stassen was a leading but unsuccessful contender for the Republican presidential nomination in both 1944 and 1948; he was a favorite son candidate at the Republican National Convention in 1952, but transferred his votes to General Eisenhower. During the campaign, he aided the Republican Party as a political strategist and adviser. With the election of Eisenhower to the presidency, Stassen was appointed director of the Mutual Security Administration, taking office on Jan. 28, 1953. When that agency was abolished and its economic functions were transferred to the Foreign Operations Administration (FOA), Stassen was appointed director of the newly created agency by President Eisenhower on Aug. 1, 1953. In this capacity he recommended substantial economic and technical aid to free Asian countries as a means of combating Communist encroachment.

On March 19, 1954, President Eisenhower named Stassen as special assistant to the president for disarmament, a new cabinet-level post

popularly labeled secretary of peace. The position was created by the president to develop "the broad studies, investigations and conclusions which, when concurred in by the National Security Council and approved by the president, will become basic policy toward the question of disarmament." Stassen maintained his FOA post until June 30, 1955, when the FOA expired as an independent agency.

STATE DEPARTMENT, U.S. See FOREIGN POLICY OF THE U.S.; UNITED STATES.

STATE GUARD. See NATIONAL GUARD.

STEEL. See IRON AND STEEL.

STERLING AREA. See Index entry.

STEVENS, Wallace, American poet: b. Reading, Pa., Oct. 2, 1879; d. Hartford, Conn., Aug. 2, 1955. A successful business executive who won the 1954 Pulitzer Prize in poetry (announced on May 2, 1955), he bridged the gap between the worlds of art and business to become one of the outstanding contemporary poets in the United States.

Educated at Harvard College (1897-1900) and the New York Law School, Stevens was admitted to the New York bar in 1904. After a period of general practice in New York City, he joined the Hartford Accident and Indemnity Company, Hartford, Conn., in 1916, becoming vice president of the firm in 1934.

He first gained an audience as a poet in 1914 when four of his poems, entitled *Phases*, were included in a special wartime issue of *Poetry*. Extremely self-critical, he did not publish his first volume of poetry, *Harmonium*, until 1923. In the majority of these poems, Stevens paints a world of sensory profuseness. The poems are suggestive incantations rather than direct statements; colors, sound, rhythms, and images are subtly fused to evoke an aesthetic rather than an emotional or intellectual response. His second volume, *Ideas of Order*, was published in 1935, after a 12-year silence. In these poems, as in *Harmonium*, the emphasis lies in the ambiguous overtones suggested by his subject rather than on the subject itself, but there is also present in a few of the pieces an implicit awareness of the disorder of contemporary life.

With the publication of *The Man with the Blue Guitar* (1937), Stevens' preoccupation with the "essential gaudiness of poetry" was superseded by a philosophical concern, the principal theme of which was the artist and his relationship with reality. Since he believed that life is awareness and that awareness is heightened by the imagination, much of his later poetry was a development of the implications of this idea.

The volumes that followed this shift in emphasis include *Parts of a World* (1942); *Transport to Summer* (1947); *Three Academic Pieces* (1947); *The Auroras of Autumn* (1950); and *The Necessary Angel* (essays, 1951). *The Collected Poems of Wallace Stevens* (1954), which won the Pulitzer Prize for 1954, was published in commemoration of the poet's 75th birthday. Stevens also won the Bollingen Prize in Poetry for 1949, the Poetry Society of America Gold Medal for 1951, and the National Book Award for 1950 and 1954. He was a member of the National Institute of Arts and Letters.

STEVENSON, Adlai E(wing), American political leader: b. Los Angeles, Calif., Feb. 5, 1900. Since his defeat by Dwight D. Eisenhower in the presidential election of 1952, he has maintained leadership of the Democratic opposition, and during 1955 continued to voice strong criticism of both the foreign and domestic policies of the Republican administration. On Nov. 15, 1955, he announced his candidacy for the Democratic presidential nomination in 1956.



WIDE WORLD

Adlai E. Stevenson, who announced his candidacy for the 1956 Democratic presidential nomination on Nov. 15, 1955, vacations in Jamaica, B.W.I., in September.

Educated at Princeton University (B.A. 1922), Harvard Law School, and Northwestern University (J.D. 1926), he was admitted to the Illinois bar in 1926 and subsequently worked as a newspaper reporter and editor, counsel to various federal agencies, special assistant to the secretaries of the navy and state, and a member of the United States delegation to the United Nations. He was elected Democratic governor of Illinois for the term 1949-53.

On April 11, 1955, after the administration had made known its intention to defend the islands of Quemoy and Matsu against a threatened Communist Chinese invasion, if it should be determined that such an invasion were ultimately directed against Formosa, Stevenson set the tone and pattern of his attacks on the administration's foreign policy when he declared that "the maintenance of our alliances and the respect and goodwill of the uncommitted nations of Asia" would be far more important to the United States "than the possession of these off-shore islands by Gen. Chiang Kai-shek ever could be." Throughout the year he reiterated his belief that the State Department was tending to distort and obscure the peaceful purposes of the United States, thus frightening its allies, alienating the uncommitted peoples of the world, and allowing the Communist bloc to assume the initiative in the area of propaganda.

Stevenson was no less critical of the administration's domestic policies. He attacked its farm policies, and expressed concern over the plight of the farmer. In the field of labor, he characterized the unfavorable reactions of certain leading Republicans to the merger of the American Federation of Labor and the Congress of Industrial Organizations as an apparent "design to play the ugly politics of group conflict and hatred." During the year he also denounced the administration's polio vaccination program as disorderly (May 24), its immigration policy as too rigid (June 1), and its housing and educational programs as inadequate (July 6 and November 30, respectively).

After entering the presidential race in November, Stevenson announced his intention to participate in the presidential primaries of five regional states—California, Florida, Pennsylvania, Illinois and Minnesota. By the end of the year he had gained the support of a large number—although by no means all—of Democratic Party leaders.

STOCKS AND BONDS. Stock prices continued to climb during the greater portion of 1955 in an extension of the bull market that started in September 1953. The first setback of any magnitude in this major two-year advance took place after President Dwight D. Eisenhower was stricken with a heart attack on Sept. 24, 1955—a development that disturbed investors because of the prospect that he would not be a candidate for reelection in 1956. Confidence in the policies of the administration had been a strong factor buoying investment sentiment.

The subsequent decline, which lasted about two weeks, trimmed 11% from the combined market value of the stocks in the Standard & Poor's daily industrial stock price indexes. By mid-November, stock prices were again carried to new highs, but the market then moved irregularly during the remainder of the year. The year closed with net gains (compared with 1954 year-end levels) of 30% in the industrials, 13% in the rails, and 6% in the utilities. Swings in these three major stock groups (Standard & Poor's daily indexes) are indicated in the accompanying table.

	Dates*	Indus- trial	Rails	Util- ities	Com- bined
1953 low.....	Sept. 14	226.1	60.5	92.3	180.4
1954 opening.....	Jan. 1	249.4	63.1	104.4	198.2
1954 close.....	Dec. 31	371.0	92.8	123.7	285.7
1955 high.....	Nov. 14	493.5	109.3	136.3	368.6
1955 close.....	Dec. 30	482.6	104.4	131.5	361.1

* Dates are for industrials. Rail and utility highs and lows in some instances occurred on other dates.

A powerful combination of underlying forces supported the rise in stock prices. The general economy reached a new high plane and was still headed upward at the close of the year. Earnings of leading corporations averaged about 30% higher than in 1954, reaching a new record high. Another new record was established by corporate cash dividend payments, which were about 10% above the previous 1954 peak.

Additional factors contributing to sharp price movements and flurries of activity in individual stocks were the record number of stock splits during the year, as well as numerous mergers and combinations.

There was more widespread participation of the general public in the market, notwithstanding increases in margin requirements from 50% to 60% on January 5 and to 70% on April 23. As a consequence, turnover on the New York Stock Exchange rose to 650 million shares from 573 million shares in 1954, the largest volume of trading for any year since 1933.

In the bond market, prices continued under pressure as the Federal Reserve System (q.v.), in an effort to slow the pace of the business boom, shifted from a credit policy of "mild restraint" to one of definite "restraint." One of the restrictive measures taken was the raising of the discount rate on April 14 from 1½% to 1¾%; to 2% on August 3-5; to 2¼%, commencing August 3 (by the Federal Reserve banks of Cleveland), August 30 (St. Louis), and September 9 (Minneapolis); and to 2½% on November 18. The interest rate on prime commercial loans rose from 3% to 3¼% on August 3 and to 3½% on October 14.

Reflecting the hardening of money, as well as the competition encountered by the bond market from the high volume of mortgages, the average yield on long-term government bonds, which stood at 2.57% at the end of 1954, rose to 2.95% early in August 1955, but then closed the year at 2.90%.

Total new security offerings continued at a high level in 1955. According to the Securities and Exchange Commission (q.v.) the grand total for the first 10 months of 1955 reached \$23 billion, compared with \$25.7 billion a year earlier. Corporate financing was up to \$8.6 billion from \$8 billion, but total state and municipal flotations declined to \$4.8 billion from \$5.5 billion. The most significant change for the year was in new offerings of common stock, which increased to \$1,857 million from \$1,042 million. (See also UNITED STATES—*The United States in 1954*; FEDERAL RESERVE SYSTEM.)

LEWIS L. SCHELLBACH,
Vice President, Standard & Poor's
Corporation.

STONE. Stone is sold in two principal forms—dimension stone, such as building stone and memorials, and crushed stone, which is used chiefly as a concrete aggregate and in highway construction.

PRODUCTION OF STONE IN THE UNITED STATES (Thousands of short tons)

Kind of stone	Dimension stone		Crushed stone	
	1952	1953	1952	1953
Granite.....	519	604	21,770	22,868
Basalt.....	58	59	29,617	30,038
Marble.....	89	76	149	378
Limestone.....	787	799	297,706	310,313
Sandstone.....	352	354	8,297	8,302
Miscellaneous.....	91	65	22,490	18,976

(Source: U.S. Bureau of Mines.)

The figures for crushed limestone include about 65 million tons used in making cement, and about 18 million tons used in making lime.

STRATEGIC AND CRITICAL MATERIALS. See Index entry.

STRAWBERRIES. See FRUITS.

STRIKES AND WALKOUTS. See Index entry.

STRYKER, Lloyd Paul, American lawyer; b. Chicago, Ill., June 5, 1885; d. New York, N.Y., June 21, 1955. One of the most colorful figures of the criminal law courts, he combined histrionic ability with a wide knowledge of legal techniques to give his court appearances the effect of command performances.

The son of a minister who later became president of Hamilton College (Clinton, N.Y.), Stryker was drilled in public speaking from early youth through college (Hamilton, B.A., 1906; M.A., 1909). Having been admitted to the New York bar in 1909, he served as assistant district attorney of New York from 1910 to 1912. During World War I he was an officer in the field artillery.

Two of Stryker's attempts to gain public office were unsuccessful. In 1914 he failed to be elected to the city court bench, and in 1929 Congress adjourned before confirming his appointment by President Calvin Coolidge to the District Court of the United States for the Southern District of New York. Stryker himself preferred being a trial lawyer with what he called its "ordeal by battle," and as such built up a successful New York practice, numbering among his clients the Board of Aldermen in its investigation of relief practices in the 1930's. He also cleared William F. X. Geoghan, district attorney of Kings County, of charges of misconduct in office, and obtained 194 acquittals out of 200 cases for the New York Medical Society.

In 1938 he crossed verbal swords with Thomas E. Dewey, then district attorney of New York, at the trial of James J. Hines, a Tammany

leader charged with selling political protection to policy racketeers. Though Hines was convicted in a second trial, his first trial was adjudged a mistrial. Later, Stryker's unsuccessful defense of restaurateur Henry Lustig, accused of tax evasion, was equally colorful. It was during the first trial of Alger Hiss in 1949, however, that Stryker gained the widest attention. As Hiss' defense counsel, he conducted a rapierlike cross-examination of Whittaker Chambers that contributed to a hung jury.

Stryker was the author of *Andrew Johnson: A Study in Courage* (1929); *Courts and Doctors* (1932); *For the Defense* (1947), a biography of the 18th century British lawyer Thomas Erskine; and *The Art of Advocacy* (1954).

SUBVERSIVE ACTIVITIES. See Index entry.

SUDAN, Anglo-Egyptian. See ANGLO-EGYPTIAN

SUDAN.

SUDAN, French. See FRENCH WEST AFRICA.

SUEZ CANAL. See Index entry.

SUGAR. United States sugar beet production in 1955 was estimated by the Department of Agriculture at 12,498,000 short tons, as compared with 14,082,000 tons in 1954. Major producing states were California (3,504,000 tons), Colorado (1,628,000), and Idaho (1,465,000). Production of sugarcane syrup in 1955 was estimated at 5,825,000 gallons, with Louisiana (3,320,000 gallons), Florida (800,000), and Georgia (760,000) as the major producing states. Total 1955 production is compared with 5,085,000 gallons of sugarcane syrup produced in 1954. Estimated production of refined sugar from the 1955 sugarcane and sugar beet crop was 2,369,000 tons, as compared with 2,653,000 in 1954. Production of molasses was estimated at 48,800,000 gallons, as compared with 48,589,000 in 1954. The United States sugar marketing quota was set at 8,400,000 tons for 1955, as compared with 8,250,000 tons for 1954.

World Production.—World production of centrifugal cane and beet sugar for 1954-55 totaled 40,542,000 short tons (raw value), as compared with the 1953-54 total of 40,454,000 tons and the 1952-53 total of 36,200,000 tons. Production for 1955-56 was estimated at 41,126,000 tons. Output by major countries is shown in the accompanying table.

CENTRIFUGAL SUGAR PRODUCTION
BY MAJOR COUNTRIES¹
(In thousand short tons)

Country	1945-49 average	1953-54	1954-55	1955-56 ²
Argentina.....	654	829	908	900
Australia.....	830	1,357	1,437	1,280
Brazil.....	1,420	2,328	2,479	2,470
Cuba.....	5,898	5,391 ³	4,994 ³	5,000 ³
Formosa.....	346	796	832	795
France.....	823	1,804	1,860	1,678
Germany, West.....	524	1,552	1,438	1,460
Hawaii.....	861	1,077	1,127	1,120
India.....	1,319	1,320	2,000	2,100
Indonesia.....	102	683	787	937
Italy.....	331	861	968	1,065
Mexico.....	636	960	1,041	1,063
Philippines.....	382	1,435	1,371	1,208 ³
Puerto Rico.....	1,143	1,204 ³	1,166 ³	1,175 ³
United Kingdom.....	612	866	699	710
United States.....	1,969	2,446	2,598	2,400
USSR.....	1,643	2,700	2,500	3,000

¹ Centrifugal sugar includes cane and beet sugar produced by the centrifugal process, and is the principal kind used in international trade. ² Preliminary. ³ Restricted crops. (Source: Foreign Agricultural Service, U.S. Department of Agriculture, *Foreign Crops and Markets*, Nov. 28, 1955.)

World production of noncentrifugal sugar in 1955-56 was estimated at 6,724,000 short tons, as compared with the 1954-55 production of

6,788,000 tons. The major producing countries are India (2,900,000 tons), Pakistan (1,300,000), and Colombia (660,000).

SUICIDES. The suicide death rate in the United States in 1954 was estimated by the National Office of Vital Statistics at 9.9 per 100,000 population, as compared with 10.1 for 1953. Suicide rates for recent years are shown in the accompanying table.

U.S. SUICIDE DEATH RATES¹
(per 100,000 estimated population)

Year	Rate	Year	Rate	Year	Rate
1940.....	14.3	1945.....	11.2	1950.....	11.4
1941.....	12.9	1946.....	11.5	1951.....	10.4
1942.....	12.0	1947.....	11.5	1952.....	10.0
1943.....	10.2	1948.....	11.2	1953.....	10.1
1944.....	10.0	1949.....	11.4	1954.....	9.9 ²

¹ Excludes armed forces overseas for years after 1940.

² Estimate based on 10% sample.

SULFUR. The United States produces more than 90% of the world's supply of native sulfur. This supply is greatly supplemented by sulfur derived from native and imported pyrite; from byproduct acid obtained by roasting sulfide ores of copper, lead, and zinc; and from byproduct sulfur and its compounds, derived from natural and industrial gases.

SULFUR IN THE UNITED STATES
(Thousands of long tons)

	1951	1952	1953	1954
Total output.....	6,196.8	6,284.1	6,247.9	...
Native sulfur.....	5,279.6	5,295.3	5,193.6	5,515.5
Pyrite*.....	432.8	418.1	379.5	...
Byproduct acid*.....	240.8	253.0	253.0	258.6
Byproduct sulfur.....	184.0	251.2	341.6	357.4
Byproduct compounds*.....	59.6	66.5	80.2	...
Exports.....	1,311.8	1,338.4	1,271.0	1,677.9
Domestic consumption.....	3,785.9	3,728.2	3,931.9	...
Stocks.....	2,837.4	3,068.9	3,022.5	3,228.0

* Sulfur content. (Source: U.S. Bureau of Mines.)

Production of native sulfur in the first 9 months of 1955 reached 4,086,580 long tons and of byproduct sulfur, 294,800 tons. In the same period of 1954 the figures were, respectively, 4,116,876 and 267,400 tons. (See MINERAL PRODUCTION for table showing output of leading countries.)

SULFURIC ACID. Byproduct sulfuric acid produced from the sulfur content of sulfide ores at copper and zinc plants in the United States totaled 885,975 tons (basis, 100%) in 1954, as compared with 868,077 tons in 1953, according to the U.S. Bureau of Mines. In addition, some of the zinc plants reporting to the Bureau of Mines produced 156,984 tons of sulfuric acid in 1954 (229,951 tons in 1953) from native sulfur.

SUMATRA. See INDONESIA.

SUMMERALL, Charles Pelot, former U.S. Army chief of staff; b. Lake City, Fla., March 4, 1867; d. Washington, D.C., May 14, 1955. An ardent exponent of modern artillery tactics, he was recognized as one of the great American field commanders of World War I.

Summerall was graduated from the U.S. Military Academy and commissioned a 2d lieutenant in 1892. In 1899 he participated in the Philippine campaign, and in 1900 he served with his battery in the Boxer Rebellion. From 1901 until 1917 he held a variety of posts, including that of senior artillery tactics instructor at the U.S. Military Academy (1905-11).

With the entrance of the United States into World War I, General Summerall, who by August 1917 had attained the rank of brigadier gen-

eral in the National Army, was sent to Europe to study the organization and training methods of the British and French armies. After his return to the United States, he took command of the 67th Field Artillery Brigade of the 42d Division, and in October 1917 he joined the American Expeditionary Force in France. Later he commanded the 1st Division, and the 5th, 9th, and 4th Army corps. Summerall brilliantly demonstrated in the crucial Cantigny, Aisne-Marne, St. Mihiel, Soissons, and Meuse-Argonne offensives of 1918 that artillery action should be coordinated with infantry movement. After the war he served as a member of the Inter-Allied Commission at Fiume (July-August 1919) and as a member of the American Missions to Negotiate Peace (September 1919).

After returning to the United States in 1919, Summerall held a number of domestic commands, including the 1st Division (1920-21), the Hawaiian Department (1921-24), and the 8th and 2d corps areas (1924-26).

On Nov. 21, 1926, General Summerall was appointed U.S. Army chief of staff; and on Feb. 20, 1929, he was promoted to the rank of full general. Maintaining that trench warfare had become obsolete, he strongly advocated the establishment of a mechanized and mobile army throughout his four-year tenure. He retired as chief of staff on Nov. 20, 1930; and in the following year became president, until 1953, of The Citadel at Charleston, S.C., one of the oldest military colleges in the country.

SUMMERFIELD, Arthur Ellsworth, American public official: b. Pinconning, near Bay City, Mich., March 17, 1899. A former chairman of the Republican National Committee, he became postmaster general in President Dwight D. Eisenhower's cabinet on Jan. 21, 1953.

Going to work at the age of 13, Summerfield subsequently became a local distributor for the Pure Oil Company (1924) and organizer and president (1929) of one of the largest United States retail automobile agencies, both in Flint, Mich. In 1940 he entered Republican politics, becoming active in turn on county, state, and national levels. At the 1952 Republican National Convention he campaigned strongly for Eisenhower's nomination, and from July 1952 to January 1953 he was chairman of the Republican National Committee.

As postmaster general, Summerfield has attempted to reorganize the Post Office Department and cut its annual \$500 million deficit. On Jan. 24, 1955, he urged Congress to increase postal rates by \$340.5 million a year, the largest increase to be in first-class mail rates, which he said should be raised from 3 to 4 cents for the first ounce. On October 31, after conferring with the president, he again urged rate increases.

Summerfield was a major figure in the 1955 controversy concerning postal employees' pay increases. On February 7, he told the Senate Post Office and Civil Service Committee that he would oppose any increases over the 5% recommended by the president. The committee's chairman, Sen. Olin Johnston, had asked for raises of 10%. Summerfield advised the president to veto a compromise bill which granted average increases of 8.8% (it was vetoed on May 19), but finally, on June 10, the president signed a second compromise bill granting average increases of 8%.

SUMMIT CONFERENCE. See GENEVA CONFERENCE.

SUPREME COURT, U.S. For list of members, see UNITED STATES—Government; for major decisions, see LAW and the Index entry, *Supreme Court, U.S.*

SURGERY. Human Arterial Grafts.—Reconstruction of devitalized, disrupted, or destroyed segments of major arteries has been a historically pressing problem to man. For many decades the only treatment for damaged arterial segments was ligation. This resulted frequently in the loss of the part distal to the point of ligation. Later came the possibility that a substitute tube implanted in an arterial defect might bridge successfully and permanently the gap between severed or disrupted ends.

Artery-bridging tubes have been constructed from ivory, glass, aluminum and silver, methyl methacrylate and polyethylene (synthetic plastic materials). For the most part these have been abandoned because of the high percentage of thrombosis (blood clot formation) or anastomosis disruption. Another approach has been to substitute a large vein, of comparable caliber, to fill and bridge the vessel gap. In some instances, particularly in small and medium-sized vessels, this has been successful. In general, the strength of the substituted vein wall has not been sufficient to withstand the arterial pressure applied to it, and thrombosis or rupture has again occurred.

More recently enthusiastic use has been made of preserved arterial segments, obtained from humans who have died recently. The criteria of artery suitability are: (1) death must be due to causes other than malignant or infectious disease; (2) the donor must have been refrigerated from the time of death until necropsy, a period which should not exceed 24 hours; and (3) regardless of chronologic age, the aorta and principal arterial trunks must exhibit no gross evidence of arteriosclerosis (hardening of the arteries). Two major problems present themselves as soon as the segment is at hand: (1) preservation of the vessel; and (2) sterilization. Initially, vessels were kept suitably in a moist atmosphere at 4°-6°C. This made possible their use for 30-40 days, after which deterioration of the vessel wall made it unsuitable for use. However, when tissues are subjected to freeze-drying* and reconstituted in physiologic saline solution just prior to use, they are thought to be suitable for use after an indefinite period of storage.

Freeze-drying fails to alter the activity and viability of most bacteria. The sterilization of vessels may be accomplished by immersion in liquid ethylene oxide for 30 minutes, as advised by Drs. Oscar Creech, Michael DeBakey, Denton A. Cooley and Milton M. Self of the Department of Surgery at Baylor University, or by exposure to gamma radiation from a cobalt-60 (radioactive cobalt) source. This latter technic has been investigated recently by Drs. J. A. MacCris, Herbert Sloan, and J. E. Orebaugh from the Department of Surgery at the University of Michigan. In this latter technic the grafts are again freeze-dried and exposed for 16 hours to a

* Freeze-drying is essentially a process in which the water content of tissues is reduced to ice; and this is evaporated from the frozen mass, following which additional removal of moisture from the final dry solid is accomplished by the vacuum pump at a final vacuum of 0.0005 mm. Hg. The final content of moisture must be less than 1% if the substance is to be preserved at room temperature. The proteins of tissues thus treated appear to be unaltered. The fats of such graft materials also show no chemical change so long as they are not stored in a container containing oxygen; when not stored in a vacuum, fat tissues undergo oxidation and become rancid.

cobalt source which delivers in this period 4,000,-000 rep. of radiation to the graft.

A third method of sterilization of these tissues is that described by Drs. D. E. Szilagyi, P. R. Overhulse, C. P. Shannard and G. A. LoGrippe from the Henry Ford Hospital, Detroit. These surgeons have utilized an unstable ester of hydroxypropionic acid, Beta-propiolactone, as a sterilizing agent. Arterial segments exposed to this compound at a concentration of 0.75 per cent by weight for 2 hours were found to be sterile in every instance.

Excellent results have been reported with grafts of human material so treated and used to replace damaged vessels in other humans. In spite of the success which usually attends the use of homologous human arterial grafts, tissues so transplanted do not survive as living structures but are replaced gradually and completely, or in large part, by new tissue from the host. Since homologous grafts thus appear to function principally as physical struts which undergo host replacement, the question arises whether their use offers any great advantage over grafts made of an inert and nonreactive foreign material. Moreover, there are definite and obvious limits to the availability of human grafts.

Artificial Arterial Grafts.—Effective plastic materials should be readily available substitutes for the homologous human tissues. During 1955 several such materials were used experimentally with success in replacement of animal aortas. Four types of materials were investigated by Drs. E. J. Harris, H. B. Shumacker, Jr., Harry Siderys, T. C. Moore, and P. F. Grice of the Department of Surgery at the Indiana University Medical Center. The fabrics used were nylon filter fabric, nylon fused between thin sheets of polythene, polythene fused to a single sheet of nylon, and vinyon-N cloth. Of the various plastic materials studied, the nylon filter fabric made the best arterial prosthesis.

Plastic grafts were prepared by sewing together the sides of these materials with a sewing machine and fine nylon thread. The materials were sterilized by boiling or autoclaving and then implanted. In experimental animals the results with prosthetic grafts were compared with those of freeze-dried, liquid ethylene oxide sterilized, homografts. Although the plastic grafts, as judged from immediate and relatively short-term results, were not as ideal as arterial homografts, they had certain advantages, chief among which were ready availability, ease of acquisition, and sterilization.

Drs. Arthur H. Blakeman and A. B. Voorhees, Jr., have reported the use of vinyon-N cloth on 18 patients with aneurysms of the great vessels of the lower abdomen and legs at the Presbyterian Hospital, New York. Ten of the patients have survived and all are symptom free. In only one of these who failed to survive could death be attributed in any way to the type of prosthetic material used.

Six patients were treated by Drs. H. B. Shumacker, Jr., and Harold King at the Indiana University Medical Center by the use of nylon fused to a thin sheet of polythene. All six patients had aneurysmal dilatations of the aorta. Four of the six patients have survived a reasonable period of time since their operations.

Human Organ Transplants.—One of the most intriguing challenges to physicians has been the much-needed, fervently hoped-for ability to transplant whole organs from one individual to another successfully. This hope was foremost, ini-

tially, in the early work on arterial grafts, until it was recognized that the function of vessels is primarily that of support for a column of liquid, blood, and that substitute tissues may effect this role very well. On the other hand an entirely different problem exists where whole organs are needed. Here the specific, individual cell function is required, and replacement by host tissue simply destroys the cell and deprives the host of all its function. An example of the human needs so obvious to physicians is the individual with diabetes mellitus (sugar diabetes). Here the surgeon's ability to transplant a whole organ, the pancreas, would immediately begin to solve many of the dilemmas of the more than 1,500,000 known diabetics in the United States today.

Some encouragement of these hopes has been sustained for the past decade by Dr. H. S. N. Greene of the Department of Pathology at Yale University, where a continuing program of tumor implantation by heterologous (different species) and homologous (same species) transfer has resulted in tissue survival and growth under certain well-defined limitations. Greene has documented well the fact that certain adult tissues, human embryonic tissues, and human cancer tissues, when transplanted into suitable sites in laboratory animals, possessed the ability to grow. With regard to tumors which display the morphologic changes considered characteristic of cancer, this heterotransplantability appeared related closely to the ability of that tumor to spread, in the original host, by the way of lymph gland metastases.

Embryonic tissues after homologous and heterologous transfer showed the ability to grow and to differentiate and organize into functional structures. To make use of these observations on embryonic tissues, as a means of supplying human beings with organs or tissues of which they are in need, seemed reasonable and possible. However, to date this has not been successfully accomplished. Despite the sporadic report of initial acceptance by the host of organ transplants, (with the exception of monozygotic-identical-twins), they have ultimately been rejected.

The key to this predicament appears to lie in the immunologic response of an individual, the host, to the replacement tissues grafted on him. The evidence supporting the immunologic theory is remarkably good in that the time required for rejection of homotransplants is approximately the same as that required for antibody formation; substances which diminish antibody formation prolong the survival time of the transplants, and it has been possible to demonstrate antibodies in the blood stream of the recipient subject about the time of the beginning of rejection of certain homologous transplants.

The opportunity to test such thesis, despite its rather good theoretical support came to Drs. Richard L. Varco, L. D. MacLean, J. B. Aust, and R. A. Good of the University of Minnesota Department of Surgery, when they were presented with several patients with a congenital malformation known as agammaglobulinemia. This is a congenital defect which occurs only in males and results in a "immunological paralysis" associated with a secondary inability to create gamma globulin. Two patients have now been rather carefully studied by this group of investigators for the express purpose of acquiring critical evidence about the mechanism of failures of homotransplants in man. Upon each of them, skin grafts were placed. These small fragments of skin were removed from individuals, with normal immuno-

logic backgrounds, who were adults and were of different or dissimilar blood types. In each instance the grafts took well, promptly, and had survived 13 months and 3½ months, respectively, by late 1955.

The preceding workers were fortunate in being able to study, in a comparable fashion, two patients with acquired agammaglobulinemia. Here again skin was grafted to defects upon these two individuals with the acquired form of disease. Whereas again the grafts "took" initially and readily, the graft was in each instance eventually rejected completely.

Neurogenic Factors Affecting the Heart.—Within the past year Dr. R. A. Cowley, and Dr. Sidney Scherlis of the University of Maryland School of Medicine have carried on a series of studies concerned with the investigation of the nervous or neurogenic factors which influence the circulation of the heart muscle. Their clinical observations emphasized strongly that not only are neurogenic factors important in precipitating pain in the presence of an irritable or damaged coronary vascular bed, but may also be important in precipitating irreparable damage in the heart muscle itself. By stimulating branches of the nerves to the heart, the vagus nerves and their branches, as well as the sympathetic nerve ganglia, they were able to produce certain types of irregularities of rhythm of the heart.

One of the most striking effects was that produced by the stimulation of certain branches of the vagus nerve leading to the heart which resulted in prompt and profound electrocardiographic changes. These resembled the pattern seen after acute heart muscle injury from occlusion or thrombosis of the coronary artery. In some instances the nerve stimulation was sufficient to produce sudden death in the experimental animal. These investigators felt that neurogenic influences play a definite and significant role in precipitating occlusion of the coronary vessels as well as the characteristic pain seen in the human with characteristically diseased coronary blood vessel.

Two particular points of stimulation of the various nerves about the upper end of the heart were of special interest. Stimulation of certain branches of the vagus nerve produced irregularities of rhythm and changes similar to those encountered in patients who had acute myocardial damage. Stimulation of the sympathetic nerve ganglion in the immediate vicinity produced heart tracings with changes resembling acute coronary artery insufficiency.

Cardiovagal Neurectomy.—In their most recent report, these authors have described the effects of an operation designed to cut these particular nerve fibers. Patients operated on were very carefully selected because the very severe angina pectoris which they experienced was definitely the result of coronary artery disease. Treatment with drugs, rest, and psychotherapy had been unsuccessful; each patient was severely incapacitated, and two patients suffered severe unrelenting pain. Each patient permitted the operation of cardiovagal neurectomy and each was markedly benefited as a result. Two of the patients returned to a gainful occupation, a third is engaged in activity much greater than that tolerated prior to his operation, and the fourth patient has subsequently succumbed to another disease wholly unrelated to his heart disease.

(See also the Index entry, *Surgery*.)

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SURINAM (NETHERLANDS GUIANA). An autonomous territory of the Kingdom of the Netherlands on the north coast of South America. Area, 55,143 square miles; pop. (est. 1954), 220,000. Paramaribo (86,000) is the capital and only large city. The mixed population consists mainly of Negroes and persons of Negro descent, and descendants of workers once imported from India and Java. About 24,000 Negroes and 4,000 Carib Indians inhabit the jungle. There are also a few thousand Chinese and Europeans (mainly Dutch). Languages are chiefly Dutch and a lingua franca called Surinam-tongo.

Government.—Under the Statute of the Realm, which came into force on Dec. 29, 1954, Surinam became an autonomous member of the realm under the House of Orange. The Netherlands exercises effective control of foreign relations and defense. A Dutch governor represents the Netherlands crown in Surinam. The States of Surinam (Legislative Council) consists of 21 members elected for 4 years. The ministry is responsible to the legislature.

Education and Religion.—In 1953 there were 155 public and private schools (41,000 pupils), and 31 mission schools (1,100). Chief religious groups are Moslems, Hindus, Moravian Brethren, and Roman Catholics.

Finance.—Revenue in 1954 was estimated at 35,510,000 Surinam guilders; expenditure, 35,616,000. The Surinam guilder equals U.S. \$0.536.

Economy.—Surinam is the world's leading producer of bauxite (1954 output: 3,421,171 metric tons). Agriculture engages about half the population. Chief crops are rice, sugarcane, coffee, coconuts, citrus fruits, corn, bananas, cacao, and peanuts. Forest products include balata and hardwoods. Manufactures are mainly rum, molasses, plywood products, footwear, soft drinks, tobacco products, and other light items. Exports in 1954 totaled 55.18 million guilders; imports, 51.87 million. Bauxite, going almost entirely to the United States, comprises the bulk of exports. Imports are mainly machinery and vehicles, iron and steel, fuels, and foodstuffs.

Transportation and Communications.—Surinam has about 250 miles of main roads, mostly around Paramaribo. The one railway (Paramaribo-Kabestation) totals 107 miles. International airlines provide services to Zandery airport, south of Paramaribo. Motor vehicles numbered 2,018 in 1955; telephones, 3,186.

Principal Events, 1955.—Elections for the Legislative Council on March 29 resulted in a strong victory of the opposition United Front over the government coalition. Surinam's 10-year development plan (1955-65) received further impetus in 1955 when the Netherlands agreed in principle to provide 171 million (half as a loan, half as a grant) of the 250 million guilders in expenditures under the plan. Queen Juliana and Prince Bernhard toured Surinam, October 27—November 6. The visit highlighted the territory's newly won status as an autonomous member of the realm.

SVALBARD. A Norwegian Arctic territory comprising the Spitsbergen archipelago and several other islands about 400 miles north of Norway. Chief islands of the Spitsbergen group are West Spitsbergen (14,633 sq. mi.), North East Land, Edge Island, and Barents Island. Svalbard's total area is 24,101 square miles; pop. (winter, 1952-53), 1,296, not including 1,961 Russian miners operating Soviet concessions at Isfjord on West Spitsbergen. Svalbard is administered by a governor residing at Longyearbyen, West Spitsbergen. Coal is the chief product. Output of Norwegian mines in 1954 totaled 338,400 metric tons.

SWAZILAND. An enclave within the Union of South Africa, Swaziland is one of three High

Commission Territories, together known as British South Africa (see also BASUTOLAND and BECHUANALAND PROTECTORATE). It has an area of 6,705 square miles—half native reserve, half under white settlement—and a population (1946 census) of 185,215 (Africans 181,269; Europeans, 3,201; Euraficans, 745).

A resident commissioner (D. L. Morgan, appointed March 5, 1951), representing the high commissioner, has his headquarters at Mbabane, the capital; a paramount chief (Sobhuza II) and a queen mother share authority in the native reserve. Revenue in 1953-54 was £1,150,872, including grants from the Colonial Development and Welfare Fund; expenditure, £990,651. There are 234 schools for Africans, 8 for Europeans, and 4 for Euraficans. Pupil enrollment totaled 18,428 in 1954, and 124 schools received government aid amounting to £32,600.

The economic wealth of the territory lies in its natural resources, which included 420,662 cattle, 154,421 goats, and 35,737 sheep in 1953. Development has continued in agriculture, forestry, irrigation, mining (value of 1954 production, £2,114,127), and cattle ranching. Crops include maize (corn), sorghum, cotton, rice, tobacco, peanuts, bananas, citrus, and other sub-tropical fruits. Three private companies and the Colonial Development Corporation, an enterprise of the British government, are engaged in forestation; by the end of 1954 pine trees had been planted on 122,000 acres. Minerals (1954 production, £2,113,974) include asbestos, tin, iron ore, barite, and coal. Exports in 1954 were valued at £3,135,362 (including asbestos, £2,085,514; slaughter stock, £387,022; seed cotton, £155,286; peanuts, £144,592; butter, £69,565; rice (paddy), £51,783; hides and skins, £48,369; and wattle bark, £43,000). Roads aggregate about 1,150 miles (trunk roads, 700 miles). There are no railways. Motorbuses connect many parts of the territory with the Union of South Africa railway system.

SWEDEN. A northern European kingdom occupying the southern and eastern part of the Scandinavian Peninsula, Sweden borders Norway on the north and west, and Finland on the northeast. With an area of 173,378 square miles, Sweden is somewhat larger than the State of California.

Population.—The population (est., Jan. 1, 1955) is 7,234,664, an increase of 42,348 persons over the preceding year. The total number of foreigners in Sweden at the beginning of 1955 amounted to 3.7% of the population. Representing some 60 nations, 3.2% of the male workers in Swedish industry and 6.9% of the women employees were foreigners. There are 133 incorporated cities, of which the largest (with Jan. 1, 1955, populations) are Stockholm, the capital, 777,038; Göteborg, 376,628; Malmö, 205,770; Norrköping, 88,400; Hålsingborg, 73,279; Örebro, 70,477; and Uppsala, 68,484.

Government.—Sweden is a constitutional monarchy. The reigning sovereign, Gustaf VI Adolf, of the House of Bernadotte, succeeded his father, Gustaf V, in 1950. He exercises his powers through responsible ministers in the Council of State, and presides at cabinet meetings. Dr. Tage Erlander heads the coalition government of Social Democrats and Agrarians (Peasant Party) which took office on Oct. 1, 1951. The Riksdag, or Parliament, is bicameral, with both houses having equal power. The upper house (Första Kammaren) is elected indirectly for 8 years by the county and city councils, and consists of 150 members. Late in 1955 it contained 78 Social Democrats, 25 Agrarians, 14 Conservatives, 30 Liberals, and 3 Communists. The lower house (Andra Kammaren) of 230 members is elected every 4 years by universal suffrage; after the general elections of Sept. 21, 1952, it consisted of 110 Social Democrats, 25 Agrarians, 31 Conservatives, 59 Liberals, and 5 Communists.

Education and Religion.—Education has been compulsory in Sweden since 1842. In 1950, Parliament passed a bill providing for extensive reform and modernization of the whole educational system, including an increase in the period of compulsory education from 7 to 9

years. In the universities and professional schools there were approximately 50,000 students in 1953. The two national universities are at Uppsala and Lund. There are private universities at Stockholm and Göteborg. Adult education is unusually widespread and varied, with 60 so-called people's colleges in the country, enrolling more than 9,000 students annually. The Evangelical Lutheran Church is the established church of Sweden. Uppsala is the metropolitan see, and the country has 13 bishoprics and 2,550 parishes.

Finance.—Sweden's budget was presented at the opening of the Riksdag on Jan. 12, 1955, with receipts and expenditures balanced at approximately 9,106 million kronor (approximately \$1,800 million at the existing rate of exchange; U.S. \$1 = 5.173 kronor). The social welfare budget, as usual, was the highest, totaling 2,519 million kronor, or 142 million more than the preceding year. Old-age pensions were estimated to cost 1,365 million kronor, an increase of 37 million, which is the biggest single item in the budget. The defense budget totaled 2,195 million kronor, a decrease of 10 million as compared with the year before.

Agriculture and Forestry.—Sweden's 9.2 million acres of arable land are distributed among some 375,000 farmers. Most of these are small landowners with farms not exceeding 25 acres. About 93% of the country's arable land is privately owned. Two thirds of Sweden's area consists of forests and interior bodies of water, and forest products in the last few years have accounted for 41% of the total export value. Principal crops are wheat, rye, hay, fodder peas, potatoes, sugar beets, fodder roots, and oats. Progress in scientific farming has made Sweden practically self-sufficient in basic foods.

Mining.—Next to the land, forests, and water power, Sweden's most important natural resource is iron ore. Production during 1953 totaled 16,984,000 tons. Production in 1953 of various minerals (in metric tons) was: sulfur pyrites, 388,990; auriferous arsenic ore, 74,560; and manganese ore, 12,068. In the same year Sweden also produced 284,648 metric tons of coal and 181,127 metric tons of fire clay.

Manufacturing.—Industries other than mining include the manufacturing of wood products, machinery, motors, electrical appliances, railroad and aviation equipment, airplanes, automobiles, trucks, buses and streetcars, textiles, apparel, pharmaceuticals, foodstuffs, and a wide variety of other consumer goods. About 95% of Swedish industry is operated under private enterprise: corporations, partnerships, and privately or family-owned concerns account for 91%, and cooperative enterprises for 4%. About 43% of the population earn their living in industry or from crafts.

Foreign Trade.—The principal exports are forest products; pulp, paper, and lumber bring in almost half the foreign trade income. Yearly gross earnings of the Swedish merchant fleet total about 1,300 million kronor. Sweden was third among shipbuilding nations in 1954. Swedish shipyards launched 67 vessels of 550,000 gross tons and delivered 70 vessels of 533,000 tons. Among the world's shipbuilders, three leading Swedish yards occupied the third, fourth, and fifth places, respectively. In both volume and value, exports as well as imports reached new highs during 1954. Exports expanded by 7% compared with 1953, the total being 8,218 million kronor. Imports totaled 9,198 million, an increase of 13%. Great Britain maintained its position as Sweden's foremost customer. Swedish exports to Britain amounted to 1,526 million kronor, representing 19% of the total export value. Sweden's exports to the dollar area declined from 10% of the total in 1953 to 7.8% in 1954. Imports from the dollar countries showed only a small decline, or from 11.4% to 11% of the total.

Transportation and Communications.—Swedish state railways own 10,236 miles of a total track-

age of 10,262 miles; 40% of the railways are electrified. The Scandinavian Airlines System (SAS), a combine of Danish, Norwegian, and Swedish airlines, operates routes between Sweden and 72 cities in 41 countries of the world. Sweden's merchant fleet, numbering over 1,800 ships with a gross tonnage of about 2,650,000, is one of the 12 largest in the world. On Sept. 8, 1953, the country's first highway, laid out after Continental and United States patterns, was opened between Malmö and Lund in southernmost Sweden. The ultimate goal of the new superhighway is Stockholm, a distance of about 360 miles. Highways and roads totaled 54,800 miles in 1955.

In 1955 there were 4,321 post offices, 7,170 telephone stations, and 34 radio transmitters. With 1.8 million telephones, or 25.2 per 100 inhabitants, Sweden ranks second only to the United States. Radios number approximately 2.2 million, or almost one to every family. Sweden's 229 daily newspapers have a combined circulation of more than 3.5 million copies.

Labor and Co-operatives.—In proportion to its population, Sweden has the largest free labor organization in the world. The number of unions within the Federation of Swedish Trade Unions decreased in 1953 by 13, due to mergers of various locals, bringing the current total to 8,902. The total membership is now about 1,500,000. Hourly wages for male industrial workers average 4.11 kronor, and for female workers, 2.84 kronor.

The Swedish Cooperative Union had a total membership in 1955 of 1,070,073, an increase of more than 20,000. There were 688 affiliated local societies, and a turnover in 1954 of almost 2.5 billion kronor, which was 3.2% higher than the year before. The number of cooperative supermarkets in Sweden increased in 1954 by 307 to a total of 1,140.

Principal Events, 1955.—In March, the Swedish security police uncovered a widespread espionage network, resulting in the arrest on March 14, of 5 Swedes, one German, one Rumanian, and 4 Czechoslovakians. As a result, 4 members of the two Eastern European legations in Stockholm were expelled as *personae non gratae*. A new Swedish-Soviet trade agreement for 1955 was signed in Stockholm on April 22. Swedish imports, according to this agreement, remain rather high, while exports to the Soviet Union continue to be of smaller scope.

King Gustaf VI Adolf and Queen Louise of Sweden paid a state visit to the Netherlands in April as guests of Queen Juliana and her consort, Prince Bernhard. On May 19, King Gustaf VI Adolf received an honorary doctor's degree from the University of Oxford. The 50th anniversary of the peaceful dissolving on June 7, 1905, of the union between Sweden and Norway was observed on both sides of the border. On July 1, an agreement was signed in Washington, D.C., by the governments of the United States and Sweden, concerning cooperation between the two countries regarding the utilization of atomic power for peaceful uses.

On October 1, Sweden officially abolished the so-called "Bratt System," which for a period of four decades had regulated the sale and distribution of hard liquor and wines. Noncommercial television was introduced under the authority of the Swedish Radio, Inc., after several years' experimentation.

LITHGOW OSBORNE,
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Foundation.

SWEET POTATOES. See VEGETABLES.

SWIMMING. See SPORTS, GAMES, AND SHOWS.

SWITZERLAND. A European republican confederation of 19 cantons and 6 half-cantons, bounded by Germany, Liechtenstein, Austria, Italy, and France. Area, 15,941 square miles; pop. (est. June 30, 1955), 4,978,000. Chief cities and populations (1950): Zurich, 390,020; Basel, 183,543; Bern (the capital), 146,499; Geneva, 145,473; and Lausanne, 106,807. German (spoken by about 72% of the population), French (20%), Italian (6%), and Romansh (1%) are the 4 national languages, the first 3 being also the official languages.

Vital Statistics.—The birth rate in 1954 was 17.0; the death rate, 10.0; and the infant mortality rate, 27.2. Average life expectancy for the period 1939-44 was 62.68 years for males and 66.96 for females.

Government.—Legislative power is vested in a bicameral Federal Assembly. The National Council (Nationalrat) has 196 members elected every 4 years. The Council of States (Ständerat) has 44 members, 2 from each canton. Male citizens over 21 years of age are entitled to vote. Executive power is vested in a Federal Council of 7 members elected by the Federal Assembly for a 4-year term. The head of the Federal Council is also president of the confederation—a largely honorary office. The president and vice president are elected by the Federal Assembly for a 1-year term. Customarily, the vice president is chosen to succeed the outgoing president. On Dec. 15, 1955, Dr. Markus Feldmann (Peasants, Artisans and Middle Class) was elected president for 1956, succeeding Max Petitpierre.

Education and Religion.—Elementary education is free, secular, and compulsory. In the school year 1951-52 there were 476,331 pupils in primary schools and 80,207 in secondary and lower middle schools. There are also many commercial, technical, agricultural, teacher-training and other type schools. Switzerland's 7 universities had a total enrollment of 12,444 in 1953-54. In 1950, Protestants constituted 56% of the population; Roman Catholics, 42%; and Jews, 0.4%. There is complete freedom of worship.

Finance.—Revenue in 1954 totaled 2,320 million francs; expenditure, 1,959 million. The overall surplus, deducting the capital investment deficit of 131 million francs, amounted to 230 million. The Swiss franc equals U.S.\$0.233.

Production.—Swiss national income in 1954 was estimated at 21.9 billion francs, a rise of about 5% over the 20.83 billion of 1953. About 47% of the Swiss labor force is employed in manufacturing and construction. Chief industries are metal works, machines, apparatus, and instruments; textiles; watches and jewelry; clothing; food and tobacco; chemicals; graphic arts; and wood products. Electricity production (mainly hydraulic) totaled 11,244 million kw-hr. in 1954, about 1% over 1953. Construction in 1954 totaled a record 3.43 billion francs.

Swiss agriculture provides a little over half the nation's food requirements. Livestock and dairy products account for the greater part of farm output. The index of agricultural production (1939 = 100) rose from 112 in 1952 and 1953, to 117 in 1954. Output of major livestock products in 1954 was: meat, 78,000 metric tons; milk (delivered by farmers), 1,932,000; and cheese (factory production), 50,760. Chief crops and 1954 output in thousands of bushels were: wheat, 9,370; rye, 1,425; barley, 2,440; and oats, 5,300.

Foreign Trade.—Exports in 1954 totaled 5,264 million francs; imports, 5,587 million. Watch exports in 1954 were valued at 1,040 million francs, a decline of 6% from 1953. Other major exports are chemicals, textiles, and instruments and apparatus. Major imports are foodstuffs, animal feeds, machinery, automobiles, fuels, and raw cotton and wool. The United States and Canada together took 14% of Switzerland's 1954 exports and provided 16% of imports. Germany took 12% of Swiss exports and provided 22% of imports.

Transportation and Communications.—Swiss railways have a total route length of 3,211 miles (1953). The highway network includes 10,500 miles of main roads. Basel is the terminus of the Rhine waterway, navigable all the way from the North Sea. The Swiss merchant marine comprises 34 vessels aggregating 124,714 gross registered tons (end of 1953). Swissair operates international flights. Passenger cars in 1953 numbered 211,140; telephones, 1,074,216; radio receiver licenses, 1,387,700; and TV receiver licenses, 2,800 (mid-1954). There were 127 daily newspapers in 1952 with a total circulation of 1,442,000.

Principal Events, 1955.—In the six-month period following the 50% increase in the United States tariff on Swiss watches in July 1954, Swiss watch exports to the United States fell about 28%, occasioning some unemployment in the Swiss watch industry. Although the decrease in watch exports to the United States was more than compensated for by increased sales to other countries during 1955, an agreement was concluded on June 8 whereby the United States extended certain tariff concessions to Switzerland on goods other than watches. Under the Atoms for Peace program, the United States and Switzerland concluded an agreement on August 20 transferring to Switzerland a nuclear reactor which had formed part of the United States exhibit at the International Conference on Peaceful Uses of Atomic Energy, held at Geneva, August 8–20.

Four Rumanian anti-Communists seized the Rumanian legation in Bern on February 15, killing a legation employee, but surrendered to Swiss police and troops the following day. A Rumanian request for the extradition of the four men was refused by the Swiss government on February 17.

An agreement with Japan was signed in Bern on January 21, whereby Japan undertook to pay 12,250,000 Swiss francs in settlement of Swiss claims regarding damages to Swiss nationals and property caused by Japanese forces in Southeast Asia in World War II.

In domestic affairs, a development of considerable interest was the beginning of government action to repeal the Swiss constitutional prohibitions against activities in Switzerland of the Roman Catholic order of the Jesuits. Dr. Markus Feldmann, head of the Department of Justice and Police, announced in the Council of States on June 23 that the government was preparing legislation toward this end.

Boom conditions continued in most sectors of the Swiss economy during 1955. Spurred by strong domestic and foreign demand, most industries were at high or record levels, although the textile industry experienced some idleness due to Japanese competition abroad. Construction activity exceeded the record level of 3.43 billion francs in 1954. Unemployment was negligible and some 200,000 foreign workers were employed in Switzerland to ease the labor shortage. Despite the lifting of price and rent controls on March 13, the cost of living remained virtually stable during the year.

In the national elections of Oct. 30, 1955, the Social Democrats emerged as the largest party in the National Council, obtaining 53 seats, a gain of 4. The Radical Democrats obtained 50 seats; Catholic Conservatives, 47; and Peasants, Artisans, and Middle Class, 27—each of the 3 parties suffering a loss of 1 seat. Among the minor parties, the Independents received 10 seats; the Liberal Democrats, 5; Democratic and Evangelical, 5; and Labor (Communist), 4. With the ex-

ception of the loss of a seat by the Labor Party, seating among the minor parties was the same as in 1951.

M.J.G.

SYNTHETICS. See CHEMISTRY; PLASTICS; RUBBER; SOAP AND SYNTHETIC DETERGENTS; TEXTILE INDUSTRY.

SYRIA. A republic in the Middle East on the shore of the eastern Mediterranean. Area, about 72,000 square miles; population (July 1954 est.), 3,670,000, excluding (1945 est.) 288,400 nomads and seminomads. Chief cities and populations (1952): Damascus, the capital (372,708); Aleppo, northern metropolis and communications center (380,919); Homs (261,904); Hama (155,671); and Latakia (105,636), the only seaport.

Government.—Syria's government is based on a constitution approved by popular referendum in July 1953. At the head of the government is a president (Shukri el-Kuwatly, who took office on Sept. 6, 1955, after election by the Chamber of Deputies on Aug. 18, 1955); a premier (Saïd el-Ghazzi, who succeeded on Sept. 14, 1955, and who also is foreign minister) heads the cabinet. The Chamber of Deputies has 142 members. (See also below, *Principal Events, 1955.*)

Religion and Education.—The majority of Syrians are Moslems of the Sunnite sect. There are politically important minorities (Alawites, Bedouins, and Druzes) and small communities of Isma'ites and Shi'ites. The Christian elements, mostly Eastern Christian communities, constitute about 12% of the population. There are also a few thousand Jews. In 1953–54 there were 2,584 primary schools (310,484 pupils), 212 secondary schools (53,250 pupils), 12 technical schools (1,970 students), and 6 teacher-training schools (1,225 students). There are also the Higher Teachers' Training College and the Syrian University (with 3,332 students), and the Arab Academy (founded in 1919), all at Damascus.

Finance.—The budget for the calendar year 1955 totaled £\$260 million, the major allotments being £\$75 million for defense, £\$41 million for education, and £\$25 million for public works and communications. Revenues were estimated at £\$167 million from indirect taxation, including the revenue from the Iraq Petroleum Company pipelines, and £\$93 million from direct taxation. At the official exchange rate the Syrian pound equals about 45 U.S. cents, but at the current free exchange rate it is worth 28 U.S. cents.

Production.—In 1952 Syria's national income was estimated at £\$1,140 million, with per capita income of £\$300. More than two thirds of the people make their living from farming and stock raising. Only 20% of the land is fit for cultivation, and today only 12% is under cultivation. The distribution of cultivable land is a problem for the government. Another serious problem is the scarcity of rural credit. It is hoped to increase the cultivable land by the El Ghab drainage scheme and by irrigation projects on the Euphrates, the Nahr el-Kebir in Latakia, the Barada (near Damascus), and the Khabur (in the northeast) rivers. These projects form part of the 5-year \$530 million irrigation and farm-development program recommended by the International Bank for Reconstruction and Development in April 1955.

Output of principal crops in 1954 was reported as follows (in metric tons): wheat, 800,000; barley, 561,000; millet, 102,819; sugar beets, 55,000; lentils, 62,814; olives, 48,202; and rice, 24,548. Cotton and tobacco continue to be the chief cash crops. Cotton production in 1954 was 65,000 tons; in 1955, it is expected to be between 80,000 and 100,000 tons. The 1955 grain yield was expected to be 20% less because of the unseasonal drought in many areas. Industry continued to expand in 1955, with the biggest gains in textiles. The cement industry prospered, and there is a new glass industry. Other manufactures or finished products include soap, olive oil, sugar, tanned leather, and footwear. The search for petroleum in Latakia and the Deir-ez-Zor region

was intensified in 1955, and some surveys indicated the presence of chrome, manganese, and sulfur deposits.

Foreign Trade.—Syria's export trade in 1954 totaled \$194 million, while imports were held at \$171 million. Cotton and tobacco are the principal exports (in 1953 raw cotton valued at £\$134,703,000 was exported). In 1954 Syria's best customer was Lebanon (26.6%), with France ranking second (15.5%). While 4% of Syria's exports went to the United States, 12% of Syria's imports came from the United States. France and Great Britain each provided 11% of Syria's imports.

Transportation and Communications.—The total mileage of Syria's three railway systems is 517. There are about 3,000 miles of asphalted roads, and 1,500 miles of second-class macadamized roads. The one airport of the country (in Damascus) is used by several international airlines. A Syrian-United States air transport agreement was approved on March 17, 1955, enabling United States airlines to serve Syria. The port of Latakia was nationalized on Feb. 6, 1955, and is being modernized and enlarged. Telephones number approximately 24,000, and in 1954 there were 83 motion picture theaters and one broadcasting system, the Syrian Broadcasting Service at Damascus.

Principal Events, 1955.—Since the middle of 1954 some degree of political stability has been restored in Syria. Although there were disturbances in some areas, such as the clash between factions near Aleppo on March 5 and another on the following day, there was no major internal trouble during 1955. Even the murder of the Syrian Army's deputy chief of staff, Col. Adnan el-Maliky, on April 22, did not have any serious

repercussions.

The cabinet of Premier Faris el-Knoury, formed in October 1954, resigned on Feb. 7, claiming that it no longer had a coalition character. At the invitation of the president, Sabri el-Assali formed a new coalition cabinet on February 13. In August, 95-year-old President Hashim el-Atassi retired, and on September 6, Shukri el-Kuwatly became president. Thereupon the el-Assali cabinet resigned, and on September 14, Said el-Ghazzi was recalled; he formed a coalition cabinet, in which he also holds the post of foreign minister.

Syria's relations with Israel and Turkey deteriorated in 1955. On January 15, there was an anti-Turkish demonstration in Aleppo. Turkey protested against the announcement by Syria, Egypt, and Saudi Arabia on March 6 of plans for a collective security pact, and when Syria sent a note explaining that the pact would be aimed against Israel, Turkey refused to accept the note. On October 30, several clashes took place between Turkish and Syrian border patrols, and on October 20, an Egyptian-Syrian defense treaty was signed. On November 1, Iraq was considering an offer for a defense pact between the two countries.

On December 11, Israeli forces raided a Syrian army post at the northeast corner of the Sea of Galilee; 56 Syrians and 6 Israelis were killed. Syria brought the matter before the U.N. Security Council where, on the basis of a report by the United Nations truce supervisor in Palestine, the Western Big Three powers agreed to censure Israel in "strong and unequivocal terms."

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Analyst in Middle Eastern and East European Affairs, The Library of Congress.



TABLE TENNIS. See SPORTS, GAMES, AND SHOWS.

TAIWAN. See FORMOSA.

TALC. See MINERAL PRODUCTION.

TANGANYIKA. See BRITISH EAST AFRICA.

TANGERINES. See FRUITS.

TANGIER. See MOROCCO.

TARIFFS. At the close of 1955, the world tariff structure retained the general stability which had characterized it over the past several years, despite major tariff changes instituted during the year by a number of countries. Honduras, Kenya, Nicaragua, Somaliland, Formosa, and Viet-Nam completed general tariff revisions in 1955, and the Federation of Rhodesia and Nyasaland instituted its first tariff. Partial tariff revisions which resulted in increased rates of duty on a substantial number of individual items were placed into effect by several countries, including Bolivia, Chile, Colombia, Ecuador, Egypt, Finland, Greece, Guatemala, Mexico, and the Union of South Africa. Decreases in import duties on a substantial number of items were announced by a few countries, including Costa Rica and West Germany.

General Agreement on Tariffs and Trade (GATT).—The contracting parties to GATT held their

ninth session at Geneva, Switzerland, from Oct. 28, 1954, to March 7, 1955. As a result of this session, a number of amendments to the provisions of GATT, as well as an Agreement on the Organization for Trade Cooperation (OTC), were submitted to the member countries for their acceptance.

The proposed amendments to the provisions of the GATT took three forms: routine technical changes designed to correct or clarify certain of the provisions; changes to adapt the agreement to the proposed OTC; and changes of substance in several provisions of the agreement, such as those relating to quantitative restrictions, export subsidies, antidumping duties, and governmental assistance to new industries.

In their review, the contracting parties amended Article 28 so as to extend from mid-1955 to the end of 1957 the assured life of the tariff concessions that had been granted by the member countries in GATT. Prior to such extension, however, a contracting party was permitted under Article 28 to renegotiate any of the individual tariff concessions that it had granted. Some 20 member countries, among them Austria, Canada, France, India, Italy, the Netherlands, Sweden, and Union of South Africa, indicated their intention to modify or withdraw certain of their concessions in accordance with the article.

The OTC was proposed by the contracting parties to provide permanent administrative arrangements for GATT. If accepted by member countries, the new organization would replace the sessions of the contracting parties and meetings of the Intersessional Committee. It would sponsor periodic, multilateral tariff negotiations; serve as an intergovernmental forum on matters of foreign trade; and collect, analyze, and publish statistical data and other information bearing on foreign trade and commercial policy. According to its provisions, the OTC would become effective on acceptance by member countries accounting for 85% of the combined external trade of the GATT countries. On Sept. 1, 1955, Greece had accepted the OTC definitively; Chile, West Germany, the Netherlands, Turkey, and the United States had accepted it *ad referendum*. These countries accounted for 31.5% of the external trade of GATT. In the United States, President Eisenhower requested Congress to authorize United States membership in the OTC.

The ninth session and the tenth session of GATT, the latter held in the fall of 1955 and ending on December 3, considered regular business matters arising out of the operation of the agreement. These included complaints that various member countries had violated the agreement's provisions, and also included requests by various members for waivers of their GATT obligations. Belgium was given a period of grace in which to adapt its quota system of protection relating to fruits and vegetables to GATT regulations against quotas.

In 1955 Japan formally acceded to GATT. At a conference held in Geneva from February to June, Japan engaged in tariff negotiations with 17 of the 34 contracting parties to GATT.¹ At the completion of the negotiations on June 7, the contracting parties were asked to vote on Japan's accession. All 34 member countries cast favorable votes, and Japan became a member on September 10. Under Article 35 of the agreement, however, 14 contracting parties² which had not negotiated with Japan and which account for about half of the combined foreign trade of all GATT members, gave formal notice that their trade relationships with Japan would not be governed by GATT provisions.

United States Tariff Actions.—In September 1955 the United States announced its intention to enter into trade-agreement negotiations early in 1956 with other contracting parties to GATT.

Earlier in 1955 the United States granted tariff concessions to Switzerland to compensate for the increased duties on watches and watch movements that the United States had imposed in 1954 under the escape-clause procedure.

In mid-1955, Congress enacted the Trade Agreement Extension Act of 1955. This measure included two major features. It extended through June 30, 1958, the period during which the president might enter into trade agreements with foreign countries; and it granted to the president authority to reduce United States import duties—subject to the peril-point and escape-clause procedures of the existing legislation—by 15% of the rate of duty existing on Jan. 1, 1955, and to reduce rates of duty which exceeded 50% ad



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Bill extending reciprocal trade agreements another three years is signed by President Eisenhower, June 21, 1955.

valorem (or its equivalent) to that level, in equal stages each of the 3 years.

During 1955, the United States terminated its bilateral trade agreement with Guatemala and agreed to terminate its agreement with Ecuador. The revision of the United States-Philippine trade agreement, which had been concluded late in 1954, was approved in 1955 by the congresses of the two countries.

Work of the U.S. Tariff Commission.—In 1955, the U.S. Tariff Commission conducted a variety of investigations pursuant to public law and executive order; continued its tariff-simplification study; and furnished technical and statistical data and other information to Congress, other government agencies, and the public. As in other recent years, the commission's investigatory activities occupied a large part of its time.

Under Section 7 of the Trade Agreements Extension Act of 1951, as amended, the commission had nine escape-clause investigations pending before it during the first 10 months of 1955. By October, five of the investigations had been completed. In three of the completed actions—those on glue of animal origin, hardwood plywood, and red fescue seed—the commission did not recommend to the president that existing trade agreement concessions be modified. In the two other completed investigations—those on alsike clover seed and bicycles—the commission recommended that increased import restrictions be imposed on the commodities. The president followed these recommendations in part and granted relief to the domestic industries involved.

As required by Executive Order 10401, the commission submitted to the president periodic reports reviewing the escape-clause actions previously taken by the United States on women's fur felt hats, hatters' fur, and dried figs. In each instance, the commission found that continuation of the modified duty under the escape-action was necessary to prevent serious injury to the industry involved. The president approved these findings.

¹ Burma, Canada, Chile, Denmark, the Dominican Republic, Finland, West Germany, Greece, Indonesia, Italy, Nicaragua, Norway, Pakistan, Peru, Sweden, the United States, and Uruguay.

² Australia, Austria, Belgium, Brazil, Cuba, France, Haiti, India, Luxembourg, the Netherlands, New Zealand, the Rhodesia-Nyasaland Federation, the Union of South Africa, and the United Kingdom.

During 1955, the commission completed three peril-point investigations and instituted a fourth such investigation under Section 3 of the Trade Agreements Extension Act of 1951, as amended. Two of the completed investigations related to the trade agreement negotiations involving Japan, and the third related to the negotiations with Switzerland. The fourth investigation, which was begun in September, related to the proposed negotiations sponsored by GATT for early in 1956.

Under Section 22 of the Agricultural Adjustment Act, as amended, the commission conducted seven investigations during 1955. In three investigations—two relating to peanuts and one relating to shelled filberts—the commission recommended to the president the removal or liberalization of the import restrictions that had been imposed previously under Section 22. In an investigation of rye, rye flour, and rye meal, the commission recommended the imposition of an import quota on those products. The president carried out the commission's recommendations in whole or in part. Two investigations—those of durum wheat or flour and edible tree nuts—were discontinued prior to their completion. As of Oct. 15, 1955, the president had not acted on a report relating to Italian-type cheese.

Pursuant to Section 332 of the Tariff Act and resolutions of the Senate Committee on Finance, the commission completed and sent to the Senate reports on general investigations of the domestic hardboard and fluorspar industries.

Under Section 336 of the Tariff Act, the commission during 1955 received applications from domestic producers for investigations of the differences in costs of production in the United States and foreign countries of cotton gloves, cork insulation, photographic shutters, and camera shutters. The commission dismissed three of the applications after preliminary inquiry. On October 15, a preliminary inquiry respecting camera shutters was in progress.

During 1955 three domestic producers filed complaints with the commission under Section 337 of the Tariff Act, alleging unfair methods of competition and unfair acts in the importation of articles into the United States. Late in the year, preliminary inquiries into the complaints, which related to knitted garments, electrolytic apparatus for treating metal surfaces, and electron tubes, were in progress.

Under Section 201(a) of the Antidumping Act, 1921, as amended, the U.S. Tariff Commission has the responsibility of making injury determination investigations for purposes of that act.

In 1955 the commission had five such investigations pending before it. In three of the investigations—those on muriate of potash from West Germany and France, pocket pencil sharpeners from West Germany, and nicotine sulfate from the Netherlands—the commission found that the domestic industry involved was not being injured by imports of these products. In a fourth investigation, relating to muriate of potash from East Germany, the commission was equally divided in its decision, which resulted in no finding of injury. The fifth investigation, relating to cast iron soil pipe from the United Kingdom, was in process late in 1955.

The Customs Simplification Act of 1954 directed the U.S. Tariff Commission to make a comprehensive study of the laws of the United States prescribing the import status of imported articles. On March 15, 1955, the commission

presented an interim report on its study to the president and to Congress.

EDGAR B. BROSSARD,
Chairman U.S. Tariff Commission.

TAXATION. There was a substantial delay in the issuance of U.S. Treasury regulations for use in administering and explaining the completely revised Internal Revenue Code of 1954. Although one year had passed since enactment of the entirely rewritten tax law, only a small proportion of the new provisions had been covered by regulations. As a stopgap measure, the old regulations under the previous tax law were continued in force to the extent they were not inconsistent with the new law provisions.

A special subcommittee of the Congressional Joint Committee on the Economic Report undertook a basic study of federal tax policy. One of the chief goals was to compare the benefits derived from a program of offering tax incentives for investment (by reducing corporate taxes, capital gains taxes, estate and gift taxes, and upper and middle income bracket individual taxes) as against a policy of tax stimulation of consumption of goods (through cutting taxes on lower and middle income bracket taxpayers, cutting or eliminating excise taxes, and increasing the government's reliance on corporation, gift, estate, and capital gains taxes).

Tax Rates.—No general rate changes were made in any of the major federal tax categories in 1955. Provisions had existed for a reduction of the corporate normal tax rate from 30% to 25% for taxable years beginning after March 31, 1955. Excise tax rates on automobiles, trucks, automobile parts, gasoline, liquor, and cigarettes had also been scheduled to revert to pre-Korean War levels after March 31, 1955. However, President Eisenhower signed Public Law 18, which postponed the effective date for both the corporate and excise tax reductions to April 1, 1956.

Legislation.—Actual tax legislation during 1955 was confined to measures of a technical or limited nature. For businessmen generally, the most important change was the retroactive repeal (P.L. 74) of two provisions which had been enacted in the Internal Revenue Code of 1954. One would have permitted deductions for certain estimated expenses to be incurred in future years, while the other would have permitted certain prepaid income to be deferred and reported in future years.

Just before adjournment in August, Congress passed 18 minor tax bills, of which 17 were signed by the president and one was vetoed. The two most widely applicable laws of the group deal with (1) the burden of proof where a corporation is penalized for unreasonable accumulation of earnings, and (2) the penalty tax on personal holding companies which own real property and lease it to their stockholders.

Supreme Court Decisions.—The U.S. Supreme Court held that the purchase and sale of commodity futures by a business, in order to protect itself against price increases in its raw materials, gave rise to capital gain or loss rather than ordinary income or loss. It also ruled that payments received from wrongdoers as punishment for unlawful conduct did not thereby lose their character as taxable income to the recipient. In a case dealing with the pre-1954 law, the court decided that a corporation's purchase and sale of its own stock at a profit to key employees, under a plan to limit ownership of the stock to the manage-

ment group, did not result in gain or loss to the corporation. The high court also dealt with some technical problems created by the World War II excess profits tax. (See also LAW.)

Other Court Decisions.—The lower courts furnished taxpayers with many favorable precedents. Income from oil and other mineral royalties was held to be convertible into capital gain taxed at preferential rates, by making a sale of some part of the royalty. An employee benefit plan could qualify for favored tax treatment under the Internal Revenue Code even though 58% of the plan benefits went to officers of the employer and only 42% went to rank and file employees. The cost of a stair-seat elevator installed because of a taxpayer's heart condition was deductible as a medical expense. Voluntary payments made by an employer to a deceased employee's widow were treated as a nontaxable gift rather than as taxable income to the widow. The distribution of "windfall" profits by corporations which built apartment houses with the aid of FHA-insured loans was held not to be taxable to the stockholders.

Treasury Rulings.—If a husband and wife report dividend income from jointly owned stock in their joint income tax return, each one is entitled to treat up to \$50 of the dividends as tax-free. The U.S. Treasury changed its view to agree with the courts that dividend checks on savings and loan share certificates should be reported on the tax return for the year in which the checks are received, even though the dividend was declared and payable at the end of the preceding year.

No deduction may be taken for damage caused by moths. The U.S. Treasury says that moth damage does not happen suddenly enough to qualify as a casualty loss. If jointly owned Series E bonds are reissued solely in the name of the person who did not pay for the bond originally, there is a taxable gift to this person. Also, the other previous co-owner who bought the bond originally, must pay a tax on the amount by which the bond increased in value since its purchase.

If stock is given with the intention of making a gift to a child, but is registered in the name of an adult because the local law prohibits registration in the name of a minor, the Treasury is willing to treat the gift as made to the child even though the stock is not in his name. A qualified employee pension or profit-sharing plan may be set up by a corporation even if it has only one employee, providing all statutory requirements are otherwise satisfied.

Government Revenue Collections.—As a result of the individual income tax and excise tax reductions which took effect in 1954, internal revenue collections of \$66,271,290,000 for the fiscal year 1955 were well under the \$69,919,991,000 collected in the preceding fiscal year. This marked the first decline in federal revenue collections in five successive fiscal years.

State tax collections continued their unbroken climb to reach a record \$11,584 million for the fiscal year 1955, as against \$11,089 million for the fiscal year 1954. The highest percentage of increase in collections over 1954 was 7.9, registered by state individual income taxes and by state license taxes on motor vehicles and operators. Corporate income taxes showed the greatest percentage decrease, 4.5.

On a per capita basis, state collections ranged from about \$116 in Washington to \$45 in New Jersey, with a 48-state average of \$72.

STATE TAX COLLECTIONS, BY TYPE OF TAX¹

(Figures in millions)

Tax source	1955 ²	1954	1953	1942
Total collections.....	\$11,584	\$11,089	\$10,552	\$3,903
General sales or gross receipts.....	2,637	2,540	2,433	632
Motor fuels.....	2,353	2,218	2,019	940
Alcoholic beverages.....	471	463	465	257
Tobacco products.....	459	464	469	130
Insurance.....	370	353	320	113
Public utilities.....	283	263	249	100
Motor vehicles and operators licenses.....	1,184	1,098	1,012	431
Corporations in general licenses.....	266	251	266	93
Alcoholic beverages licenses.....	79	79	79	56
Hunting and fishing licenses.....	53	78	77	24
Individual income ³	1,084	1,004	969	249
Corporation net income ³	737	772	810	269
Property.....	412	391	365	264
Death and gift.....	249	247	222	110
Severance.....	303	312	286	62
Other.....	615	557	512	172

¹ Because of rounding, detail does not always add to totals. ² Preliminary. ³ Combined corporation and individual income taxes as reported for from 1 to 4 states in each fiscal year shown are tabulated with individual income taxes. (Source: U.S. Department of Commerce)

Local tax collections rose from \$10,356 million in the fiscal year 1953 to \$10,978 million, or \$67.60 per capita, for the fiscal year 1954. Property taxes accounted for almost 90% of all local revenues. Sales and gross receipts levies were the only category of local taxes producing less revenue in 1954 than in 1953.

Tax Developments in Other Countries.—Canada cut its personal income tax rates by 2 percentage points in all income brackets and also reduced the basic corporation tax rate by 2 points, from 47% to 45%. The excise tax on automobiles was lowered from 15% to 10%, while the 10% excise tax on replacement tires and tubes was entirely eliminated.

Chile sought to encourage greater copper production by United States companies through lowering the basic income tax rate to 50% and providing a 25% surtax which is reduced by one eighth of 1% for each 1% production increase over a base figure.

Ceylon raised its export tax on tea by 6 cents a pound, and Colombia raised its special import taxes. Cuba levied a tax on automotive vehicles ranging from \$7.50 on the smallest automobiles to \$35 on trucks. Denmark imposed heavy sales taxes on many commodities. Ecuador provided for a number of substantial tax increases, including boosts in the stamp tax, capital transactions tax, and property tax.

France reformed and simplified its tax collection procedures in answer to widespread protests from small businessmen about the tactics used by tax collectors. France claimed the right to impose taxes totaling about 8½% on royalty payments from French licensees to American licensors, but the United States objected and the matter was still in process of negotiation.

Great Britain reduced its personal income tax rates and increased the personal income tax exemptions. At the same time, the sales tax on household textiles was cut from 50% to 25%. Later in 1955, the tax on distributed corporate earnings was raised from 22½% to 27½%, all existing sales taxes were increased by 20%, and many previously exempt household articles, such as brooms, kitchen scales, etc., were subjected to a sales tax of 30% of wholesale value. A royal commission rejected the idea of enacting a capital gains tax for Great Britain.

Guatemala encouraged the investment of for-

eign capital by eliminating the 5% to 43% absentee tax on profits remitted abroad. Israel also offered incentives to foreign investors by reducing income taxes, in effect, from 50% to 25%. Ireland increased its income tax allowance for children, and Italy placed an additional tax of 10% on wagers, thereby forcing many race tracks to close.

South Korea was trying to negotiate a settlement of its tax claims against United States corporations. American businessmen complained of unjust, retroactive taxes, taxation of income earned outside Korea, and exorbitant rates. New Zealand gave its taxpayers a 20% income tax rebate, and Norway expanded its sales tax to cover new and used automobiles and housing and construction. Sweden re-imposed a 10% excise tax on automobiles and began to increase the corporate tax rate, which will ultimately reach 50%.

A tax treaty between the United States and Japan went into effect following exchange of ratification instruments. A tax treaty with Italy was signed but was still awaiting ratification.

LEON GOLD,

Chairman, Tax Department, Research Institute of America, Inc.

TAYLOR, Maxwell Davenport, American army officer: b. Keytesville, Mo., Aug. 26, 1901. One of the foremost divisional commanders during World War II, he succeeded retiring Gen. Matthew B. Ridgway as U.S. Army chief of staff on June 30, 1955.

Graduating from the U.S. Military Academy in 1922, Maxwell Taylor was assigned to the Engineer School at Fort Humphreys, Va., for a year of further study. After assignments with engineer units in the United States and Hawaii, he was transferred to the 10th Field Artillery in 1926.

Following a summer at the University of Paris, Taylor served as instructor of French and Spanish at the U.S. Military Academy from 1927 to 1932. Subsequently he studied at the Command and General Staff School in Fort Leavenworth, Kans. (1933-35); at the American embassy in Tokyo (1935-39), where he was a student of Japanese; and at the Army War College in Washington, D.C. (1939-40). In 1941 he commanded the 12th Field Artillery Battalion at Fort Houston, Texas, and later served as assistant secretary to the War Department General Staff.

During 1942, Taylor, then temporary lieutenant colonel and chief of staff of the 82d Infantry Division, assisted in the organization of the U.S. Army's first airborne units at Camp Claiborne, La. In March 1943, after his promotion to temporary brigadier general, he was assigned to overseas duty, and led the 82d Division's airborne invasions of North Africa, Sicily, and Italy. In March 1944, he was named commanding officer of the 101st Airborne Division, and in May was promoted to temporary major general. He led the unit's airborne landings in France and Holland, and subsequently led it through central Germany into Bavaria.

On Sept. 1, 1945, General Taylor became superintendent of the U.S. Military Academy, serving until January 1949, when he was named chief of staff for American forces in Europe. Subsequently he served as commander of the American Military Government and army forces in Berlin (1949-51) and assistant (later deputy) chief of staff for operations in Washington (1951-53). On Feb. 11, 1953, he succeeded Gen. James A. Van Fleet as commander of the

Eighth Army in Korea, and on June 10 he was promoted to full general. On Nov. 20, 1954, he was named U.S. Army commander in the Far East, a post which he held at the time of his appointment as U.S. Army chief of staff.

TEA. World output of tea in 1954 (excluding China, the USSR and Indochina) was estimated at 1,425 million pounds, an increase of 9.5% over the 1953 output.

Exports from the major producing countries have been regulated under the International Tea Agreement, to which India, Ceylon, Indonesia, and Pakistan are parties. A new 5-year international agreement was reached in 1955, removing curbs on the export of tea from these countries.

United States imports of tea in 1954 totaled 115.2 million pounds, compared with 108.1 million pounds in 1953. The value of these imports was \$62.7 million in 1954 and \$47.6 million in 1953. Principal suppliers were India and Ceylon, each providing 35½% of the United States tea imports in 1954; Indonesia, 13%; Japan, 5%; and Formosa, 4%.

Per capita consumption of tea in the United States was estimated at 0.68 pounds in 1955, the same as in 1954, compared with 0.66 pounds in 1953, 0.62 pounds in 1952, and an average of 0.47 pounds in 1947-49. (See also articles on the major tea-producing countries.)

C. J. ENZLER,

Administrative Officer, Office of the Secretary, U.S. Department of Agriculture.

TEETH. See DENTISTRY.

TELEGRAPHY. Rapid growth in the number of facsimile and private wire systems provided to government and industry, and the installation of additional thousands of Desk-Fax facsimile telegraph machines in the offices of business firms featured the progress of the telegraph industry in 1955.

Leased Wire Systems.—New private wire systems were leased to firms in many industries, bringing Western Union's private wire business to a rate of \$27 million a year, up 126% from \$11.5 million in 1950.

This growth was aided by the increasing use of private wire systems by large companies for integrated data processing purposes, to coordinate sales, production, shipping, and other operations at widely separated points. At the close of 1955 a nationwide system was being installed for Sylvania Electric Products, Inc., which was specially designed for automation use. The 12,000-mile network will link 51 cities with Sylvania's data-processing center at Camillus, N.Y. A 9,600-mile system, being installed for E. F. Hutton & Co., was specially designed with new features to meet the needs of this brokerage firm.

Intrafax.—Installation of long-distance and interstate Intrafax leased facsimile systems began late in 1955. Intrafax systems operating over shorter distances already were in use by numerous institutions and firms. Many companies now use Intrafax to flash communications between their offices, departments, and buildings. The newest Intrafax machine transmits a standard-size letter in less than three minutes, and short memoranda in seconds.

Ticketfax.—In 1955, Ticketfax, an electronic facsimile system, was installed for two railroads. With it, main reservation bureaus flash Pullman and reserved coach tickets to ticket offices in eight seconds so that the tickets can be handed to passengers at the counter, ready for immediate

use on the train. Wide use of Ticketfax to speed reservations in various fields was planned.

Desk-Fax.—Installations of the compact Desk-Fax machines with which businessmen send and receive their own telegrams instantly in "picture" form were expected to reach a total of about 26,000 firms by the end of 1955. Since 23,000 other firms have Western Union printing telegraph machines in their offices, nearly 50,000 companies now have direct-wire connections with Western Union's national transmission networks through which telegrams flash to their destinations without manual retransmission at any point.

Extended Radio Beam.—The world's first commercial microwave network, installed by Western Union in 1948 between New York, Philadelphia, Washington, and Pittsburgh, will be extended in 1956 to Cincinnati and Chicago, providing additional circuits to handle the growing volume of telegraph communications.

Business Developments.—A one-third interest in Microwave Associates, Inc., of Boston, which designs and produces a wide range of electronic devices and controls, was purchased by Western Union.

Financial.—To provide funds for further expansion of its plant, Western Union issued an additional 1 million shares of stock in 1955. The company also split its stock 4 for 1, and as a result the number of its share owners increased 25%, indicating wider investor interest and ownership in the company. In addition, the company refunded its entire bonded indebtedness, at a lower interest rate, issuing \$38,500,000 of 25-year 4½% debentures.

GEORGE P. OSLIN,
Publicity Director, Western Union Telegraph Company.

TELEPATHY. See PARAPSYCHOLOGY.

TELEPHONE. Great progress was made in both continental and intercontinental telephone communication during 1955. Work progressed on three twin submarine cable systems linking North America with Great Britain, Hawaii, and Alaska. Within the United States, it became possible for an increasing number of telephone users to dial many of their long-distance calls.

By the end of the year, there were 101 million telephones in the world. Thirteen countries had more than a million telephones. They were the United States (with 56 million), the United

Kingdom (6½ million), Canada (more than 4 million), the German Federal Republic, France, Japan, Sweden, Italy, Australia, Switzerland, Argentina, the Netherlands, and Spain.

TELEPHONES IN CONTINENTAL AREAS

(As of January 1, 1955)
(Partly estimated)

Continental area	Number of telephones	Per cent of world total	Per 100 population
North America.....	56,688,800	60.0	31.6
Middle America.....	700,300	0.8	1.2
South America.....	2,422,900	2.6	2.0
Europe.....	27,244,200	28.8	4.5
Africa.....	1,247,400	1.3	0.6
Asia.....	4,006,900	4.2	0.3
Oceania.....	2,189,500	2.3	15.3
World.....	94,500,000	100.0	3.7

Overseas Calling.—Bell System overseas service was extended to Ascension Island, in the South Atlantic, Oman, on the Arabian Peninsula, and French Equatorial Africa during 1955, bringing to 112 the number of connecting countries or territories. A telephone user in the United States may now call any one of 97 million telephones throughout the world.

Transoceanic Cables.—On June 22, 1955, the laying of the first part of a submarine telephone cable system between Clarenville, Newfoundland, and Oban, Scotland, was begun from H.M.T.S. *Monarch*. It was scheduled to be completed in 1956 and will provide 36 telephone channels.

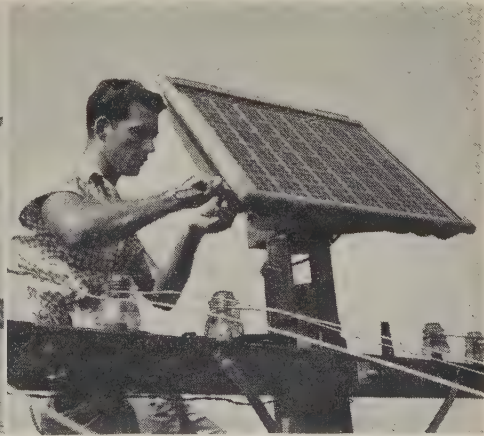
Amplifiers, called "repeaters," are the heart of the system. They amplify the voice currents a million times every 40 miles. The amplifiers built had to meet three difficult specifications. First, they had to withstand enormous water pressure on the ocean floor—up to three tons per square inch at some points. Second, they had to be built into the cable, yet be thin and flexible enough to pass through cable-laying gear. Third, they were to operate for years without attention.

The second overseas cable project on which construction began was the one linking Port Angeles, Wash., and Ketchikan, Alaska. Similar to the Atlantic cable in most respects, it will also supply 36 telephone channels and was scheduled to go into service in late 1956.

The third cable system will stretch from Point Reyes, Calif., to Koko Head, Oahu, Hawaii. Plans called for completion in 1958.

(Left) The new transatlantic cable, laid in the summer of 1955, is reeled from the deck of the H.M.T.S. *Monarch*, off the coast of Newfoundland. (Right) At Americus, Ga., a telephone line is powered for the first time by a solar battery, which converts the sun's energy directly into electricity.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY; BELL TELEPHONE LABORATORIES



The transatlantic cable is a joint undertaking of American Telephone and Telegraph Company, the British Post Office, and the Canadian Overseas Telecommunication Corporation. Only the Bell System is involved in the Alaskan cable, while the third project involves both the A. T. & T. and the Hawaiian Telephone Company.

Cables on the ocean floor make overseas telephoning more reliable, since they are not subject to the atmospheric disturbances that sometimes affect radiotelephone.

Dial Telephones.—About 84% of the 56 million telephones in the United States were dial-operated at the end of 1955. From an increasing number of localities (63 at year's end), it was possible to dial calls directly to many other cities. This service, called direct distance dialing, began experimentally in Englewood, N.J., in 1951.

Financing.—Financing the postwar growth of the telephone industry has been a tremendous task. During 1955, the total investment in the telephone industry in the United States (including the 4,800 companies that are not in the Bell System) passed \$17 billion. In the few years since World War II, the industry has grown about as much as it had during the previous 70 years of its existence.

During 1955 the number of share owners in the American Telephone and Telegraph Company—parent company in the Bell System—passed 1,385,000. It is the most widely owned of any business.

Harnessing the Sun.—On Oct. 4, 1955, for the first time, the sun began furnishing power directly to a telephone line. The operation was a part of experiments being conducted near Americus, Ga., to develop more and better rural telephone service. The system uses the Bell Solar Battery and transistors. Both were invented by the Bell Telephone Laboratories.

The Bell Solar Battery is the first successful device to convert the sun's energy directly and efficiently into substantial amounts of electricity. It is at least 15 times more efficient than the best previous solar energy converters. Excess current from the solar unit not needed for immediate telephone use feeds into a storage battery which provides power at night and during periods of bad weather. Transistors, which require only small amounts of power, were being used in the system instead of the traditional vacuum tubes. (See also ELECTRICAL DEVELOPMENTS.)

Defense Developments.—At the request of the U.S. Air Force, a project to integrate radar stations and defense weapons into a nationwide semiautomatic system was begun in 1955. It will include numerous centers where radar information will be electronically computed to guide defensive weapons. Thousands of communications channels will be needed for the interconnecting network.

Just below the Arctic Circle, across the northern rim of the North American continent, construction began in 1955 on the distant early warning (DEW) line. This is a series of radar stations to give the United States and Canada advance warning of an air attack. Western Electric, manufacturing and supply unit of the Bell System, is prime contractor for the U.S. Air Force in construction of the radar fence, which is a joint venture of Canada and the United States.

M. P. COSGROVE,

Public Relations Manager, American Telephone and Telegraph Company.

TELEVISION. See RADIO AND TELEVISION.

TENNESSEE. South Central state, United States; admitted to the Union, June 1, 1796. The "Volunteer State" ranks 33d in area and 16th in population (1955) among the 48 states.

Area and Population.—Area: 42,244 square miles (land, 41,797; inland water, 447), divided into 95 counties. Population: (1950) 3,291,718; (est., July 1, 1955) 3,399,000. Urban places with 1950 populations above 10,000 are as follows:

Bristol.....	16,771	Johnson City.....	27,864
Chattanooga.....	131,041	Kingsport.....	19,571
Clarksville.....	16,246	Knoxville.....	124,769
Cleveland.....	12,605	Memphis.....	396,000
Columbia.....	10,911	Morristown.....	13,019
Dyersburg.....	10,885	Murfreesboro.....	13,052
Elizabethton.....	10,754	Nashville ¹	174,307
Jackson.....	30,207	Oak Ridge ²	30,229

¹ Capital. ² Unincorporated.

Executive.—Chief state officers in 1955:

Governor: Frank G. Clement (Democrat)

Lieutenant Governor: Jared Maddux

Secretary of State: G. Edward Friar

Treasurer: Ramon C. Davis

Attorney General: George F. McCannless

Commissioner of Education: Quill C. Cope

Constitution and Judiciary.—The present constitution went into effect in 1870. The Supreme Court comprises 5 justices; chief justice in 1955: Albert B. Neil.

Legislature.—The General Assembly (Senate, 33 members; House of Representatives, 99) meets in odd-numbered years commencing the first Monday in January.

The 1955 session of the General Assembly increased the sales tax from 2 to 3% and extended its application, and applied the excise tax and the franchise tax to out-of-state corporations active within the state and the tax on motor fuels to that used within the state by interstate carriers. It also appropriated \$97.5 million for education and set the compulsory education limit at 16 years; extended social security coverage to members of state retirement funds; created a permanent Commission on Youth Guidance and extensively revised laws concerning children; established a daytime speed limit of 65 miles per hour and a nighttime limit of 55 miles, and increased motor vehicle registration fees. Other legislation tightened gambling laws; increased workmen's compensation benefits; extended the unemployment tax to employers of 4 or more employees; banned delivery within the state, without Public Service Commission approval, of electric power generated outside the state; created commissions on alcoholism and water resources; and authorized urban renewal projects.

Finances.—State treasury receipts (1954-55 fiscal year) approximated \$300,000,000; expenditures, \$291,373,960; treasury balance, \$112,573,761; long-term indebtedness, \$113,835,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$194,127,526.69, including \$55,096,351.29 from a 2% general sales tax and selective sales, and gross receipts taxes; \$124,641,121.01 from licensing; and \$14,390,054.39 from corporate income taxes. The state has no individual income or poll tax.

Banking.—As of June 30, 1955, the state's 76 national banks had \$1,901,714,000 in assets, \$1,325,112,000 in demand deposits, and \$430,129,000 in time deposits; the state's 219 other banks had \$752,455,697.02 in assets, \$430,339,143.42 in demand deposits, and \$254,176,602.50 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$97,017,547.88 (\$151.69 per pupil) for public schools in the 1953-54 school year comprised \$39,280,959.65 from local school districts, \$57,107,740.78 from the state, and \$628,847.45 from the federal government. Expenditures for construction and improvements totaled \$21,374,532.18. Teachers' salaries averaged \$2,824.79.

In the 1954-55 school year there were 3,511 schools (grades 1-12) with 25,307 teachers and 740,933 students, and 7 state colleges and universities with 1,861 teachers and 33,409 students.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$46,761,244.80, including \$28,222,611.90 for old-age assistance, \$16,260,168.90 for dependent children, and \$1,623,583.20 for the needy blind; a monthly average of 149,970 persons received public assistance. Expenditures for correctional

and penal institutions amounted to \$1,821,000, excluding \$755,221.64 for construction and improvements.

TENNESSEE WELFARE INSTITUTIONS

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic (June 30, 1955).....	1	1,078
Hospitals for the mentally ill (June 30, 1955).....	3	7,541
Psychiatric hospitals (June 30, 1955).....	1	39
Hospitals for the tubercular (Sept. 9, 1955).....	4	956
Schools for the blind (1954-55).....	1	210
Schools for the deaf (1954-55).....	1	420
Training schools for delinquent boys (Aug. 1, 1955).....	2	148
Training schools for delinquent girls (Aug. 1, 1955).....	2	205
Prisons (Aug. 1, 1955).....	2	2,277
Prison farms (Aug. 1, 1955).....	1	535

Labor Force.—Nonagricultural employment in July 1955 numbered 830,700, and for the full year 1954 averaged 882,300. Insured unemployment on Aug. 20, 1955, amounted to 28,400 persons, and the state paid \$37,538,153 in unemployment compensation during 1954.

Manufacturing.—Establishments numbered 5,100 in 1954. Value added by manufacture in 1953 totaled \$1,685,237,000, and investment in new plant and equipment (1954) approximated \$75,000,000. Earnings of production workers in manufacturing averaged \$57.71 for an average work week of 39.8 hours in 1954, and \$60.98 for 41.2 hours in the first half of 1955.

MAJOR TENNESSEE MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
<i>All manufactures</i>	281,000	\$1,172	\$3,344
Chemicals.....	48,000	354	1,059
Food products.....	29,000	106	567
Textiles.....	35,000	99	319
Primary metals.....	16,000	85	173
Apparel.....	31,000	56	162
Fabricated metals.....	17,000	62	145
Machinery.....	14,000	70	136
Paper and pulp.....	8,000	41	108

(Source: *The Blue Book of Southern Progress*, 1955.)

Mining.—Tennessee normally ranks first among the states in production of pyrite, and second in output of phosphate rock. The state ranked 26th in value of its total mineral production in 1953, with 0.68% of the United States total.

TENNESSEE MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.).....	7,276,964	\$18,283,366
Clays.....	1,037,450	3,478,622
Coal.....	5,466,569	25,151,682
Coke ¹	231,330	114,474
Lime.....	1,518,912	11,305,098
Phosphate rock (long tons).....	5,231,329	5,629,687
Sand and gravel.....	10,485,351	16,948,053
Stone ²	38,465	8,846,950
Zinc.....	...	7,228,658
Other minerals.....	...	\$98,049,577
Total.....	...	...

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$160,585,000, and for the full year 1954 comprised \$224,982,000 from livestock and livestock products, \$244,522,000 from crops, and \$8,626,000 from government payments. Receipts from principal crops and livestock in 1954 included: cotton lint, \$100,047,000; tobacco, \$81,466,000; cattle, \$68,982,-

000; dairy products, \$67,287,000; and hogs, \$51,047,000.

The state's 203,149 farms (17,654,324 acres; harvested cropland, 4,860,793) averaged 86.9 acres and \$7,521 in value of land and buildings per farm in 1954. There were 61,544 farms with telephones and 184,783 with electricity. Live-stock on farms on Jan. 1, 1955, included 1,771,000 cattle, 1,012,000 hogs, and 8,644,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 393,488 family and hired workers were engaged in farming.

TENNESSEE CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	388	376	94
Corn (1,000 bu.).....	59,793	40,484	58,888
Cotton lint (1,000 bales).....	565	548	610
Cottonseed (1,000 tons).....	222	223	246
Hay (1,000 tons).....	1,908	1,311	1,793
Oats (1,000 bu.).....	6,144	8,906	9,483
Potatoes (1,000 bu.).....	2,366	1,425	1,313
Sorgo sirup (1,000 gals.).....	596	378	770
Soybeans (1,000 bu.).....	2,333	2,565	4,068
Strawberries (1,000 crates).....	619*	550	660
Sweet potatoes (1,000 bu.).....	2,048	1,020	1,540
Tobacco (1,000 lb.).....	143,556	148,118	126,425
Wheat (1,000 bu.).....	4,320	3,959	3,417

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways in the 1954-55 fiscal year totaled \$51,673,000.

Highways and roads on June 30, 1955, totaled 8,314 miles (8,163 surfaced). Registered *motor vehicles* numbered 1,129,776 in March 1955, including 887,973 passenger cars. There were (1955) 28 *railroads* operating 3,209.59 line miles, and 9 regularly scheduled *airlines* and 75 *airports and airfields* (53 commercial and municipal, 2 military, and 20 private).

Communications media included (1954) 77 AM and 11 FM *radio stations* and 9 operating *television outlets* (8 VHF and 1 UHF); (1955) 28 daily *newspapers* (circulation, 977,778) and 131 other newspapers; and (Jan. 1, 1955) 213,676 business and 567,828 residential *telephones*.

Principal Events, 1955.—When the General Assembly of 1955 failed to enact a reapportionment law, a suit was filed in the Davidson County Chancery Court to have the apportionment law of 1901 declared unconstitutional, since the state constitution requires a reapportionment every ten years. In November, Chancellor Thomas W. Steele rendered a decision to the effect that the law of 1901 was invalid, but the decision was appealed to the state Supreme Court.

The Dixon-Yates contract for a steam power plant in West Memphis, Ark., was ordered cancelled by President Eisenhower on July 11, when the city of Memphis decided to build its own power plant rather than accept power from a private utility. In the Memphis mayoralty election of November 10, the defeat by Edmund Orgill of what remained of the political organization of the late Edward H. Crump made it likely that the Memphis plant would be integrated into the Tennessee Valley Authority (q.v.) system. In October the TVA's Kingston steam plant, the largest in the world, was dedicated.

During the lengthy strikes, in the spring, of the CIO's Communications Workers against the Southern Bell Telephone Company and of "non-operating" railroad workers against the Louisville and Nashville Railroad, much vandalism occurred in Tennessee. Transportation was seriously restricted, several telephone cables were cut, three small telephone exchanges were closed, and shots were fired into the homes of nonstrikers. Knoxville's mayor, George Dempster, during his

unsuccessful campaign for re-election against Republican Jack Dance on November 17, revealed that he had received information of a plot to blow up a large telephone exchange unit in the city.

The Tennessee Board of Education proposed a gradual plan of desegregation in state-supported colleges one year at a time beginning with graduate students in the state colleges of education. The plan received the approval of a federal district judge in a decision of October 17 relating to the attempt of Negro students to gain admission to Memphis State College. The Board of Trustees of The University of Tennessee, which institution had already admitted Negroes to its graduate and law schools because of a previous court decision, adopted the same plan. The only public schools in the state to adopt a desegregation policy at the beginning of the 1955 fall term were those of Oak Ridge, which are under a system of federal control.

At the national convention of the Future Farmers of America, Joe Moore of Liberty was selected as the Star Farmer of America in 1955. On July 23, the most prominent Tennessean of recent times, Cordell Hull (q.v.), died at Bethesda, Md.

*Principal Events by: STANLEY J. FOLMSBEE,
Professor of History, University of Tennessee.*

TENNESSEE VALLEY AUTHORITY. Traffic on the channel provided by TVA's system of multiple-purpose dams exceeded 1,250 million ton-miles during 1954, saving shippers an estimated \$14 million, and reached 895 million ton-miles during the first seven months of 1955. This was an increase of 27% over the same period in 1954. In March 1955 the system reduced the crest of a moderate flood by 13.5 feet at Chattanooga, Tenn. Damage of \$400,000 was averted at that point, and \$580,000 damage was saved in the lower Ohio and Mississippi basins. Total flood damage averted since 1936 reached \$59,846,000. This represents only a part of total flood-control benefits.

TVA sold 42,044,954,000 kw.-hr. of electricity in the fiscal year 1955, of which 21,770,451,000, or 52%, went to the Atomic Energy Commission and other federal defense agencies. In the previous fiscal year they had used 11.8 billion kw.-hr. Installed generating capacity was increased by 1,734,300 kw., mainly in new steam electric generating units, bringing the installed capacity of the system to 7,809,985 kw.

Power revenues were \$188,163,000. Net operating revenues of \$47,901,000 represented a return of 4¼% on the net average power investment, somewhat above the 4% average of the past 22 years. TVA paid \$50 million to the U.S. Treasury during the fiscal year. An additional \$14 million payment after the end of the fiscal year retired the last of TVA's outstanding bonds, originally totaling \$65 million.

The 148 municipal and cooperative systems which distribute TVA power had 1,376,000 customers at the end of the fiscal year 1955. Average annual residential use per customer was 5,240 kw.-hr., nearly double the national average. Purchasing 13,556,622,000 kw.-hr. from TVA for resale, municipal and cooperative systems had revenue of \$138,500,000 and a combined net income of \$24,100,000.

TVA provided personnel for operation and maintenance of the U.S. Army's Phosphate Development Works, located at Muscle Shoals, Ala., largely because of TVA's technological experi-

ence in phosphorus production and the fact that it could provide elemental phosphorus to the plant. TVA's experimental plants produced 350,000 tons of fertilizer materials which were distributed in 36 states in an experimental sales program and for farm test-demonstrations to encourage improved fertilizer practices among farmers. Industry continued to draw heavily upon TVA's experience in chemical engineering and research for fertilizer and munitions development.

TVA provided about 15 million seedlings which were used by landowners to reforest about 15,000 acres in the fiscal year 1955. This brought the total of TVA seedlings planted on valley lands to 280 million. The value of nonfederal recreation facilities on TVA lakes increased to about \$47.7 million. No malaria infection of local origin was found among people living along TVA lakes, indicating the continued effectiveness of TVA control measures. Nearly 1,800 persons from 70 foreign countries visited TVA during the year.

The TVA Board of Directors consists of Brig. Gen. Herbert D. Vogel (Ret.), chairman, Dr. Harry A. Curtis, and Dr. Raymond R. Paty.

KENNETH R. KENNEDY,
TVA Information Office.

TENNIS. See SPORTS, GAMES, AND SHOWS.

TEXAS. Southwestern state, United States; admitted to the Union, Dec. 29, 1845. The "Lone Star State" is largest in area and 6th in population (1955) among the 48 states.

Area and Population.—Area: 267,339 square miles (land, 263,513; inland water, 3,826), divided into 254 counties. Population: (1950) 7,711,194; (est., July 1, 1955) 8,351,000. Urban places with 1950 populations above 15,000 are as follows:

Abilene.....	45,570	Lubbock.....	71,747
Alice.....	16,449	Lufkin.....	15,135
Amarillo.....	74,246	McAllen.....	20,067
Austin (capital).....	132,459	Marshall.....	22,327
Baytown.....	22,983	Midland.....	21,713
Beaumont.....	94,014	Odessa.....	29,495
Big Spring.....	17,286	Orange.....	21,174
Borger.....	18,059	Pampa.....	16,583
Brownsville.....	36,066	Paris.....	21,643
Brownwood.....	20,181	Pasadena.....	22,483
Byran.....	18,102	Port Arthur.....	57,530
Corpus Christi.....	108,287	San Angelo.....	52,093
Corsicana.....	19,211	San Antonio.....	408,442
Dallas.....	434,462	Sherman.....	20,150
Denison.....	17,504	Temple.....	25,467
Denton.....	21,372	Texarkana.....	24,753
El Paso.....	130,485	Texas City.....	16,620
Fort Worth.....	278,778	Tyler.....	38,968
Galveston.....	66,568	University Park.....	24,275
Harlingen.....	23,229	Victoria.....	16,126
Houston.....	596,163	Waco.....	84,706
Kingsville.....	16,898	West University Place.....	17,074
Laredo.....	51,910	Wichita Falls.....	68,042
Longview.....	24,502		

Executive.—Chief state officers in 1955:

Governor: Allan Shivers (Democrat)
 Lieutenant Governor: Ben Ramsey
 Secretary of State: A. M. Muldrow
 Treasurer: Jesse James
 Attorney General: John Ben Shepperd
 Commissioner of Education: J. W. Edgar

Constitution and Judiciary.—The present constitution went into effect in 1876. The highest civil court, the Supreme Court, comprises nine justices; chief justice in 1955 was J. E. Hickman.

Legislature.—The legislature (Senate, 31 members; House of Representatives, 150) meets in odd-numbered years commencing the second Tuesday in January.

The 1955 legislative session passed an omnibus tax bill which included an increase from 4 to 5 cents per package on cigarettes, from 4 to 5 cents per gallon on gasoline, from 6 to 6½ cents per gallon on special fuels, and from \$2 to \$4.30 per barrel on beer; a \$1 increase in drivers' license fees; and an increase in the franchise tax. State employees were brought under social security, and the governor's salary was increased to \$25,000 and salaries of Supreme Court justices and judges and commissioners of the Court of Criminal Appeals, to \$17,500. A Commission on Higher Education was created; tax rate limits of school districts were liberalized; stricter narcotics penalties were imposed; obscene publications were outlawed; a Corporation Code, a Probate Code, and a

new Securities Act were promulgated; a state Building Commission was created; and retail and wholesale grocers were prohibited from selling below cost. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954–55 fiscal year), \$967,787,654.42; expenditures, \$968,969,959.39; and treasury balance, \$207,861,136.29.

Taxation.—State tax revenue (1954–55 fiscal year): \$547,118,304, including \$188,551,242.56 from gross receipts and production taxes; \$135,729,225.94 from highway motor fuel taxes; and \$47,771,979.49 from automobile licensing. The state levies a poll tax of \$1.75 per person.

Banking.—As of June 30, 1954, the state's 442 national banks had \$7,957,663,000 in assets, \$6,275,904,000 in demand deposits, and \$1,086,475,000 in time deposits; the state's 467 other banks had \$1,905,683,392.52 in assets, \$1,530,966,969.88 in demand deposits, and \$235,087,103.63 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 16, inclusive. Operating expenditures of \$316,069,542 (\$228.96 per pupil) for public elementary and secondary education in the 1953–54 fiscal year comprised \$124,799,556 from local school districts, \$182,438,674 from the state, and \$8,831,312 from the federal government. Expenditures for construction and improvements amounted to \$78,418,498. Teachers' salaries (1954–55) averaged \$3,747 (elementary school teachers, \$3,632; high school teachers, \$3,982).

In the 1953–54 school year the state's 4,000 public elementary schools had 37,780 teachers and 1,256,130 students, and its 1,782 public secondary schools had 18,231 teachers and 335,404 students. In 1954–55 the state supported 34 junior colleges and 16 colleges and universities, and there were 9 private junior colleges and 37 private colleges and universities.

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) in the 1953–54 fiscal year totaled \$120,455,830, including \$102,788,692 for old-age assistance, \$14,447,740 for dependent children, and \$3,219,398 for the needy blind; a monthly average of 248,373 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$22,781,444; for correctional and penal institutions, \$6,891,654.

TEXAS WELFARE INSTITUTIONS

(As of Aug. 31, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.	4	4,962
Hospitals for the mentally ill.	9	16,445
Sanatoriums for the tubercular.	3	2,173
Schools for the blind (Sept. 1, 1955).	1	210
Schools for the deaf (June 1, 1955).	1	490
Schools for Negro blind, deaf, and orphans (June 1, 1955).	1	151
Homes for dependent children.	1	219
Homes for veterans' widows.	1	21
Training schools for delinquent boys.	1	578
Training schools for delinquent girls.	2	262
Prisons.	2	2,188
Prison farms.	9	6,591

Labor Force.—The state's nonfarm labor force totaled 2,870,200 on Aug. 1, 1955. Persons employed in nonagricultural establishments numbered 2,753,300, and in the previous year averaged 2,727,600. There were 116,900 unemployed workers on Aug. 1, 1955, and the state paid \$17,304,435 in unemployment insurance during the preceding 12 months.

Manufacturing.—Value added by manufacture in 1953 was \$3,486,240,000, and investment in new plant and equipment totaled \$504,688,000. Earnings of production workers in manufacturing averaged \$72.04 for an average work week of 41.4 hours in 1954, and \$75.05 for 42.4 hours in the first half of 1955.

MAJOR TEXAS MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
<i>All manufactures.</i>	405,000	\$2,636	\$10,060
Petroleum & coal products.	46,000	719	3,678
Food products.	62,000	298	1,914
Chemicals.	41,000	332	1,101
Transportation equipment.	54,000	358	1,023
Machinery.	36,000	228	496
Primary metals.	22,000	140	292
Apparel.	30,000	71	251
Fabricated metals.	18,000	99	245
Printing.	23,000	100	232
Lumber.	24,000	70	227

(Source: *The Blue Book of Southern Progress, 1955.*)

Mining.—Texas normally ranks first among the states in production of petroleum, natural gas, natural gas liquids, sulfur, helium, bromine, and graphite. The annual value of its mineral products (more than \$3.5 billion) far exceeds that of any other state, accounting in 1953 for 25.37% of the United States total.

TEXAS MINERAL PRODUCTION, 1954¹

(In short tons, except as noted)

Mineral	Quantity	Value
Cement (bbl.)	21,350,000	\$ 53,500,000
Clays ²	1,800,000	4,300,000
Gypsum	1,100,000	3,250,000
Helium (1,000 cu. ft.)	111,313	1,863,000
Iron ore (long tons)	834,750	3
Lime	340,000	3,200,000
Natural gas (1,000 cu. ft.)	4,600,000,000	325,000,000
Natural gasoline (bbl.)	67,000,000	201,000,000
Petroleum (bbl.)	980,000,000	2,700,000,000
Petroleum gases (bbl.)	75,000,000	125,000,000
Salt	2,750,000	5,400,000
Sand and gravel	17,500,000	15,200,000
Stone ⁴	8,000,000	7,200,000
Sulfur (long tons)	3,450,000	75,100,000
Other minerals	...	37,987,000
Total	...	\$3,558,000,000

¹ Preliminary. ² Excluding clays sold or used for cement.

³ Value included in "Other minerals." ⁴ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Fisheries.—During 1953, the state's commercial fish and shellfish catch comprised 70,020,000 pounds of fish (\$1,514,000) and 71,942,000 pounds of shellfish (\$25,659,000). The most valuable catch (\$25,354,000 in 1953) is shrimp, landings of which totaled 79,092,603 pounds during the 12 months ending August 1955.

Agriculture.—Cash farm income for the first half of 1955 totaled \$638,486,000, and for the full year 1954 comprised \$765,322,000 from live-

TEXAS CROP STATISTICS

Crop (and unit of production)	Average 1944–53	1954	Est. 1955
Broomcorn (tons)	6,670	7,600	9,900
Corn (1,000 bu.)	47,111	33,184	50,690
Cotton lint (1,000 bales)	3,388	3,940	4,025
Cottonseed (1,000 tons)	1,400	1,647	1,682
Cowpeas (1,000 bu.)	733	360	540
Flaxseed (1,000 bu.)	879	578	96
Grapefruit (1,000 boxes)	11,980	2,500	2,200
Hay (1,000 tons)	1,570	1,415	1,850
Oats (1,000 bu.)	28,167	41,354	26,110
Oranges (1,000 boxes)	2,946	1,500	1,800
Peaches (1,000 bu.)	1,064	180	35
Pecans (1,000 bu.)	28,395	20,800	19,400
Potatoes (1,000 bu.)	3,479	2,033	2,880
Rice (1,000 bags)	10,918	17,040	14,880
Sorghum grain (1,000 bu.)	77,502	125,340	144,711
Sweet potatoes (1,000 bu.)	3,664	1,500	3,480
Wheat (1,000 bu.)	55,404	40,894	13,464

stock and livestock products, \$1,147,756,000 from crops, and \$22,840,000 from government payments. Receipts from principal crops and livestock in 1954 included: cotton lint, \$637,350,-

000; cattle, \$386,619,000; dairy products, \$128,394,000; sorghum grain, \$115,522,000, cottonseed, \$90,237,000, eggs, \$76,834,000; and rice, \$75,675,000.

The state's 292,946 farms (145,962,287 acres; harvested cropland, 24,884,775) averaged 498.3 acres and \$29,093 in value of land and buildings per farm in 1954. There were 111,395 farms with telephones and 269,219 with electricity. Live-stock on farms on Jan. 1, 1955, included 8,501,000 cattle, 5,331,000 sheep, 1,087,000 hogs, and 21,388,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 723,393 family and hired workers were engaged in farming.

Transportation and Communications.—State and federal funds disbursed for highways in the 1954-55 fiscal year totaled \$200,162,000, and newly completed construction and reconstruction aggregated 2,500 miles. Bond issues totaling \$183 million were sold during 1955 to finance a 223-mile road connecting the Dallas-Fort Worth area with Houston; an 83-mile road connecting Dallas with Waco; and a 30-mile expressway between Dallas and Fort Worth.

Highways and roads on Sept. 1, 1955, totaled 199,380 miles (58,869 surfaced). Registered motor vehicles numbered 3,781,235 on March 31, 1955, including 2,805,240 passenger cars. There were (1955) 53 railroads operating 15,324.34 line miles, and 11 regularly scheduled airlines and 1,219 airports and airfields (188 commercial and municipal, 26 military, 405 private, and 600 others).

Communications media (1955) included 221 AM radio stations and 36 operating television outlets (31 VHF and 5 UHF); 114 daily newspapers (circulation, 2,601,817) and 558 other newspapers; and (Jan. 1, 1955) 761,474 business and 1,654,232 residential telephones.

Principal Events, 1955.—The 54th Legislature convened January 11 and adjourned June 7 after adopting a record budget of \$1.5 billion for the 1955-57 biennium and passing a compromise \$98 million tax measure. Among major legislative enactments were those which: (1) strengthened the administration of the scandal-torn veterans land program; (2) strengthened the regulation of insurance companies; (3) prohibited strikes or picketing to force recognition of unions not representing a majority of a firm's employees; and (4) abolished the law which permitted cross-filing by political candidates. (See also above, *Legislature*.) Although water conservation was considered the most important problem facing the Legislature, a \$100 million water bond bill was not passed.

Under the leadership of Gov. Allan Shivers, the conservative faction of the Democratic Party removed Wright Morrow as national committeeman. This move indicated a split within the conservative faction and strengthened the hopes of the loyalists (Democrats who supported the national Democratic ticket in 1952) that they might win control of the state delegation to the Democratic National Convention in 1956.

Texas generally experienced record prosperity in 1955. Retail sales, construction, electric power consumption, crude oil production, and oil-well drilling all exceeded the previous year's levels. However, farm income was down about 9 per cent from 1954.

A killing freeze covered most of the state on March 26. The 22-degree cold around Jacksonville resulted in total loss of the 1955 fruit crop and extensive damage to orchards.

A few local school districts, mostly in the western part of the state, opened school in September on a desegregated basis in accordance with U.S. Supreme Court decisions. As a result

of a decision in June by its Board of Education, El Paso became the first major city in the state to announce the elimination of racial segregation in its public schools. Other communities provided for partial integration of white and Negro students with the plan to be expanded in subsequent years. A citizens group sought an injunction in a state district court to prevent integration in Big Spring and to prevent the state comptroller from issuing state warrants to school districts operating on an integrated basis. The Texas Supreme Court upheld the trial court's decision denying the injunction. In a move toward gradual desegregation of state-supported higher institutions of learning, the Board of Regents on July 8 abolished segregation at Texas Western College and in the Graduate School of the University of Texas.

The U.S. Wildlife Service closed to hunters an additional 4,640 acres adjoining the 47,000-acre Aransas Wildlife Refuge in order to provide additional protection in Texas for the almost-extinct whooping crane. Twenty adult cranes and eight babies had returned from Canada to the refuge by December 1, as compared with 21 in 1954.

(See also FLOOD CONTROL; NATIONAL PARKS.)

Principal Events by: JOHN E. HODGES, Associate Professor of Economics, Rice Institute.

TEXTILE INDUSTRY. United States consumption of cotton, wool, silk, and man-made fibers aggregated 6,019 million pounds in 1954, a decrease of 534 million pounds from 1953. By mid-1955, however, consumption had risen to an annual rate of 6,758 million pounds.

Raw cotton consumption was at an annual

SELECTED U.S. TEXTILE STATISTICS

	Year 1953	Year 1954	First half 1955
FIBER CONSUMPTION: (Millions of pounds)			
Raw cotton.....	4,521	4,124	2,212
Raw wool, total ¹	505	392	214
Apparel class.....	369	277	149
Carpet class.....	136	115	65
Raw silk.....	5	6	4
Man-made fibers ²	1,522	1,497	949
Rayon + acetate yarn.....	865	721	436
"Textile" uses.....	426	387	233
Tires and related uses.....	439	334	203
Rayon + acetate staple.....	358	434	296
Noncellulosic fibers.....	299	342	217
Total, four fibers.....	6,553	6,019	3,379
TIRE CORD AND FABRIC OUTPUT:			
Cotton (except chafer fabric).....	16	13	34
Nylon.....	19	30	
Rayon.....	429	324	201
Cotton chafer fabric.....	57	46	26
	521	413	261
BROAD WOVEN GOODS OUTPUT³:			
Cotton.....	10,203	9,768	5,045
Rayon + acetate & related ⁴	2,405	2,242	1,288
Woolen & worsted ⁵	339	279	158
Total, broad woven.....	12,947	12,289	6,491

¹ Scoured basis. ² The rayon + acetate data are United States producers' domestic shipments plus imports for consumption, while the noncellulosic fiber data are United States producers' production less exports plus imports for consumption. ³ Except tire fabric. ⁴ Includes nylon, silk, and related fabrics. ⁵ Excludes carpets, rugs, and felts. (Source: U.S. Bureau of the Census, and Textile Economics Bureau, Inc.)

1955 rate of 4,424 million pounds, based on data for the first half of the year, compared with 4,124 million pounds in 1954. Total raw wool use was at a 1955 annual rate of 428 million pounds; by type, apparel class wool consumption was run-

ning 8% over the previous year, while carpet wool showed an increase of 13%.

In the field of man-made fibers, the 1955 annual rate of consumption for rayon+acetate filament yarn was 872 million pounds, 21% above the 1954 total. Consumption of these yarns for "textile" uses, at a 1955 rate of 466 million pounds, was 20% above 1954; for tires and related uses, consumption of rayon yarn in the first half of 1955 was at an annual rate of 406 million pounds, or 22% over the previous year. For rayon+acetate staple, the 1955 annual rate of consumption as of midyear was 592 million pounds, 36% above 1954.

Consumption of noncellulosic man-made fibers* continued its upward trend. The 1955 annual rate was 434 million pounds or 27% above the previous year.

While the relationship of the various fiber poundages shown in the accompanying table reveal relatively small change over the past few years, it should be remembered that competition between fibers cannot be entirely measured by the poundage figures. For the newer man-made fibers, it has been estimated that the poundages shown in the table might be approximately doubled to take into account: (1) the lower processing losses involved; (2) the longer wear of the resulting products; and (3) the fact that fabrics made from the newer fibers are typically lighter in weight than those from natural fibers, which means that the same covering is obtained with less fiber material.

Tire Cord and Fabric Production.—During the first half of 1955, tire cord and fabric production was at an annual rate of 522 million pounds, only 2% below the record 531 million pounds of 1952. Man-made fiber tire cord and fabric continues to dominate the field, the use of cotton having declined to a nominal level.

Broad Woven Goods Production.—After an overall decline in 1954, broad woven goods production recovered during the first half of 1955 to an annual rate of 12,982 million yards, 6% above 1954 production. Cotton broad woven goods showed the smallest increase, the 1955 annual rate of 10,090 million yards being only 3% above the 1954 level. Man-made fiber fabrics increased to 2,576 million yards, or 15% above 1954.

Imports and Exports.—In the first half of 1955, United States exports of textile fibers and manufactures were at an annual rate of \$1,322 million, or 7% below 1954, but 13% above the 1953 figure. Imports in 1955 were at an annual rate of \$967 million, 22% above the \$795 million imported in 1954 and 4% above the \$926 million of 1953.

Per Capita Consumption.—United States civilian consumption of cotton, wool, and man-made fibers was at an annual rate of 36.6 pounds per person during the first half of 1955; the 1953 and 1954 totals were 36.2 and 32.6 pounds, respectively. For man-made fibers, the 1955 rate indicated a new all-time high of 10.5 pounds per capita.

Prices.—During the first eight months of 1955, there was a general price decline for natural fibers, but there were some price increases in the rayon and acetate fibers. Thus the 14-market spot price for 15/16" middling cotton was 33.7 cents a pound, while the corresponding 10-market price for 1953 and 1954 was 32.9 and 34.1 cents, respectively.

* Noncellulosic fibers include nylon, acrylic, polyester, polyethylene, polyvinyl acetate, protein, saran and textile glass fiber for textile applications.

Wool showed a decided drop, the price of fine-grade territory wool (scoured basis at Boston) having declined from \$1.55 a pound in January 1955 to \$1.39 in August. The 1953 and 1954 averages were \$1.73 and \$1.71 per pound, respectively.

Both rayon and acetate staple prices were lowered in April 1953 to 34 cents a pound; rayon staple continued at that price to August 1955; and acetate staple prices were raised to 37 cents a pound in March 1955. The price of 150-denier viscose filament yarn remained at 78 cents a pound from January 1951 until March 1955, when it rose to 83 cents. The 150-denier acetate filament yarn held at 74 cents a pound from November 1953 until March 1955, and then climbed to 80 cents.

Inter-Fiber Competition.—A recent study reveals that between 1937 and 1953 the use of man-made fibers increased 1,205 million pounds, or 353%, while the four natural fibers (cotton, wool, silk and linen) increased 594 million pounds, or 14%. Industrial uses accounted for 582 million pounds of the increase of man-made fibers, while natural fibers used industrially showed a loss of 490 million pounds. The balance of the man-made fiber gain of 623 million pounds and the natural fiber increase of 1,084 million pounds was in apparel and household uses.

Linen and Flax.—United States imports of flax as a raw material or as yarn over the past few years have ranged from 8 to 12 million pounds per year (hackled, not-hackled, noils, and tow, as well as flax yarns and threads). In addition, the imports of linen fabrics into the United States run in the neighborhood of 15 million pounds per year, including table damasks and toweling. Moreover, 1954 imports of principal manufactured linen items included 1,750,000 dozen handkerchiefs, 275,000 dozen towels, and 350,000 dozen napkins.

Canadian Developments.—After showing a marked improvement in late 1952 and the early months of 1953, activity in the Canadian textile industry turned downward and, despite a slight upturn beginning in late 1954, remained at generally unsatisfactory levels through the middle of 1955. The industry placed much of the blame on competition from imports.

During 1950-51, the Canadian textile industry employed more than 100,000 workers and produced almost 500 million yards of cloth. By 1955, employment had declined to about 82,000, and fabric output of all types was at an annual rate of about 400 million yards. On the positive side, Canadian textile producers have made large capital expenditures in recent years to keep their plants modern and efficient, and have thus placed themselves in a relatively stronger competitive position.

STANLEY B. HUNT,

President, Textile Economics Bureau, Inc.

TEXTILES, Synthetic. See Index entry.

THAILAND (formerly SIAM). A kingdom of Southeast Asia, bordered by Laos, Cambodia, Burma, and Malaya. Area, 198,500 square miles; pop. (est. mid-1955), 20,302,000. Chief cities and 1947 populations: Bangkok, the capital, 688,832; Thonburi, 167,046. The Thai are chiefly peasant tillers of rice. The Chinese minority of about 3 million is important in trade and the professions. There are also some 650,000 Malaysians and smaller numbers of Indians, Cambodians, and Annamese.

Government.—Thailand has been a constitutional monarchy since 1932. Phumiphon Adundet (b. 1927) ascended the throne as King Rama IX on May 5, 1950. On Nov. 29, 1951, a group of military leaders seized control of the government in a bloodless coup, re-establishing the authoritarian constitution of 1932 with some amendments. The unicameral National Assembly consists of 246 members, half of whom are appointed by the king and half elected by the people. Field Marshal Pibul Songgram has held the premiership since 1947.

Education and Religion.—The literacy rate in 1947 was reported at 54%. In 1952 there were 364 government schools (83,852 pupils), 18,584 local public and municipal schools (2,661,112), and 1,284 private schools (267,943). Students enrolled at the university level totaled 10,656. Higher institutions include Chulalongkorn University, the University of Medical Sciences, the University of Agriculture, and the University of Fine Arts. Most rural schools are conducted by Buddhist monasteries. Buddhism is the religion of the great majority of the population. There are small Moslem and Christian minorities.

Finance.—Budgeted expenditure in 1954 totaled 5,677 million baht, including 1,232 million for economic development; estimated revenue, 4,192 million. At the official selling rate, the baht equals 7.967 cents in United States currency; at the free rate the baht equaled about 4.6 cents in late 1955. In the fiscal years 1951-54 the United States allotted a total of \$31 million to aid Thailand's economy; the allotment for 1955 was \$47 million.

Agriculture.—Agriculture employs 85% of the gainfully occupied population. Approximately 87% of farmland is owned by its tillers. Thailand is the world's largest rice exporter and devotes 92% of its cultivated area to this staple. Output of rough rice in 1953-54 approximated 18,090 million pounds, with the 1954-55 estimate totaling 15,500 million. Production of other crops included: cotton (1954-55), 39,000 bales; soybeans (1953), 743,000 bushels; tobacco (1954), 40.1 million pounds; centrifugal sugar (prelim. 1954), 42,000 short tons; deseeded kapok fiber (exports, 1954), 2.9 million pounds; pepper (prelim., 1954), 500,000 pounds; and peanuts (prelim., 1954), 89,000 short tons. Corn, mung beans, coffee, nutmeg, sesame seed, and copra are also grown. Fish landings in 1953 totaled 205,000 metric tons.

The important rubber crop, grown chiefly on small holdings by Thai and Malayan owners in the south, yielded 118,600 metric tons of exports in 1954. Teak production in 1953 totaled 328,200 cubic meters; output of yang, 245,300. Other forest products include sticklac, seedlac, shellac, gutta percha, camphor, turpentine, and bamboo.

Manufacturing and Mining.—Manufacturing, comprising mainly small enterprises, accounts for about 14% of national income. Chief industries are rice-milling, rubber goods, sawmills, textiles, tobacco products, and cement. Local factories produce soap, paper, whiskey, furniture, woven baskets, toys, matches, soft drinks, glass, canned foods, and other light items. Two small blast furnaces produce structural steel. Cement output in 1954 totaled 382,800 metric tons, a rise of 33% over 1953. Electricity production in the Bangkok area was 156.8 million kw.-hr. in 1954, a 53% increase. Production of tin concentrates in 1954 totaled 9,960 metric tons (metal content); tungsten (1953), 1,054. Lead, gypsum, antimony, iron ore, and salt are also produced.

Foreign Trade.—Exports in 1954 totaled \$283.4 million; imports, \$311.7 million. Shipments of milled rice amounted to 1,004,000 metric tons, valued at \$145.7 million. Rubber exports were valued at \$43.9 million; tin, \$17.9 million. Chief imports are textiles and yarns, foodstuffs, fuels, metal manufactures, and machinery. Thailand's chief trading partners are Malaya and Singapore, Hong Kong, Japan, the United States, and the United Kingdom.

Transportation and Communications.—Inland

waterways carry the bulk of internal traffic in produce. The Royal State Railways in 1954 totaled 2,084 miles in route length. Roads (in Bangkok and Thonburi provinces only) totaled 3,956 miles. Bangkok is a major international air terminus. The Thai Airways Co., Ltd., operates some 2,500 miles of internal routes. Passenger cars (in Bangkok and Thonburi) numbered 16,800 in 1953; commercial vehicles, 11,570. In 1952 there were 30 daily newspapers with a total circulation of 75,000.

Principal Events, 1955.—Thailand was further strengthened as an anti-Communist bastion in Southeast Asia during 1955. Bangkok was the scene of the first meeting of the Council of the Southeast Asia Collective Defense Treaty, February 23-25, and Thailand's capital was designated the headquarters of the Council representatives, as well as of the Secretariat. In the course of Premier Marshal Pibul Songgram's 10-week world tour (April-June), during which he was received by President Eisenhower in Washington on May 2, the Thai leader stressed that communism could only be halted by superior force. In May, Thai forces cooperated with Malayan and British police in operations against Communist bands in the southern border area.

Development of Thailand's economic and military potential proceeded with United States aid. In February, work was begun on the construction of a 35-mile stretch of railroad track from Udon, in northeastern Thailand, to Nongkhai, on the Laotian border. The project was financed by \$4 million in United States aid. In July the U.S. International Cooperation Administration announced that it would provide \$6.5 million toward construction of a 200-mile highway linking Bangkok with the northeastern provinces. A loan of \$13 million by the Bank of America for improvement projects in Bangkok was announced in June, and on August 10 the International Bank for Reconstruction and Development extended a \$12 million loan to Thailand for railroad expansion and modernization.

During a week-long visit to Thailand by Burmese Premier Nu, beginning March 7, religious ties between the two Buddhist nations were stressed and means of increasing economic and cultural cooperation were discussed. On April 9 it was announced in Tokyo that Prince Wan Waithayakon, Thailand's foreign minister, had negotiated a settlement of Thailand's World War II claims of \$375 million against Japan arising out of Japanese issuance of occupation scrip. Japan was to pay the equivalent of \$41,666,666 in cash, goods, and services over a period of years. Premier Pibul Songgram paid a return visit to Burma, December 14-18.

On March 15 a Bangkok court found 49 persons guilty of seeking to set up a Communist regime in Thailand and sentenced them to 20 years in prison each. At the Asian-African Conference (q.v.) in Bandung, Indonesia, in April, an agreement was reached between Thailand and North Viet-Nam on the evacuation to North Viet-Nam of 40,000 Vietnamese refugees in Thailand whom the Thai government regarded as a source of Communist infiltration.

The principal internal political development of the year involved Premier Pibul Songgram's efforts to increase his power at the expense of Gen. Phao Sriyanond, director general of the police and one of the nation's strong men. In the course of cabinet changes carried through by Pibul during August 2-5, while General Phao was outside the country, the general was dis-

missed as deputy minister of finance and several of his supporters were ousted from cabinet posts. Pibul, backed by the army, relieved the police of certain powers, including press censorship, and banned police officers from business activities. The premier also acted to abolish certain government monopolies which provided ministers with profitable incomes.

M.J.G.

THEATER. People continued to complain, in 1955, that there were not enough good plays to be seen in New York. The sentiment was disproved by the fact that it was extremely difficult, and very expensive, to get tickets to what was available. The top price for a seat to a musical had become well over \$7, and for a play almost \$5.

The household organ of show business, *Variety*, made the pronouncement at the end of the official theatrical season, on May 31, that the 1954-55 season had been the best in years. Broadway and touring show receipts showed a \$5,417,400 gain over 1953-54. Broadway, with a total gross of \$32,087,800, hit an eight-year record. (In 1953-54, previously the peak year, Broadway had done a total business of \$30,169,200.) The road, which had hit a record low of \$17,623,200 during 1953-54, bounced back with a \$3,498,800 increase for 1954-55, bringing the total gross to \$21,122,000. This was the third highest gross for the road in a seven-season period covered by *Variety*. (The record breakers were 1948-49, with \$23,657,900, and 1952-53, with \$23,417,600.)

The summer theaters boomed as never before, with 154 barns and tents franchised by Actors' Equity, an increase of 10 over 1954. The New York theater had by far its best summer of recent years.

Production costs also rose as never before. A one-set play like *A Hatful of Rain* cost about \$30,000 for the rehearsal and out-of-town tryout. A musical like *The Vamp*, however, cost around \$315,000 to bring into New York and, unfortunately, lost \$335,000. The total loss on such a complete failure as *Ankles Aweigh* was \$340,000, according to *Variety*. What everybody hoped for was such a play as *The Teahouse of the August Moon*, which already had made profits of over \$1,000,000, or a musical like *The King and I*, which had made over \$1,200,000.

A vivid example of how expensive Broadway productions had become was shown in connection with *Joyce Grenfell Requests the Pleasure*. Miss Grenfell was assisted by three dancers, and the staff that the various unions required to maintain four people on stage amounted to nearly 40, including stagehands, musicians, and wardrobe attendants. Thus this small review had to take in \$12,500 every week in order to break even, and despite excellent notices, closed in less than two months.

An innovation of recent years that contributed interestingly to the New York theater in 1955 was the show train, which encouraged people from 16 cities to see plays in New York. Groups were made up of about 200 patrons who attended an average of four shows a trip, with a total of \$160,000 in receipts for the box offices. Sponsored usually by local newspapers, they came from such cities as Cleveland, Indianapolis, Columbus, and Louisville. For example, a Columbus show train charged a fee of \$89.50, which included round-trip train fare, hotel accommodations, and tickets in the orchestra to four shows.

Evansville, Ind., had one show plane of 44 persons, charging \$160 for the round-trip plane fare, hotel accommodations, and tickets to four plays. A survey made of various groups revealed that 42% of their members had never before seen a Broadway production.

The early part of the year brought several outstanding productions. The New York City Center provided a superior revival of William Saroyan's *The Time of Your Life*, with a top-notch cast that included Franchot Tone, Myron McCormick, and Harold Lang, although Gloria Vanderbilt got the major portion of the publicity for a walk-on bit. Joseph Hayes adapted his successful novel, *The Desperate Hours*, into an exciting play, with an especially moving performance by Karl Malden. Katharine Cornell and Tyrone Power appeared in Christopher Fry's *The Dark Is Light Enough*, a florid costume piece set in Austria at the time of Emperor Francis Joseph. The first hit play of the year was William Inge's *Bus Stop*, again made memorable by a fine cast that included Kim Stanley, Elaine Stritch, and Albert Salmi. Tennessee Williams' *Cat on a Hot Tin Roof* arrived a few weeks later in a storm of debate and controversy. While many considered it a meaningful piece of work, others thought of it as the worst play by an important playwright in decades. The presence of Barbara Bel Geddes, Ben Gazzara, Mildred Dunnock, and Burl Ives, and the direction of Elia Kazan, contributed enormously to the production. A play about the Scopes trial, *Inherit the Wind*, starring Paul Muni, was a noteworthy sociological study. There were also three outstanding musicals in the spring: *Plain and Fancy*, which had the Amish country of Pennsylvania as a colorful setting; *Silk Stockings*, a new version of the movie *Ninotchka*, which brought Don Ameche back to the stage; and *Damn Yankees*, in which for the first time big-league baseball provided the background for a hit musical.

During the summer the United States sent to Paris a Salute to France in the form of three productions which had been giants at home. These were *Oklahoma!*, Judith Anderson in *Medea*, and Thornton Wilder's comedy, *The Skin of Our Teeth*. The Wilder play, with a superlative cast that included Helen Hayes, Mary Martin, Florence Reed, and George Abbott, came back to New York for a brief run of singular popularity. Three months later, on November 21, Miss Hayes became the second living actress to have a Broadway theater named for her (Ethel Barrymore was the first), when the Fulton was renamed the Helen Hayes Theater in honor of the 50th anniversary of her stage debut as a small child.

The first hit of the fall was Arthur Miller's *A View from the Bridge*, followed a few days later by Michael Redgrave in Christopher Fry's version of a Jean Giraudoux play now called *Tiger at the Gates*. The dramatization by Frances Goodrich and Albert Hackett of *The Diary of Anne Frank* was thought by many to be the best play of the year. Joyce Grenfell came over from London with a hilarious evening of sketches, several of them with music. Ira Levin's *No Time for Sergeants* was counted the best comedy, and Andy Griffith considered the comic find of the year. George Axelrod, whose play *The Seven Year Itch* had been wildly acclaimed, provided a burlesque of Hollywood life called *Will Success Spoil Rock Hunter?* Shirley Booth was welcomed back to Broadway in a minor comedy by William Marchant, *The Desk Set*. Enid Bagnold wrote a charming, conversational play, *The Chalk Gar-*



BILL DOLL AND COMPANY

A barn is built on stage in this production number from *Plain and Fancy*, a musical about the Pennsylvania Dutch.

den, with an excellent cast headed by Gladys Cooper and Siobhan McKenna, a young Irish actress who had had great success in London.

The Comédie Française brought from Paris a repertory of plays, delighting the French-speaking residents of the city. Shelley Winters of Hollywood fame and Ben Gazzara were both outstanding in a first play by Michael V. Gazzo, *A Hatful of Rain*, a terrifying study of drug addiction. Carol Channing starred in a musical about early silent motion pictures, *The Vamp*, which was both lavish and tedious. Julie Harris played Joan of Arc in *The Lark* to enormous critical approval. The ever-reliable Margaret Sullavan appeared in a very funny comedy, *Janus*, about one woman's double life.

Richard Rodgers and Oscar Hammerstein II created a musical, *Pipe Dream*, from a John Steinbeck novel, considered by most of their admirers to be a lesser effort. Then, as the year was nearly over, Ruth Gordon came from London with her great success, Thornton Wilder's *The Matchmaker*, in which she had also performed at the Edinburgh Festival in 1954. Nobody could believe that she was 59 years old as she flounced about the stage, and, as one critic said of her unbelievably hilarious performance, he kept waiting for her generous mouth to encircle her head.

The Stratford Shakespearean Festival in Stratford, Ontario, completed its third and most successful season on August 27. With Tyrone Guthrie continuing as artistic director, the company presented two plays by William Shakespeare, *Julius Caesar* and *The Merchant of Venice*, and added a third, Sophocles' *Oedipus Rex*. With *The Merchant of Venice* as by far the most popular attraction, the nine-week engagement grossed approximately \$421,000, with a total attendance of 126,500 for the 72 performances. Attendance for the 1,927-seat tent averaged 91% of capacity, for an increase in attendance of 1,345 and in revenue of \$29,000 over 1954. A plan was launched for a campaign to raise funds to erect a permanent theater to replace the tent playhouse.

The United States answer to the success of the Canadian group was the opening of the American Shakespeare Festival Theatre and Academy in Stratford, Conn. Situated on a 12-acre site on the Housatonic River, the 1,500-seat, wood-and-steel theater cost about \$750,000 and opened on July 12 with a repertory of two plays, *Julius Caesar* and *The Tempest*, for an eight-week season. Raymond Massey, Jack Palance, Hurd Hatfield, and Leora Dana were the best-known people heading the casts. Neither play

was received enthusiastically, but it was thought that by another year the group would be more experienced and the standard of production would be higher.

Two plays, *The Teahouse of the August Moon* and *Witness for the Prosecution*; two musicals, *The Pajama Game* and *Fanny*; and Victor Borge's one-man show, *Comedy in Music*, all of which were playing when the year began, were still alive as the year ended. Four shows with notably long runs closed during 1955: *Tea and Sympathy*, on June 18, after 709 performances; *Can-Can*, on June 25, after 892 performances; *The Seven Year Itch*, on August 13, after 1,141 performances; and *Anniversary Waltz*, on September 24, after 611 performances.

THE BROADWAY THEATER IN 1955

The following is an alphabetical list of the shows presented on Broadway during the calendar year 1955:

All in One, a program consisting of Leonard Bernstein's opera, *Trouble in Tahiti*, with Alice Ghostley and John Tyers; Tennessee Williams' play, *27 Wagons Full of Cotton*, with Maureen Stapleton and Myron McCormick; and dancing by Paul Draper; opened April 19 (47 performances).

Almost Crazy, a revue with sketches by James Shelton, Hal Hackady, and Robert Bernstein; songs by Portia Nelson, Raymond Taylor, and James Shelton; with Kay Medford and James Shelton; opened June 20 (16 performances).

Ankles Aweigh, a musical comedy with book by Guy Bolton and Eddie Davis; lyrics by Dan Shapiro; music by Sammy Fain; with Betty and Jane Kean and Lew Parker; opened April 18 (176 performances).

Bus Stop, a play by William Inge; with Kim Stanley, Anthony Ross (d. Oct. 25, 1955), Elaine Stritch, and Albert Salmi; opened March 2 (continuing at end of year).

Cat on a Hot Tin Roof, a play by Tennessee Williams; with Barbara Bel Geddes, Ben Gazzara, Mildred Dunnock, and Burl Ives; opened March 24 (continuing at end of year).

Catch a Star!, a revue with lyrics by Paul Webster and Ray Golden; music by Sammy Fain and Phil Charig; sketches by Danny and Neil Simon; with Pat Carroll and David Burns; opened September 6 (23 performances).

Chalk Garden, The, a play by Enid Bagnold; with Gladys Cooper and Siobhan McKenna; opened October 26 (continuing at end of year).

Champagne Complex, a farce by Leslie Stevens; with John Dall, Polly Bergen, and Donald Cook; opened April 12 (23 performances).

Comédie Française, a tour of the famous company from Paris in a repertory of *Le jeu de l'amour et du hasard*, by Pierre Marivaux, with *Un caprice*, by Alfred de Musset; *Le barbier de Séville*, by Pierre Beaumarchais, with *Arlequin poli par l'armour*, by Marivaux; and *Le bourgeois gentilhomme*, by Molière; opened October 25 (limited engagement of 32 performances).

Damn Yankees, a musical comedy with book by George Abbott and Douglas Wallop; lyrics and music by Richard Adler and Jerry Ross; based on Mr. Wallop's novel, *The Year the Yankees Lost the Pennant*; with Gwen Verdon, Stephen Douglass, and Ray Walston; opened May 5 (continuing at end of year).

Dark is Light Enough, The, a play by Christopher Fry; with Katharine Cornell and Tyrone Power; opened February 23 (69 performances).

Day by the Sea, A, a play by N. C. Hunter; with Jessica Tandy, Hume Cronyn, and Dennis King; opened September 26 (24 performances).

Deadfall, a melodrama by Leonard Lee; with Joanne Dru and John Ireland; opened October 27 (20 performances).

Desk Set, The, a comedy by William Marchant; with Shirley Booth; opened October 24 (continuing at end of year).

Desperate Hours, The, a play by Joseph Hayes, adapted by him from his novel of the same name; with Karl Malden, Nancy Coleman, and Paul Newman; opened February 10 (213 performances).

Diary of Anne Frank, The, a dramatization by Frances Goodrich and Albert Hackett of the book of the same name; with Joseph Schildkraut, Susan Strasberg, and Gusti Huber; opened October 5 (continuing at end of year).

Festival, a comedy by Sam and Bella Spewack; with Paul Hengreid and Betty Field; opened January 18 (23 performances).

Finian's Rainbow, a revival of the musical comedy with book by E. Y. Harburg and Fred Saidy; lyrics by

Mr. Harburg; music by Burton Lane; with Helen Gallagher and Will Mahoney; opened May 18 (limited engagement of 16 performances).

Fourposter, The, a revival of the play by Jan de Hartog; with Jessica Tandy and Hume Cronyn; opened January 5 (limited engagement of 16 performances).

Grand Prize, The, a comedy by Ronald Alexander; with June Lockhart and John Newland; opened January 26 (21 performances).

Guys and Dolls, a revival of the musical comedy with book by Jo Swerling and Abe Burrows; music and lyrics by Frank Loesser; with Tom Pedi, Helen Gallagher, Walter Matthau; opened April 20 (limited engagement of 40 performances).

Half of Rain, A, a play by Michael V. Gazzo; with Shelley Winters and Ben Gazzara; opened November 9 (continuing at end of year).

Heavenly Twins, The, an adaptation by Louis Kronenberger of Albert Husson's comedy, *Les pavés du ciel*; with Faye Emerson and Jean Pierre Aumont; opened November 4 (35 performances).

Henry IV, Part I, a revival of the play by William Shakespeare; by the Brattle Shakespeare Players; opened September 21 (limited engagement of 16 performances).

Honeys, The, a comedy by Roald Dahl; with Jessica Tandy, Hume Cronyn, and Dorothy Stickney; opened April 28 (36 performances).

Inherit the Wind, a play by Jerome Lawrence and Robert E. Lee; with Paul Muni, Ed Begley, and Tony Randall; opened April 21 (continuing at end of year).

Island of Goats, a translation by Henry Reed of the play by Ugo Betti; with Uta Hagen and Laurence Harvey; opened October 4 (7 performances).

Janus, a comedy by Carolyn Green; with Margaret Sullivan, Robert Preston, and Claude Dauphin; opened November 24 (continuing at end of year).

Joyce Grenfell Requests the Pleasure, a revue written by and starring Miss Grenfell; with music by Richard Addinsell; opened October 10 (64 performances).

Lark, The, an adaptation by Lillian Hellman of Jean Anouilh's play, *L'alouette*; with Julie Harris and Boris Karloff; opened November 17 (continuing at end of year).

Matchmaker, The, a comedy by Thornton Wilder; with Ruth Gordon, Eileen Herlie, and Loring Smith; opened December 5 (continuing at end of year).

No Time for Sergeants, a comedy by Ira Levin; based on Mac Hyman's novel of the same name; with Myron McCormick, Roddy McDowall, and Andy Griffith; opened October 20 (continuing at end of year).

Once upon a Tailor, a comedy by Baruch Lumet; with Oscar Karlweis and Jennie Goldstein; opened May 23 (8 performances).

Othello, a revival of the tragedy by William Shakespeare; by the Brattle Shakespeare Players; opened September 7 (limited engagement of 16 performances).

Pipe Dream, a musical play by Richard Rodgers and Oscar Hammerstein II; based on John Steinbeck's novel, *Sweet Thursday*; with Helen Traubel, Judy Tyler, and William Johnson; opened November 30 (continuing at end of year).

Platin and Fancy, a musical comedy with book by Joseph Stein and Will Glickman; lyrics by Arnold B. Horwitz; music by Albert Hague; with Richard Derr, Barbara Cook, and David Daniels; opened January 27 (continuing at end of year).

Red Roses for Me, a play by Sean O'Casey; with Kevin McCarthy and Eileen Crowe; opened December 28 (continuing at end of year).

Righteous Are Bold, The, a play by Frank Carney; with Denis O'Dea, Irene Hayes, and Nora O'Mahony; opened December 22 (continuing at end of year).

Roomful of Roses, A, a comedy by Edith Sommer; with Patricia Neal; opened October 17 ('88 performances).

Seventh Heaven, a musical play with book by Victor Wolfson and Stella Unger; lyrics by Stella Unger; music by Victor Young; based on Austin Strong's play of the same name; with Kurt Kasznar, Gloria De Haven, Ricardo Montalban, and Robert Clary; opened May 26 (44 performances).

Silk Stockings, a musical with book by George S. Kaufman, Leueen MacGrath, and Abe Burrows; lyrics and music by Cole Porter; based on the motion picture, *Ninotchka*; with Don Ameche and Hildegarde Neff; opened February 24 (continuing at end of year).

Skin of Our Teeth, The, a revival of the play by Thornton Wilder; with Helen Hayes, Mary Martin, George Abbott, and Florence Reed; opened August 17 (limited engagement of 22 performances).

Songs and Impressions, a one-man show with Maurice Chevalier; opened September 28 (limited engagement of 47 performances).

South Pacific, a revival of the musical comedy with book by Oscar Hammerstein II and Joshua Logan; lyrics by Mr. Hammerstein; music by Richard Rodgers; adapted from James A. Michener's short stories, *Tales of the South Pacific*; opened May 4 (limited engagement of 16 performances).

Southwest Corner, The, a play by John Cecil Holm; adapted from Mildred Walker's novel; with Eva Le Gallienne and Enid Markey; opened February 3 (36 performances).

Three for Tonight, a revue with lyrics and special material by Robert Wells; music by Walter Schumann; with Marge and Gower Champion, Harry Belafonte, and Hiram Sherman; opened April 6 (85 performances).

Tiger at the Gates, a translation by Christopher Fry of the play by Jean Giraudoux; with Michael Redgrave and Leueen MacGrath; opened October 3 (continuing at end of year).

Time of Your Life, The, a revival of the play by William Saroyan; with Franchot Tone, Myron McCormick, Harold Lang, and John Carradine; opened January 19 (limited engagement of 16 performances).

Tonight in Samarkand, a play by Jacques Deval and Lorenzo Semple, Jr.; with Louis Jourdan and Jan Faland; opened February 16 (29 performances).

Vamp, The, a musical with book and lyrics by John Latouche and Sam Locke; music by James Mundy; with Carol Channing; opened November 10 (60 performances).

View from the Bridge, A, a play by Arthur Miller; with Van Heflin and J. Carrol Naish; opened September 29 (continuing at end of year).

Wayward Saint, The, a comedy by Paul Vincent Carroll; with Paul Lukas, Liam Redmond, and William Harrigan; opened February 17 (21 performances).

Will Success Spoil Rock Hunter?, a comedy by George Axelrod; with Jayne Mansfield, Orson Bean, and Walter Matthau; opened October 13 (continuing at end of year).

Wisteria Trees, The, a revival of the play by Joshua Logan; based on Anton Chekhov's play, *The Cherry Orchard*; with Helen Hayes, Walter Matthau, and Ella Raines; opened February 2 (limited engagement of 16 performances).

Wooden Dish, The, a play by Edmund Morris; with

(Left) Kim Stanley (l.) as the nightclub singer, with Anthony Ross (who died Oct. 25, 1955) as the disillusioned professor, and Phyllis Love as the counter girl, in William Inge's comedy, *Bus Stop*. (Center) Burl Ives plays Big Daddy and Mildred Dunnock his wife in Tennessee Williams' Pulitzer Prize-winning drama, *Cat on a Hot Tin Roof*. (Right) Susan Strasberg, shown here with David Levin, plays the title role in *The Diary of Anne Frank*.

(LEFT AND CENTER) ZINN ARTHUR; (RIGHT) FRED FEHL



Louis Calhern; opened October 6 (12 performances). *Young and Beautiful, The*, a play by Sally Benson; based on four short stories by F. Scott Fitzgerald; with Lois Smith and Douglas Watson; opened October 1 (65 performances).

(See also ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; PRIZES AND AWARDS; SOVIET LITERATURE.)

STEWART JOHNSON,
Editorial Staff, "The New Yorker."

THEORELL, (Axel) Hugo (Teodor), Swedish biochemist: b. Linköping, Östergötland, Sweden, July 6, 1903. He was awarded the 1955 Nobel Prize in medicine on Oct. 20, 1955, for his work on the nature and action of oxidation (or "breathing") enzymes.

Theorell studied at Stockholm University, from which he received a doctorate in physiological chemistry in 1930. Several years at the University of Uppsala followed (1932-36) before he went to the Nobel Medical Institute in Stockholm in 1937 as chairman of the department of biochemistry.

For several decades he has studied the structure and function of enzymes, paying special attention to the oxidation enzymes, which help the cells burn oxygen. Using apparatus he devised himself, he first isolated a pure yellow "breathing" enzyme, which he divided into its two component parts, coenzyme and apoenzyme. Then he recombined these elements, which are inactive in isolation, to form a potent enzyme again. Later, he analyzed in the same way the entire range of oxidation enzymes. This was the first time that an enzyme had been divided and artificially recreated, a scientific achievement which has had important consequences in biochemistry, physiology, and medicine.

Dr. Theorell was also the first scientist to produce in a pure form myoglobin, the red coloring substance in the muscles. His separation of the alcohol-burning enzyme has paved the way for a new method of determining the alcohol content of blood. More recently he has been engaged in experiments on an antibiotic remedy for tuberculosis.

THERMONUCLEAR WEAPONS. See Index entry, *Hydrogen Bomb*.

THURSTONE, Louis Leon, American psychologist: b. Chicago, Ill., May 29, 1887; d. Chapel Hill, N.C., Sept. 29, 1955. One of the pioneers in psychological testing, Dr. Thurstone developed the American Council on Education intelligence tests, used by most of the colleges and universities in the United States.

After graduating from Cornell University in 1912 (during which year he worked with Thomas Edison), Dr. Thurstone continued his education at the University of Chicago, from which he received his Ph.D. in 1917. He served on the faculty of the Carnegie Institute of Technology from 1915 to 1923, and on the faculty of the University of Chicago from 1924 until his retirement in 1952. In World War I, he was the author of the occupational classification tests for the U.S. Army; and during World War II, he was a member of the adjutant general's committee on the classification of military personnel.

Dr. Thurstone's work in psychology included the development of multiple factor analysis, the isolation of primary mental abilities, application of the psycho-physical theory of social values, and the isolation of primary factors in temperament. He was the author of numerous books, including *The Nature of Intelligence* (1924), *Fundamentals of Statistics* (1924), *The Vectors*

of Mind (1935), and *Multiple Factor Analysis* (1947).

TIBET. A plateau region of central Asia forming an autonomous province of the Chinese People's Republic. Estimated area, 470,000 square miles (boundaries are not entirely defined). The Chinese census of 1953 gave the population of "the Tibet region and Chang-tu area" as 1,273,969. Chief cities are Lhasa, the capital (20,000), Shigatse, and Gyantse.

Following the penetration of eastern Tibet by Chinese Communist forces in October 1950, an agreement was concluded in Peking on May 23, 1951, providing for Chinese control of Tibetan foreign relations and defense, with Tibetan autonomy in internal affairs. A Chinese military mission was subsequently established at Lhasa and Chinese military control extended throughout the territory. On April 29, 1954, a Sino-Indian agreement was signed whereby India accepted the principle that Tibet was part of China. Regulations were also set forth governing the movement of trade and religious pilgrims between Tibet and India.

Tibetan society has been of a feudal-theocratic character, dominated by the Buddhist lamaseries and landed nobility. The Dalai Lama, as the living incarnation of Buddha, is theoretically the supreme authority, and the Panchen Lama the highest temporal authority. The majority of Tibetans are peasant cultivators, nomads, or handicraftsmen. Crops grown on the lower Himalayan slopes include barley, fruits, pulses, and vegetables. Livestock raising yields wool, felt, yak's hair, hides, butter, cheese, and dried meat. Minerals are believed abundant, although only coal (at Shigatse) and salt have been exploited to any appreciable extent. External trade is mainly with India. Tibet exports wool, yak tails, furs, borax, salt, and musk, in exchange for cotton textiles and foodstuffs.

Both the Dalai Lama and the Panchen Lama took part as deputies in the National People's Congress in Peking in September 1954. On their departure from Peking for Tibet on March 12, 1955, it was announced in Peking that a committee had been established to prepare for the formation of an expanded Tibetan Autonomous Region. The committee, termed a state organ subordinate to the Central State Council (of the Peking government), was headed by the Dalai Lama, with the Panchen Lama as first vice chairman and Gen. Chang Kuo-hua (the Chinese military commander in Tibet) as second vice chairman. The committee was also to include 15 representatives of the Tibet local government, 10 from the Panchen Kanpo Lija (former religious and secular institution of the Panchen Lama), 10 from the People's Liberation Committee of Chamdo, 5 from Peking government personnel in Lhasa, and 11 from major monasteries, religious orders, and people's organizations.

The announcement concerning the preparatory committee also stated that the Central State Council had approved plans for the extension of the Tsinghai-Tibet highway to Shigatse and the construction of a road from Shigatse to Gyantse; construction of a hydroelectric station at Lhasa and a smaller thermal plant at Shigatse; establishment of a leather works and a small iron works at Lhasa; repair and improvement of flood-control facilities; and expansion of the school systems in Lhasa and Shigatse.

On April 1, 1955, Indian and Chinese representatives signed an agreement at Lhasa transferring to Chinese control the Tibetan postal, telegraph, and public telephone services formerly operated by India.

TIMOR. See PORTUGUESE TERRITORIES.

TIN. The United States supply of tin ore is derived entirely from imports. According to figures compiled by the U.S. Bureau of Mines, imports of tin in ore declined from 35,973 long tons in 1953 to 22,135 tons in 1954, while tin metal

imports dropped from 74,538 long tons in 1953 to 65,596 tons in 1954. Smelter production from imported ore declined from 37,562 long tons in 1953 to 27,002 tons in 1954. Consumption declined from 85,640 long tons in 1953 (53,959 tons of primary and 31,681 tons of secondary) to 82,891 tons in 1954 (54,427 tons of primary and 28,464 tons of secondary). Of the 1954 consumption, tin plate accounted for 33,026 tons; solder, 19,389 tons; and other alloys, 30,476 tons. Primary tin consumption of 30,000 tons and secondary tin consumption of 15,800 tons during the first half of 1955 were, respectively, 7% and 16% higher than in the corresponding period of 1954. (See MINERAL PRODUCTION for table showing output of major producing countries; and for further references see Index entry, *Tin*.)

TITANIUM. Titanium metal, first produced commercially in 1948, has become an important addition to the list of commercial metals. Production has grown remarkably, from 2,241 short tons in 1953 to 5,370 tons in 1954, and to an estimated 7,500 tons in 1955. Titanium was produced in 1954 by four commercial companies and by the U.S. Bureau of Mines. On July 16, 1954, the United States government added titanium sponge to its list of strategic and critical materials.

The principal ores of titanium are ilmenite and rutile, but only a small proportion of these minerals is used as a source of the metal. The principal use of ilmenite is for making titanium pigments, whereas rutile is used mainly for welding rod coatings. Domestic production of ilmenite was 547,711 short tons in 1954, and of rutile, 7,411 tons. Imports of ilmenite concentrates reached 275,005 short tons in 1954, and of rutile concentrates, 15,060 tons. India was the chief foreign source of ilmenite, whereas nearly all of the rutile came from Australia.

World production of ilmenite in 1954 was 1,097,000 short tons, the principal foreign producers of which were India, Norway, and Canada. Rutile world production was 57,800 short tons, of which about 50,000 tons was mined in Australia. (See also MINING.)

TOBACCO. World production (excluding Manchuria) of leaf tobacco in 1955 was estimated at 8,130 million pounds, about 2% more than the amount harvested in 1954 and one eighth more than the 1947-51 average. Most of the increase was accounted for by larger output in Japan, China, Turkey, and the United States. The most sizable production declines were in Canada, India, France, and Brazil. Tobacco acreage in 1955 was about the same as in 1954, but yields were slightly higher.

TOBACCO PRODUCTION IN MAJOR COUNTRIES
(In thousands of pounds)

	1947-51	1954	1955*
U.S.	2,082,727	2,236,408	2,277,709
Canada	129,445	184,763	135,480
Brazil	233,120	323,499	311,395
Turkey	194,109	214,905	258,934
China	1,425,000	1,340,000	1,425,000
India	547,150	600,320	555,520
Pakistan	113,883	182,000	200,000
Indonesia	62,230	211,798	200,000
Japan	208,092	248,365	324,865
World	7,255,971	7,945,947	8,130,390

* Preliminary.

United States production of unmanufactured tobacco, about 510 million pounds, was 12% more than in 1954 and the third largest since 1946. The increase is accounted for mainly by

sales under Public Law 480, which provides for the acceptance of foreign currencies for surplus agricultural products under certain conditions.

Cigarette output in the United States was estimated at 415 billion, 3% more than in 1954, but 5% below the record 435 billion in 1952. Domestic consumption increased in 1955, after a decline in 1954 due largely to the publicity concerning cigarettes and health. Consumption in 1955 was 383 billion, compared with 367 billion in 1954 and 394 billion in 1952. General prosperity was the biggest factor in the 1955 increase.

Cigar consumption in the United States and by overseas forces was estimated at 6.1 billion, about 1½% above 1954 and the highest since 1930.

C. J. ENZLER,
*Administrative Officer, Office of the Secretary,
U.S. Department of Agriculture.*

TOBAGO. See TRINIDAD AND TOBAGO.

TOBIN, Daniel Joseph, American labor leader: b. Miltown Malbay, County Clare, Ireland, April 1875; d. Indianapolis, Ind., Nov. 14, 1955. For 45 years the head of the Teamsters' Union, he was one of the most powerful figures in American labor and politics in recent years.

An immigrant to the United States in 1889, he attended grammar and evening high schools in Cambridge and Boston, Mass., and took his first job as a wagon driver at \$11 a week. In 1907 he was elected president of the recently formed International Brotherhood of Teamsters, Chauffeurs, Warehousemen, and Helpers of America, a post he occupied until 1952. At the time of his retirement the union, which had a membership of a few thousand in 1907, was the most powerful in the American Federation of Labor and, with 1,250,000 members, the largest in the country.

He was a close associate of Samuel Gompers, the founder of the AFL, and was a dominant personality in AFL affairs for many years, serving as vice president and member of the executive council from 1933. Generally considered to have been a moderate in labor policies, he strongly supported the unification of the labor movement, having taken part in conferences in 1935 and 1950 with the Congress of Industrial Organizations toward that end.

An admirer and close labor adviser of President Roosevelt, he held several posts in government during the Roosevelt administration. In all four Roosevelt campaigns, he was the chairman of the Labor Division of the Democratic National Committee. It was reported that he had been offered the post of secretary of labor in 1943 and again in 1947.

TOGOLAND. A territory in west Africa comprising two United Nations trusteeships, administered by France and Great Britain, respectively. The Ewes, largest of the ethnic groups, have sought unification of the trusteeships under one administration. The territory's future status will also be affected by the imminent attainment of self-government by the Gold Coast (with which British Togoland has been administered).

A United Nations visiting mission toured British Togoland in August-October 1955. In its report to the U.N. Trusteeship Council on Oct. 30, 1955, the mission recommended that a plebiscite be held on the trusteeship's political future. On Dec. 15, 1955, the U.N. General Assembly passed a resolution calling for the holding of such a plebiscite in which the people of British Togo-

land would state whether they wished the merger of the territory with an independent Gold Coast, or its separation from the Gold Coast and continuance as a trusteeship pending ultimate determination of its political future. Regarding French Togoland, the General Assembly endorsed the recommendation of a visiting commission (which toured the territory in the autumn of 1955) that the administering authority implement its contemplated political reforms, so that the people of French Togoland would be enabled soon to decide democratically on their political future.

French Togoland (Togoland under French Trusteeship).

The French trusteeship, adjoining Dahomey, French West Africa, comprises the eastern and larger portion of Togoland. Estimated area, 21,230 square miles; pop. (est. 1955), 1,070,000, including about 1,500 nonautochthonous persons, chiefly French. Ewe and Mina tribes predominate in the south; Hamitic peoples in the north. Lomé (35,089) is the capital and chief port. The French commissioner is aided by a 9-member Council of Government (5 elected by the Territorial Assembly, 4 appointed by the commissioner) and by an elected Territorial Assembly of 30 members. The 1954 budget totaled 2,031 million francs CFA. About 37% of school-age children attend school. In 1954 there were 1,045 primary classes (57,409 pupils), 49 secondary classes (1,145), and 21 technical classes (470).

Chief subsistence crops are yams, cassava, millet, sorghum, corn, beans, and rice; chief cash crops: cacao, coffee, palm oil, palm kernels, cotton, castor oil, shea nuts, peanuts, and copra. Exports in 1954 totaled 4,274 million francs CFA; imports, 2,719 million. Chief exports and quantities (in metric tons) were: cacao, 12,633; coffee, 4,086; copra, 5,911; and palm kernels, 8,787. Three short railways from Lomé aggregate 278 miles. All-weather roads total 737 miles. Lomé has an airport. Telephones numbered 758 in 1955.

British Togoland (Togoland under United Kingdom Trusteeship).—For administrative purposes this territory (area, 13,041 square miles; pop., 423,000, est. July 1, 1954) adjoining the Gold Coast is divided into two sections, the northern savannah country being administered as part of the Northern Territories of the Gold Coast, and the forested southern area as part of the Trans-Volta Togoland Region. Ho, in Togoland, is the administrative headquarters of the latter.

Fourteen constituencies (northern, 8; southern, 6) elect one member each by universal adult suffrage to the Gold Coast Legislative Assembly. Local government is exercised by district and local councils, two thirds popularly elected and one third elected by traditional authorities. A report submitted to the 15th (1955) session of the U.N. Trusteeship Council noted that health and educational facilities in the territory had been expanded, and that practical efforts (reflected in major development projects) were being made to diversify the economy.

Estimated revenue in 1953-54 was £2,617,327; expenditure, £2,730,373. Schools and colleges number 444 (47,985 students); in 1954 the government spent £758,782 on education. Imports in 1954 totaled £3,840,962. Of total exports (value, £3,911,802), cacao (21,226 tons) accounted for £3,099,880. External trade figures are included in those of the Gold Coast (see BRITISH WEST AFRICA). Road mileage aggregated about 1,700 in 1954.

TOMATOES. See **VEGETABLES.**

TONGA or FRIENDLY ISLANDS. Comprising some 150 islands east of Fiji in the southwestern Pacific, this British-protected self-governing kingdom has an area of 270 square miles, and a population (52,575, Dec. 31, 1953 est.) comprising 51,400 Tongans, 230 Europeans, 570 of mixed racial origin, 300 Pacific islanders, and 75 others. Principal island groups are Tongatabu (on which is Nukualofa, the capital; pop., 5,500), Haabai, and Vavau. Nukualofa and Neiafu, on Vavau, are ports of entry. Outlying islands include Niuafo, Tafahi, and Niuaotubutu. There are active volcanoes on four of the islands.

Constitutional government under a sovereign (Queen Salote Tubou, acceded in 1918) comprises, besides the judiciary, a 7-member Privy Council and cabinet, and a Legislative Council consisting of the premier and ministers of the crown (including the governors of Vavau and Haabai), 7 nobles, and 7 representatives elected

triennially by popular franchise. The governor of Fiji (q.v.) is the representative of Great Britain in relation to Tonga. Introduced to Christianity in 1826, Tongans are members of various denominations, and include 24,449 Wesleyans.

The Tonga and Australian pound have the same exchange value. Revenue in 1954 was estimated at £A443,971; expenditure, at £A460,681. In 1953 there were 70 government and 63 denominational schools (11,311 pupils) and 10 secondary schools (2,314 pupils).

Total imports (principally of food, hardware, textiles, kerosine, and tobacco) were valued at £A782,000 in 1954 (£A637,000 in 1953); exports, valued at £A1,080,000 (£A771,000 in 1953), consisted principally of copra (14,200 tons). Roads approximate 60 miles (metaled) in Tongatabu, and 18 miles in Vavau.

TORONTO. The capital of the Province of Ontario, Toronto, which extends along 13 miles of Lake Ontario's north shore, is Canada's second largest city. Within a 100-mile radius of the city is located one third of the nation's purchasing power. The name applies both to the city proper (area, 35 square miles; population, 682,415) and to the Municipality of Metropolitan Toronto (area, 245 square miles; population, 1,254,000).

The municipality is administered by a Council of 24 members (12 heads of municipalities and 12 city members) under Chairman F. G. Gardiner. The municipal budget for 1955 was \$62,528,455. Construction projects under way in 1955 included 10 miles of water mains, water plants, sewage disposal plants, storm drainage works, a 9-mile lakeshore expressway, a midtown cross-town highway, a home for the aged, a golf course, and a building for the Juvenile and Domestic Court.

The city proper is governed by a mayor (Nathan Phillips in 1955), 4 controllers, and 18 aldermen. The publicly owned Toronto Transit Commission operates subway, electric car, trolley coach, and ferry facilities in both the city and the municipality.

A great increase in apartment house building, due to a new zoning law, took place in 1955; and 366 new units were built in Regent's Park under the slum clearance plan, bringing the total of such units constructed to 1,097. Some important structures which were completed or under construction in 1955 were the Bell Telephone Company building, the Confederation Life building, the Crown Life building, the Imperial Oil building, the Ontario Cancer Research building, the Woodbine Race Track, the Bank of Canada building, and the Stair Office Building.

Known as "The Convention City," Toronto had its best tourist and convention year in 1955. The 1955 Canadian National Exhibition had a total attendance of 2,809,500. The Royal Agricultural Fair took place from November 11 to 19, and the International Trade Fair was held at the end of June.

The port of Toronto has acquired a new 26-acre dock site, in anticipation of the completion of the St. Lawrence Seaway; and work on the dock's retaining wall and fill was nearly completed during 1955. The new Marine Terminal No. 11, put into operation in 1955, has Canada's first customs examination room in a waterfront terminal. The port, which serves 20 foreign lines, handled 3,165,365 tons of cargo in the first 9 months of 1955, and its direct overseas tonnage was 5,000 tons more than in 1954. The Toronto Stock Exchange, which trades the largest volume of stock in North America, did more business in the first 10 months of 1955 than in any previous 12-month period. The value of traded stocks was \$2,327,916,566, and the number of traded shares was 1,358,072,000.

In December, Mayor Phillips was re-elected,

and the electors voted to extend the term of office of the government from one to two years. The electors turned down a proposal to build a new City Hall.

JULIA JARVIS,
Technical Editor, *Champlain Society*,
University of Toronto Library.

TOURISTS. Domestic and foreign travel by United States residents in 1955 surpassed all previous records. The number of passports issued and revalidated by the Passport Office of the Department of State during the first seven months of 1955 surpassed the total issued in the same period in 1954 by more than 50,000; three fourths of all passports were for travel in Europe and the Mediterranean area.

In 1954, United States residents traveling abroad spent \$1,360 million, including payments to all carriers; estimates for 1955 spending reached \$1,500 million. Domestic travel volume estimates ranged from \$8 billion to \$12 billion for 1954. Spending in Canada and Mexico in 1954 amounted to about the same as in 1953.

Latest U.S. Department of Commerce estimates indicated that in 1954 United States residents traveled in overseas areas as follows: Europe and the Mediterranean area, 420,000; the West Indies and Central America, 432,000; South America, 36,000; and other areas, 24,000.

Means and Costs of Travel.—In the first six months of 1955 more United States visitors to Europe traveled by plane than by ship. The deferred payment plan was in part responsible for this rise. Surface carriers also continued to receive increasingly large total revenues and to carry capacity passenger loads.

Travel expenditures of American travelers within foreign countries increased again in 1954, and estimates of such expenditures in 1955 approximated \$1,100 million. Foreign carriers earned \$186 million in 1954; domestic carriers, \$214 million.

EXPENDITURES BY U.S. RESIDENTS FOR
TRAVEL IN FOREIGN COUNTRIES¹
(In millions of dollars)

Area	1950	1951	1952	1953	1954
Canada	261	255	257	282	284
Mexico	145	159	180	192	190
Europe and Mediterranean	225	195	256	306	352
West Indies—Central America	60	75	78	76	87
South America	22	25	25	20	22
Other areas	13	13	15	20	23
Totals ²	727	722	811	895	958

¹ Excludes fares paid to United States and foreign vessels.

² Columns may not add to totals because of rounding of figures. (Source: U.S. Department of Commerce.)

Since 1951 the number of United States travelers to the European area has increased steadily, as have their average expenditures. Per capita spending reached \$839 in 1954. France continued to be the number one target spot, with the United Kingdom second and Italy third.

Domestic Travel.—Expenditures for domestic travel in 1955 were believed to have exceeded previous records. An estimated 85% of domestic vacations were by private automobile. The report of the National Park System predicted that the 1955 figure on visitors would pass the 50 million mark.

Travel to the United States.—An estimated half-million travelers from countries other than Canada visited the United States between July 1, 1954, and June 30, 1955. (Visitors from Mexico planning to remain 72 hours or more were in-

cluded in this total.) These travelers spent approximately \$540 million in the United States in 1954. (See also CUSTOMS, U.S. BUREAU OF.)

Tourist Surveys.—Several intensive studies on tourism were circulated in 1955. All pointed up the importance of tourism to the national economy. One study estimated that \$10,500 million was spent for recreational travel by American families in 1954. Another survey showed that the hotel industry was the seventh largest service industry in the United States from the standpoint of sales volume, with a gross of approximately \$2,150,360,000. (See also HOTELS.)

Canada.—Canadian tourist spending abroad rose to \$382 million in 1954, compared with \$302 million spent by tourists visiting Canada. In 1954, residents of the United States spent \$280 million in Canada, and Canadian tourists spent \$313 million in the United States.

ALICE G. MULHERN,
International Travel Staff, U.S. Department
of Commerce.

TOWERS, John Henry, American naval officer: b. Rome, Ga., Jan. 30, 1885; d. Queens, N.Y., April 30, 1955. One of the first licensed navy pilots and the first naval airman to attain the rank of admiral, he successfully promoted naval aviation throughout his career, which included two terms as assistant chief, and one as chief, of the naval Bureau of Aeronautics.

Commissioned an ensign two years after his graduation from the U.S. Naval Academy in 1906, he was assigned to aviation duty in 1911, and for two years was in charge of the Naval Aviation Camp at Annapolis. Despite serious injuries incurred in a plane crash in 1913, he continued his flying career, becoming, in 1914, executive officer of the Naval Air Station at Pensacola, Fla. During World War I he was an aviation observer at the American embassy in London before his appointment as assistant director of naval aviation. His belief in the practicality of long-distance flying brought him the command of the first transatlantic crossing in May 1919 of three planes, two of which, including his own, were forced down near the Azores. The third, reaching Plymouth, England, was the first plane to cross the Atlantic. He was next assigned senior aide to the commander of Pacific Fleet Aircraft Squadrons, following which he returned briefly to Pensacola before touring the American embassies in Europe as assistant attaché for aviation. Towers' next assignments were as executive officer and then as captain of the U.S.S. *Langley*, the first American aircraft carrier. He was with the navy's Bureau of Aeronautics from 1928 to 1931, becoming, in April 1929, its assistant chief. A second appointment to this office in 1938 resulted in his being named chief a year later. Between these appointments he served as chief of staff to the commander of aircraft of the battle force, aboard the U.S.S. *Saratoga*, and as commanding officer of the Naval Air Station at San Diego. Later, he rejoined the *Saratoga*, remaining until 1938. With the Pacific Fleet (1942-44) as commander of its air force, Towers next became deputy commander in chief of the entire fleet and of Pacific Ocean Areas in February 1944, and commander in chief in November 1945. Two years later he retired with the rank of admiral, and joined Pan American World Airways as a vice president.

TOWN PLANNING. See CITY PLANNING.

TOY INDUSTRY. Toy production in 1955, estimated on a worldwide basis, increased about

18% over that of 1954. In the United States the value of toy output climbed to a record high of \$1.25 billion (in retail sales). The increased consumption in the United States is influenced by the growing child population, high employment, and greater consumer purchasing power. In 1954 the United States exported \$13,974,329 worth of toys, mostly to Canada and South America. Japan, however, is the world's largest exporter; the United States is second; and Germany ranks third. In the first eight months of 1955, American toy imports increased by 23% over those for a comparable period in 1954.

The toy industry in the United States leads the world in manufacturing facilities. About 60,000 persons are employed in some 2,000 plants, which have an annual payroll of \$180,000,000. Although plants are located in virtually every state, the concentration is particularly heavy in the Northeast, Middle Atlantic, and Pacific coast areas.

During 1955 the first official market and opinion survey of the American toy industry was completed. The report, sponsored by the Toy Manufacturers of the U.S.A., Inc., revealed some interesting statistics, including the following: (1) upwards of \$920 million dollars was spent on toys by American families during the 1954 Christmas season; (2) about 78% (33,000,000) of the families in the United States buy toys during the Christmas season; (3) the average American family spends about \$28 each on Christmas toys; (4) the major toy market is for children from two to six years of age; (5) women purchase about 75% of the toys sold; and (6) 60% of all Christmas toys are sold through department stores, variety stores, and five-and-ten-cent stores.

During 1955 increases in sales and production were shown in games, playground equipment, childrens' books, craft and do-it-yourself items, and Christmas decorations and ornaments. The 52d Annual Toy Fair, sponsored by the Toy Manufacturers of the U.S.A., Inc., was held in New York City in March 1955 and attracted 1,350 manufacturers and over 14,000 buyers.

HORATIO D. CLARK,

Secretary, Toy Manufacturers of the U.S.A., Inc.

TRACK AND FIELD. See SPORTS, GAMES, AND SHOWS.

TRADE. See Index entry.

TRADEMARKS. See PATENTS AND TRADEMARKS.

TRAFFIC. See Index entry.

TRANSJORDAN. See JORDAN.

TRANSPORTATION. See Index entry.

TRAVEL. See TOURISTS.

TREASURY OF THE UNITED STATES. Expenditures of the United States government for the fiscal year ended June 30, 1955, amounted to \$64,494,075,559, or \$3,278,277,686 less than expenditures in the previous fiscal year. Net receipts during the same period were \$60,302,503,608, as compared with \$64,655,386,989 for the fiscal year 1954. Lower receipts reflected the tax reduction program in effect in 1954.

The government ended the fiscal year 1955 with a budget deficit of \$4,191,571,951, as compared with \$3,116,966,256 at the end of the fiscal year 1954. The U.S. Treasury closed the 1955 fiscal year with a general fund balance of \$6,215,665,047. The balance at the end of fiscal 1954 was \$6,766,455,061.

Public Debt.—The public debt of the government on June 30, 1955, subject to the legal limi-

The FEDERAL BUDGET

FISCAL YEARS		DEFICIT
1953 ACTUAL	EXPENDITURES 74.3 Billion RECEIPTS 64.8 Billion	\$9.4
1954 ACTUAL	67.3 Billion 64.7 Billion	\$3.1
1955 ACTUAL	64.5 Billion 60.3 Billion	\$4.2
1956 CURRENT ESTIMATE	63.8 Billion 62.1 Billion	\$1.7

Executive Office of the President • Bureau of the Budget

tation, was \$273,914,849,696, as against \$270,790,304,616 a year earlier. Interest payments on the public debt during the fiscal year 1955 were \$6,389,263,589, as compared with \$6,382,485,639, during the preceding fiscal year. The overall computed average annual interest rate was 2.351% on June 30, 1955, as compared with 2.342% at the close of the 1954 fiscal year.

TABLE 1—U.S. BUDGET RECEIPTS AND EXPENDITURES, FISCAL YEARS 1955 AND 1954 (Preliminary)

Classification	Fiscal year 1955	Fiscal year 1954
RECEIPTS		
Internal revenue: ¹		
Individual income taxes withheld ²	\$21,242,174,626	\$21,635,410,189
Individual income taxes —other ²	10,407,323,271	10,747,306,867
Corporation income taxes.....	18,264,716,487	21,522,853,908
Excise taxes.....	9,193,766,080	10,014,443,841
Estate and gift taxes....	936,267,445	945,049,091
Taxes not otherwise classified.....	7,350,547	9,141,596
Employment taxes:		
Federal Insurance Contributions Act and taxes on self- employed indi- viduals ²	5,339,572,594	4,537,269,800
Taxes on carriers and their employees....	601,217,108	603,041,574
Taxes on employers of 8 or more.....	278,809,999	285,134,635
Customs ¹	606,396,634	562,020,618
Miscellaneous receipts:		
Proceeds from govern- ment-owned se- curities.....	298,345,641	229,682,993
Seigniorage.....	28,979,571	73,308,255
Surplus property disposal	147,229,527	103,365,245
Other.....	2,016,009,268	1,904,907,119
Total budget re- ceipts.....	69,368,158,804	73,172,935,738
Deduct:		
Appropriations to federal old-age and sur- vivors insurance trust fund ²	5,039,572,594	4,537,269,800
Appropriations to Rail- road Retirement account ²	599,999,051	603,041,574
Refunds of receipts:		
Internal revenue.....	3,399,977,898	3,345,495,593
Customs.....	21,619,848	20,481,971
Other.....	4,485,803	11,259,808
Total deductions...	9,065,655,196	8,517,548,748
Net budget receipts.	60,302,503,608	64,655,386,989
EXPENDITURES ⁴		
Legislative branch.....	68,116,794	58,918,614
The judiciary.....	30,427,149	28,356,325
Executive Office of the President.....	8,534,506	9,492,742
Funds appropriated to the president:		
Mutual Security:		
Military assistance:		
Defense Department:		

TABLE 1—U.S. BUDGET RECEIPTS AND EXPENDITURES, FISCAL YEARS 1955 AND 1954, CONT'D
(Preliminary)

Classification	Fiscal year 1955	Fiscal year 1954
Office of the Secretary	60,782,058	3,330,405,995
Army	1,551,428,686 ¹	
Navy	314,270,336	
Air Force	-191,788,039 ¹	
Foreign Operations		298,143,637
Administration	160,905,786	
All other agencies	-352,250	
Direct forces support:		
Defense Department	17,144,334	1,224,992,530
Foreign Operations		
Administration	681,236,908	
All other	7,538,512	
Other mutual security programs:		1,952,402
Defense Department		
Foreign Operations	33,864,169	
Administration	888,776,394	
Other	190,658,375	394,363,982
Discharge of investment guarantees (net)	-439,107	
Defense production expansion (net)	142,021,463	
Other	115,722,638	32,361,228
Total—funds appropriated to the president	3,971,770,268	5,282,219,777
Independent offices:		
Atomic Energy Commission	1,855,551,826	1,894,998,919
Civil Service Commission	47,226,337	50,008,541
Export-Import Bank of Washington (net)	-100,743,350	99,243,132
Farm Credit Administration	55,664,518	-74,190,584
Federal Civil Defense Administration	41,538,590	58,988,982
St. Lawrence Seaway Development Corp. (net)	2,542,186	
Small Business Administration	21,128,894	6,638,794
Tennessee Valley Authority	171,725,553	238,048,295
U.S. Information Agency	82,692,270	70,971,677
Veterans Administration	4,405,393,033	4,249,425,785
Other independent offices	204,749,570	256,802,652
Total—Independent offices	6,787,469,431	6,850,936,194
General Services Administration	\$ 973,042,630	\$ 805,536,592
Housing and Home Finance Agency	127,020,187	-614,593,958
Agriculture Department	4,633,529,573	2,915,469,919
Commerce Department	1,076,600,958	999,887,182
Defense Department:		
Military functions	35,729,611,014	40,335,773,234
Civil functions	548,189,219	605,083,534
Undistributed (foreign disbursements)	117,846,475	
Health, Education, and Welfare Department	1,992,539,310	1,981,030,059
Interior Department	514,986,201	535,139,577
Justice Department	181,549,698	182,643,091
Labor Department	393,783,666	354,514,279
Post Office Department	365,562,827	311,705,302
State Department	134,130,080	156,465,825
Treasury Department	6,817,475,563	6,960,624,949
District of Columbia—federal contribution and loans	21,890,000	13,150,000
Total budget expenditures	64,494,075,559	67,772,353,245
Budget deficit (-)	-4,191,571,951	-3,116,966,256

¹ Internal revenue and customs receipts are stated on the basis of reports of collections received from collecting officers. Other receipts are reported on the basis of confirmed deposits in Treasury accounts. ² Distribution between income taxes and employment taxes made in accordance with provisions of Sec. 109(a)(2) of the Social Security Act Amendments of 1950, for appropriation to the Federal Old-Age and Survivors Insurance Trust Fund. Appropriation for the fiscal year has been reduced by \$350,230,985 representing overappropriation

Receipts from and Payments to the Public.—The total flow of money between the public and the federal government (indicated in Table 2) is sometimes referred to as "the consolidated cash budget." To derive the totals shown for receipts and payments, transactions of the trust funds are consolidated with budget transactions. Transactions between the two types of funds, such as interest paid by the Treasury to trust funds, are eliminated. Certain other noncash transactions are also eliminated in the consolidation. For example, interest which accrues on savings bonds is counted as a budget expenditure at the time of accrual. Since the interest is not paid in cash until the bond is redeemed, the consolidation eliminates the interest accruals and includes the interest paid on bonds which are redeemed.

The figures for federal receipts from and payments to the public are not the same as those for Treasury cash deposits and withdrawals as presented in the Daily Treasury Statement. For example, transactions from various agency accounts with commercial banks are not included in Treasury cash deposits and withdrawals, but are reflected in the figures shown in Table 2.

TABLE 2—RECEIPTS FROM AND PAYMENTS TO THE PUBLIC, FISCAL YEARS 1955 AND 1954
(In billions of dollars)

Description	Fiscal 1955 (actual)	Fiscal 1954 (actual)
Budget receipts	\$60.3	\$64.7
Trust fund receipts	9.5	9.2
Less: Intragovernmental transactions	2.0	2.1
Seigniorage on silver	...	...
Total receipts from the public	67.8	71.6
Budget expenditures	64.5	67.8
Trust fund expenditures	8.5	7.2
Net expenditures of receipts (-) of government-sponsored enterprises	1	-4
Less: Intragovernmental transactions	2.0	2.1
Net accrued interest and other non-cash transactions	3	6
Total payments to the public	70.8	71.9
Excess of payments over receipts	3.0	2

Note: Details may not add to totals because of rounding.
* Less than \$50 million. (Source: Review of the 1956 Budget.)

Savings Bonds.—Sales of Series E and H savings bonds during the first eight months of the calendar year 1955 were \$3,730 million, an increase of 12% over the \$3,325 million in sales during the same period of 1954. For the first eight months of 1955, Series E and H sales exceeded redemptions of both matured and unmatured bonds of these series by \$571 million, as compared with \$301 million for the first eight months of the previous year.

Of the \$18,586 million of Series E bonds which have matured since May 1951, when they first came due, more than 70% were still being held under the automatic extension plan. Holders of these bonds have earned \$540 million in additional interest during the extended maturity. The value of all series of United States savings

to the trust fund of \$90,000,000 in fiscal year 1952, \$210,000,000 in fiscal year 1953, and \$50,230,985 in fiscal year 1955.

³ Amounts equal to taxes on carriers and their employees (minus refunds) are appropriated to the Railroad Retirement account. ⁴ Expenditures are stated on the basis of checks issued and cash payments made as reported by government disbursing officers. ⁵ Includes adjustment effected during June 1955 between accounts of the military departments and of the mutual military program for cumulative expenditures and cumulative deliveries for the fiscal years 1950-55, inclusive. Where no figures appear on certain lines there was either no activity reported or comparative figures are not available on account of changes in classification.

bonds outstanding on Aug. 31, 1955, was \$58,703 million, of which \$39,553 million was in Series E and H bonds, an all-time record.

Money in Circulation.—Coin and currency in circulation outside the U.S. Treasury Department as of Aug. 31, 1955, amounted to \$30,316,575,-841. On the basis of latest census estimates, this represented a per capita circulation of \$182.87.

TREASURY INFORMATION SERVICE.

TRIBHUVANA BIR BIKRAM (full name TRIBHUVANA BIR BIKRAM JUNG BAHADUR SHAH BAHADUR SHAMSHER JUNG), king of Nepal: b. Nepal, June 30, 1906; d. Zurich, Switzerland, March 13, 1955. The titular head of Nepal (q.v.), he initiated a series of social and political reforms in the early 1950's which marked the ending of a hereditary feudal-type government which had ruled Nepal since 1846.

King Tribhuvana succeeded his father, Prithvi Bir Bikram, to the throne of Nepal on Dec. 11, 1911, at the age of five. Considered by the Nepalese as an incarnation of the Hindu god, Vishnu, he nevertheless had no political power and rarely made a public appearance. Actually, the country was governed by a hereditary prime minister of the autocratic Rana family. Spurred after World War II by growing demands within Nepal for a more democratic government, the king took a firm stand against the nobility, but on Nov. 7, 1950, was deposed through the efforts of the prime minister, Maharaja Mohan Shamsheer Jung Bahadur Rana. He subsequently took refuge in New Delhi, India, but was recalled on Feb. 15, 1951, when pressure was brought to bear on the Nepalese prime minister by the Congress Party of Nepal and by India's prime minister, Jawaharlal Nehru.

Following the king's return from exile, Prime Minister Rana was stripped of his powers, and plans were announced for the election of a constituent assembly to frame a democratic constitution. After an unsuccessful attempt to form a compromise cabinet, King Tribhuvana appointed one which excluded the former prime minister, thus bringing to a close the 104-year rule of the Rana family. The king then gave his cabinet authority to institute sweeping reforms aimed at relieving the Nepalese from burdens imposed by a feudal state. Communist activity and Nepalese unfamiliarity with democratic processes, however, contributed to political unrest and confusion, so that in August 1952, after the collapse of a Communist-inspired revolt, the king assumed complete governing powers.

The victim of a heart ailment, King Tribhuvana spent his last months in Europe undergoing medical treatment. Following his death, his body was flown from Zurich to Nepal and cremated on March 17, on the banks of the sacred Bagmati River. Crown Prince Mahendra Bir Bikram, whom the king had appointed as regent in February 1953, acceded to the throne on March 14, 1955.

TRIESTE. The former Free Territory of Trieste, established under the Italian Peace Treaty of 1947, comprised a strip of Adriatic coastline on the eastern part of the Istrian Peninsula. Under the 1947 treaty it had been divided into two military occupation zones: Zone A, under Anglo-American occupation (area, 86 sq. mi.; est. pop. 1954, 298,000); and Zone B, under Yugoslav occupation (area, 199 sq. mi.; pop. 1945, 67,461). On Oct. 5, 1954, a memorandum was initiated in London by representatives of Italy, Yugoslavia, the United States, and Great Britain, ending the

military occupation and dividing the territory between Italy and Yugoslavia. Italy obtained all of Zone A (which included the city of Trieste), with the exception of a strip of about 5 square miles in the vicinity of Crevatini. Yugoslavia obtained Zone B plus the Crevatini strip. Yugoslavia instituted civil control of its area on Oct. 25, 1954; Italy, on October 26.

During 1955 the joint Yugoslav-Italian boundary commission continued its work in defining the precise demarcation line agreed upon in 1954. Italy charged several times that Yugoslavia was illegally impeding the movement of migrants and property from the Yugoslav to the Italian sector. Yugoslavia accused Italy on March 18 of mistreating the Slovene minority on the outskirts of Trieste (city). On August 27, Yugoslavia was reported to have accepted an Italian request for a three-month extension (to Jan. 5, 1956) of the agreed period for the movement of migrants.

TRINIDAD AND TOBAGO. These West Indian islands off the northeast coast of Venezuela constitute a British colony aggregating 1,980 square miles in area (Trinidad, 1,864 square miles; Tobago, 116 square miles). The aggregate population was estimated at 698,000 in mid-1954 (in 1953: Trinidad, 645,300; Tobago, 33,000). Port of Spain (pop., 111,150) is the capital and chief port. United States naval and air bases are maintained on Trinidad.

A governor (Sir Edward Beetham, appointed Feb. 10, 1955) is assisted by a 9-member Executive Council (including 6 nonofficials—5 elected, 1 nominated) and a 26-member Legislative Council (including 23 nonofficials—18 elected, 5 nominated). Revenue in 1955 was estimated at BWI\$74,700,000 (the British West Indies dollar equals U.S.\$0.58); expenditure, at BWI\$73,800,000.

Enrollment in 355 primary schools was 132,000 by the end of 1953. There were also 8 intermediate, 139 private primary, and 14 secondary schools. A government Technical Institute was opened in San Fernando in 1954.

The colony's economic progress in 1954 was reflected in exports totaling (in sterling) £54,600,000 (£53,500,000 in 1953) and imports valued at £52 million (£49,200,000 in 1953). Production of crude petroleum advanced to 3,328,000 tons in 1954 from 3,147,000 tons in 1953; exports of refined petroleum totaled 4,665,000 tons (4,764,000 tons in 1953). Exports in 1954 (with comparative figures for 1953 shown in parentheses) included grapefruit, 7,655,000 pounds (14,006,000); oranges, 3,366,000 pounds (4,820,000); grapefruit juice, 762,000 gallons (1,467,000); lime juice, 21,900 gallons (62,700); orange juice, 166,000 gallons (295,000); cocoa, 7,880 tons (9,700); bananas, 5,540,000 pounds (2,610,000); coffee, 35,500 hundred-weight (21,200); and sugar, 150,000 tons exported from production of 174,000 tons (130,000 tons, from 153,000 tons).

A 32-mile pipeline from the Ortoire area to Point Fortin was completed in 1954, and the sinking of a marine oil well 6 miles from Cedros Point was begun. The Cocoa Board expected to complete in 1955 a new propagating station to make available 1 million clonal plants (rooted cuttings) per year. Cooperative societies numbered 52 in 1954, including consumer, fishing, marketing, and producer organizations; there were 384 agricultural credit societies, and 211 credit unions with more than 16,000 members.

There are 1,891 miles of main roads, including a new highway between Port of Spain and San Fernando, inaugurated by Princess Margaret during her 4-day visit to the colony early in February 1955, and 1,318 miles of local roads.

Piarco airport, 12 miles from the capital, is served by British, American, Canadian, Dutch, French, and several South American airlines. (See also BRITISH WEST INDIES).

TROPICAL MEDICINE. See Index entry.

TRUCIAL OMAN. See ARABIA.

TRUCK CROPS. See VEGETABLES.

TRUST TERRITORY OF THE PACIFIC ISLANDS. See PACIFIC ISLANDS.

TRUSTEESHIP (U.N.). See Index entry.

TUBERCULOSIS. There are approximately 400,000 cases of active tuberculosis in the United States; about 100,000 are under treatment in tuberculosis hospitals. During 1954, 100,540 new cases were reported in the United States, as compared with 106,925 new cases in 1953, and 109,837 in 1952. The number of new cases reported each year is declining more slowly than is the death rate. In 1952 the death rate was 15.8 per 100,000 population; in 1953 it was 12.3; and the provisional rate for 1954 is 10. By contrast, death rates in 1900 and 1940 were 194 and 46, respectively. It should be emphasized that the size of the tuberculosis problem is measured more accurately by the number of new cases reported each year than by the change in death rate.

Treatment.—The past year was notable for the increasing number of unoccupied beds in tuberculosis sanatoria in certain localities. Many hospitals reported no patients awaiting admission for the first time in their history, and several institutions closed for lack of patients. The increase in unoccupied beds, where it occurs, arouses much notice, but in some parts of the country there is actually a shortage of beds. In any event, the number of cases in the entire country requiring hospitalization exceeds the number of beds.

Authorities agree that the decline in the number of new cases does not account for the decrease in hospitalized patients. It is due more probably to (1) shorter periods of hospitalization, and (2) the fact that more patients are now treated at home. Many patients now receive drug treatment after discharge from the tuberculosis sanatorium. Prehospital drug therapy, which was first tried in the years when there were long waiting lists and many patients worsened or died before beds became available, is also being used in some areas. The best treatment, however, calls for the admission to a tuberculosis hospital when the diagnosis is first made. The practice of having patients complete drug treatment at home after discharge appears feasible in selected cases where all conditions are favorable.

A new anti-tuberculosis drug was announced during the past year: Cycloserine, an antibiotic derived from the mold, *Streptomyces orchidaceus*. It is administered by mouth in a dosage of 1.0 gram a day. Its chief toxicity is on the nervous system; convulsions occasionally occur. Cycloserine has been used in relatively few cases of tuberculosis and its value has not yet been established. Experience with it thus far, however, suggests that it is not a potent drug in the same category with streptomycin or isoniazid.

The mainstays of tuberculosis chemotherapy are the three drugs, streptomycin, isoniazid, and para-aminosalicylic acid. Combinations of any two of these drugs are extremely effective. Other drugs used in treatment are viomycin, terramycin, and pyrazinamide. These are rarely drugs of choice; they are employed chiefly when patients' tubercle bacilli have become resistant and are no longer affected by the three drugs previously mentioned.

A number of questions regarding the chemotherapy of tuberculosis remain unanswered, primarily: (1) which combination of drugs is the most effective; (2) the optimum duration of drug therapy; (3) the types of pulmonary tuberculosis which require surgery in addition to drugs; and (4) how much rest is necessary when drugs are used. There is general agreement that all cases of active tuberculosis should receive drugs for at least a year without interruption. Many physicians continue drugs for 1½ or even 2 years. However, the optimum length of chemotherapy is in fact unknown. Pneumothorax (the partial collapse of the lung with air) is used much less than before drugs became available. Surgery, both resection and thoracoplasty, continue to be employed with much success.

Prevention.—In the control and prevention of tuberculosis, emphasis is placed chiefly on the removal from the general population of individuals who have the disease in its infectious form. Their detection is accomplished by the periodic X-ray of apparently healthy individuals in factories, schools, etc.; by X-raying patients in general hospitals; and by the liberal use of the chest X-ray in the physician's office practice. BCG, the vaccine made of attenuated tubercle bacilli, continues to be used in isolated instances where exposure to tuberculosis has been heavy. There is little dependence on it in the United States for the prevention of tuberculosis in the community at large.

NICHOLAS D. D'ESOP, *Chief, Tuberculosis Service, Veterans Administration Hospital, West Haven, Conn.*

TUNGSTEN (WOLFRAM). Mine production of tungsten in the United States has increased from 1,448 short tons of metal content in 1949 to 4,629 tons in 1953, and to 6,568 tons in 1954. Imports increased from 3,679 tons of metal content in 1949 to 14,360 tons in 1953, but declined to 11,494 tons in 1954. Consumption has varied widely, ranging from a low of 2,479 tons of metal content in 1949 to a high of 5,705 tons in 1951. Consumption declined, however, to 3,867 tons in 1953, and to 2,019 tons in 1954. In the first half of 1955, United States mine production was 3,738 tons of metal content, imports were 3,965 tons, and consumption was 2,158 tons. Almost all of the 1954 domestic production was purchased for the national stockpile. (See MINERAL PRODUCTION for table showing output of major producing countries).

TUNISIA. A French protectorate on the Mediterranean coast of North Africa. Area, 48,332 square miles; pop. (est. 1954), 3,700,000. The French numbered 143,977 in 1946; Italians, 84,935; other Europeans, 10,637; and native Jews, 71,543. Chief cities and populations (1946): Tunis, the capital, 364,593; Sfax, 54,637; and Bizerte, 39,327.

The People.—The Moslem majority consists chiefly of rural workers, peasants, and nomadic Bedouins (in the central and southern sections). French settlers (*colons*) are concentrated in the limited fertile area in the north. The French control the principal industrial and mining enterprises and predominate in the professions, skilled occupations, and higher civil service. The Tunisian nationalist movement is led mainly by Tunisian intellectuals backed by some 80,000 industrial and agricultural workers of the General Union of Tunisian Workers.

Government.—Tunisia has been a French protectorate since the Treaty of Bardo in 1881. Until 1955, nominal authority emanated from the bey of Tunis, although actual power was exercised by a French resident general appointed in Paris. On Aug. 31, 1955, a Franco-Tunisian agreement came into effect, retaining the Treaty of Bardo but providing for Tunisian autonomy under the bey, with France retaining responsibility for foreign relations and



UNITED PRESS

French Premier Faure (seated, with Tunisian Premier Tahar Ben Ammar (right), signs treaty on June 3, 1955, paving the way toward internal autonomy for Tunisia.

defense. On Sept. 17, 1955, Bey Sidi Mohammed al-Amin invested the first all-Tunisian cabinet since 1881. It consisted of 5 Neo-Destour ministers, 6 independents, and 1 Socialist, and was headed by Premier Tahar ben Ammar, independent.

The Franco-Tunisian agreement, signed on June 3, 1955, consisted of 3 conventions and attached protocols transferring authority in internal affairs to the Tunisian government, providing for Franco-Tunisian cooperation in the economic and cultural spheres, and defining the position of the French community in Tunisia. The Tunisian government is to take over responsibility for public order in stages over a 20-year period. Tunisian courts are accorded jurisdiction over cases involving Tunisians only, while mixed Franco-Tunisian courts are to be established within 5 years to handle cases involving a Tunisian and a non-Tunisian. The Tunisian government is given power over the educational system, and Arabic is established as the official language, although French is to have special status as a second language. The Tunisian government is to manage its own budget and financial affairs, although Tunisia will remain within the franc area and French economic interests are to be protected.

The French community is to retain representation in the economic chambers and the municipal councils. The French resident general is replaced by a high commissioner (Roger Seydoux, appointed Sept. 13, 1955) who is the depositary of French powers in Tunisia, protects the interest of the French population in Tunisia, and serves as an intermediary between the French and Tunisian governments. A mixed Franco-Tunisian Council of Arbitration is to be established in Paris to decide on disputes arising out of the new relationships.

Education.—In 1953 there were 641 public primary schools (136,226 indigenous and 32,435 nonindigenous pupils), 17 secondary schools (14,497 pupils), and 62 vocational schools (12,818 pupils). Private schools had an additional 12,752 pupils; and modern Koran schools, 33,271. There was one institution for higher education with 833 indigenous and 640 nonindigenous students.

Finance.—In the fiscal year 1954-55, revenue totaled 53,024 million francs; expenditure, 55,524 million. In 1954, France granted the equivalent of \$37 million toward Tunisia's economic and social development program.

Production.—The Tunisian economy is mainly agricultural and pastoral. Handicrafts are important, and there is some development of mineral industries and manufactures. Chief crops are cereals; 1954 yields in bushels were: wheat, 22,940,000; barley, 7,810,000; and oats, 790,000 (1953). Also important are oranges (1,059,000 boxes in 1954, prelim.) and olive oil (58,400 short tons in 1954, prelim.). Other crops are potatoes, flaxseed, dates, esparto grass, and grapes for wine. Livestock (chiefly sheep and goats) yield meat and dairy products. Forest products include cork (7,700 metric tons in 1954), timber, firewood, and tanner's bark.

In 1953 there were 338 industrial enterprises employing 80,865 workers. Chief manufactures are foodstuffs, chemicals, construction materials, textiles, leather goods, soap, and wood and cork products. Output of electric power (thermal) in 1954 totaled 203.5 million kw.-hr., a rise of 13%

over 1953. Production of chief minerals in 1954 was (in metric tons): phosphates, 1,846,000; iron ore, 951,800; lead ore, 41,700; and zinc ore, 9,500.

Foreign Trade.—Exports in 1954 totaled 42,690 million francs; imports, 59,211 million. Chief exports in order of value were (in metric tons): olive oil, 44,689; wheat, 147,939; phosphates, 1,948,464; iron ore, 905,849; and lead and alloys, 26,278. Imports are mainly machinery and parts, sugar, cotton cloth, petroleum products, and other manufactures and foodstuffs. France took 60% of Tunisia's 1954 exports and provided 76% of imports.

Transportation and Communications.—Roads totaled 9,120 miles in 1955, including about 4,340 miles suitable for heavy traffic. The railroad network aggregated 1,297 miles (route length). Tunisia has one international airport (El Aouina) and 10 secondary airports. Passenger cars numbered 27,798 in 1954; telephones, 32,215 (1955); and radio sets, 86,407 (end of 1953). There were 8 daily newspapers in 1952, with a total circulation of 113,000.

Principal Events, 1955.—Negotiations on Tunisian autonomy, based on former French Premier Pierre Mendès-France's offer of July 31, 1954, took place in Paris from September 1954 to May 1955. Heading the Tunisian delegation was Premier Tahar ben Ammar, a moderate nationalist. The principal Tunisian figure, however, was Habib Bourguiba, who, though not a member of the delegation, was the leader and spokesman of the Neo-Destour Party, the dominant political force in Tunisia.

The course of the nine-month negotiations was by no means a smooth one. The French, seeking to retain their controlling position in Tunisia's economy, defense, and external affairs, were faced with a growing nationalist movement which demanded more than the mere trappings of self-rule. However, most Tunisian leaders, particularly Bourguiba, recognized that Tunisian economic development and modernization was impossible without French aid, which meant continuing French supervision and influence. Bourguiba's assent to the draft terms was secured at a private meeting in Paris between the Neo-Destour leader and French Premier Edgar Faure on April 21. The conventions and protocols were then signed by Faure and ben Ammar in Paris on June 3 and came into effect on August 31, with the deposit of ratifications in the French capital.

The 1955 agreement provided for Tunisian self-rule in the internal spheres of public order, justice, administration, education, and finance, with France retaining control of defense and foreign relations. Certain powers, such as education and finance, were handed over immediately to the Tunisians. Others, such as control over the police and the judiciary, are to be transferred in stages over a period of 20 years. Participation of the French community in Tunisian political institutions is preserved, and French economic interests are protected. Shortly after the agreement took effect, ben Ammar headed a new cabinet on September 17, the first all-Tunisian government since 1881. (See also above, under *Government*.)

The new status of Tunisia by no means satisfied all wings of the Tunisian nationalist movement. Bourguiba, who returned to Tunisia from French exile on June 1, hailed the new relationship as a step toward full independence. The anti-Western, traditionalist wing of the Neo-Destour, headed by Salah ben Youssef, de-

nounced the agreement as guaranteeing continuing French overlordship. Ben Youssef was expelled from the Neo-Destour on October 12, and his expulsion was confirmed at the party congress the following month. At the Neo-Destour Congress held at Sfax, November 15-18 (the party's first legal congress since 1938), Bourguiba was re-elected president, and a program was adopted for raising living standards and establishing a constitutional government. Ben Youssef's faction, however, continued to agitate against the agreement, and violent clashes between the nationalist groups took place in early December. Despite the conflict among the nationalists, security conditions as a whole had improved considerably since the surrender of most of the anti-French *fellagha* bands in December 1954.

M.J.G.

TUNNELS. Third Lincoln Tube.—Constructors pushing the third tube of the Lincoln Tunnel under the Hudson River, from New Jersey to New York City, crossed the state line on Oct. 5, 1955. The \$100 million shield-driven tunnel project was begun in 1952 and is scheduled to be completed early in 1957. Total underriver length will be 5,486 feet. The work is progressing in compressed air approximately 100 feet deep in the silty river bottom. When finished, this tube will carry two lanes of traffic, bringing to six the total number of lanes in the three tubes. It will be possible to use four lanes in the direction of heavy traffic, and two in the opposite direction, thus doubling present rush-hour capacity in and out of New York City via the Lincoln Tunnel.

Baltimore-Harbor Tunnel.—Construction was begun in 1955 on a twin-tube tunnel under Baltimore Harbor. It is to be a trench-type structure 6,300 feet long, with approaches on either side totaling 14.3 miles. Plans call for completion of the entire \$155 million project in December 1957. Trench construction of the two tubes means that they will be prefabricated in steel shell sections and sunk into place in a dredged trench across the harbor. The bottom of the tunnel will rest 101 feet below the river's surface at its deepest point.

Hampton Roads.—A combination bridge and tunnel will cross Virginia's Hampton Roads. A 6,900-foot tunnel section will have trestle approaches on either side totaling 10,000 feet. The cost of the whole project will be \$58.5 million. This will be another trench-type tunnel project, with 23 tunnel sections to be floated out and sunk into place in the prepared trench.

Tecolote Tunnel.—A most unusual tunnel holed through early in 1955 was a U.S. Bureau of Reclamation water-supply tunnel in the Santa Ynez Mountains of California. It was distinguished by having been bored through several hundred feet of hot rock and steaming hot water. The \$43.8 million tunnel, started in 1950, is 6.4 miles long. The 7-foot bore progressed normally until the zone of hot groundwater was reached. About \$1 million worth of air-conditioning equipment had to be installed on the project, and pumps were required to remove the water so that working conditions could be made bearable.

Delaware Water Supply Tunnel.—The world's longest tunnel is New York City's 85-mile Delaware Aqueduct. With construction of new water supply projects beyond its upstream end, there have been shorter tunnels built to connect new reservoirs to the aqueduct. Late in 1954 the city's Board of Water Supply contracted for another 20 miles of 11-foot, 4-inch diameter con-

crete-lined tunnel (called the West Delaware Tunnel) through deep, hard rock. The total length of this tunnel, when completed, will be 44 miles, making it the world's second longest.

Colorado Tunnels.—Two tunnels are planned to be built under the Continental Divide in Colorado, according to present plans. First, a \$16 million vehicular tunnel under the divide moved a step forward in 1955 when legislation was passed to put state credit behind bond financing of the planned toll facility. Second, and more important in many ways, would be a \$98 million water-supply project, including a tunnel planned to pass beneath the divide. This 23-mile bore would carry west slope water of the Blue River to the thirsty east slope city of Denver. The tunnel alone would cost over \$36 million.

Canada.—A 7.5-mile horseshoe-shaped tunnel through rock was holed through in northeastern Quebec in June 1955. This 31-foot finished diameter bore is to carry water to the underground hydroelectric powerhouse of the Bersimis project of the Quebec Hydro-Electric Commission. This is a very large-diameter rock tunnel, and it is further distinguished by having at its downstream end a 680-foot vertical surge shaft—a sort of safety valve to the air above from deep inside the mountain. This vertical shaft is being mined to 84-foot diameter at its top.

Australia.—A rate of tunneling that was hailed in May 1955 as a new world record was set in Australia on the Ecumbene-Tumut Tunnel of the Snowy Mountain hydroelectric development. The work advanced 402 feet in a six-day week on a 24-foot diameter working face. This waterpower tunnel is to be a 14-mile link in the extensive hydroelectric project. The construction was a joint venture of United States firms called Kaiser-Walsh-Perini-Raymond.

Scotland.—A probable European record for tunneling in rock was established on the Breadalbane project of the North of Scotland Hydro-Electric Board. A 10-foot tunnel was pushed 428 feet through rock in seven 24-hour working days.

Sweden.—In this land of underground construction—factories, garages, shelters, and power plants—rock tunnels larger than any others in the world have come to be almost commonplace. Sweden's latest tunnel will have a cross-sectional area of 3,875 square feet. Lightweight drilling equipment with hard metal bits has improved and sped up rock excavation to the extent that Sweden has assumed a degree of leadership in tunneling.

(For further references, see the Index entry, *Tunnels*.)

ARTHUR J. FOX, JR.,
Associate Editor, "Engineering News-Record."

TURKEY. The Republic of Turkey (area, 296,185 square miles; pop., provisional figures of the 1955 census, 24,109,641) consists of Anatolia (Asia Minor) and Eastern Thrace (European Turkey). The country's capital is Ankara (1955 pop., 552,369); other principal cities include Istanbul (formerly Constantinople; pop., 1,240,233), Izmir (431,560), Adana (242,716), Bursa (218,252), and Eskişehir (140,791). The majority of the people are Moslems (98%) and speak Turkish as their mother tongue (88%). Of the total population 71.5% live in rural areas.

Government.—Turkey is a republic, and all men and women over 21 years of age are entitled to vote for the unicameral Grand National Assembly, which serves for a four-year term, unless it dissolves itself sooner. Each province (*villayet*), of which there are at present 66, serves as an assembly election district, and voting is by

plurality and generally for party lists. In the most recent election of May 2, 1954, the Democratic Party polled 58%, the Republican People's Party 35%, and the Republican National Party 5% of the vote; the assembly was originally composed of 504 Democrats, 31 Populists, 5 Nationalists, and 1 Independent.

The president of the republic is elected by a majority of the assembly from its own membership for the duration of the assembly's term. The present incumbent, Mahmud Celâl Bayar (Democrat) was reelected for a second term on May 14, 1954. The prime minister is selected by the president and, with his cabinet, is confirmed by the assembly. Adnan Menderes, leader of the Democratic Party, has been premier since 1950. The opposition is divided among the Republican People's Party of İsmet İnönü and Kasım Gülek, the newly formed Freedom Party of F. L. Karaosmanoglu and F. Çelikbaş, and the Republican National Party. (See also below, *Principal Events, 1955.*)

Finance.—The Turkish lira (T £) is officially pegged at U.S.\$0.3571, although a variety of lower official rates are also in effect. The free rate, which at the beginning of 1955 was \$0.147, had fallen by December to \$0.10. The budget for the year ending Feb. 29, 1956, called for expenditures of T £2.96 billion and anticipated revenues of T £2.79 billion. In 1954, receipts from taxes, customs, state monopolies, stamp duties, and other sources totaled T £2.09 billion. According to official figures the internal public debt stood at T £2.16 billion, and the foreign debt at T £990 million (July 1955); the Central Bank's gold and foreign exchange holdings amounted to T £590 million, and its foreign liabilities, T £793 million (August 1955); and monetary circulation totaled T £1.94 billion (September 1955).

Since the formulation of the Truman Doctrine in 1947, the United States has provided Turkey with approximately \$1 billion in military and \$566 million in economic and technical aid.

Education.—Nearly all Turkish schools are operated and supervised by the Ministry of Education. In 1954-55 approximately 1,877,000 pupils attended the primary grades; in 1952-53, there were 86,000 students in the 474 secondary schools, 30,000 in the 95 lycées, 38,800 in the 321 professional schools, and 26,300 in the 33 higher institutes and universities. Literacy has risen steadily since the 1920's, but in 1950 amounted to only 34.6% of the population over 7 years of age.

Economic Conditions, 1955.—The Turkish economy in 1955 was undergoing a severe crisis. Over the past seven years the government's development efforts had roughly doubled agricultural yields and raised industrial output and national income by nearly one half. But a period of high cash supports for crops, combined with heavy capital expenditures and growing consumer demand, led to domestic inflation and a consistently adverse balance of trade. The 1954 drought demonstrated how precarious Turkey's recent prosperity had been. Unable to furnish promised wheat to her trade partners, the government's diplomatic efforts were largely directed at satisfying or stalling the most urgent demands of her creditors.* Turkish efforts to secure a \$300 million loan from the United States remained fruitless, but American aid for the fiscal year 1956 was raised from \$70 million to \$100 million.

The government, despite warnings from many quarters, continued to force the pace of development. Construction of new port facilities proceeded at Istanbul, Izmir, and Samsun; 8 new sugar refineries were being built; and contracts had been let for 21 new cement factories, 18 hydroelectric projects, and 3 new radio stations. A disproportionate amount of the country's capital however, was invested in nonproductive facilities such as residential building. Foreign exchange difficulties led to a curtailment in the flow of imported spare parts and raw materials essential for the very industrial development the government was sponsoring.

* Thus Yugoslavia in January 1955 suspended all exports to Turkey in view of a \$35 million deficit on the previous year's trade, and resumed deliveries on a much reduced scale in May. An agreement with Britain provided for the payment over a 5-year period of Turkey's accumulated sterling debt. A new trade agreement with Italy in April provided for annual delivery of 100,000 tons of wheat for 5 years.

Agriculture.—Of the total land surface, in 1953 about 45% consisted of meadows and pastures, 22% was used for cereals and other field crops, 13% was covered with forest, 2% was vineyards and gardens, and 17% was unproductive. Only one tenth of the land sown to cereals was irrigated. After a number of bumper crops, a serious drought in 1954 reduced the wheat harvest by about 40%. Principal crops in 1954 were produced in the following amounts: wheat, 4.9 million metric tons; barley, 2.4 million tons; sugar beets, 1.2 million tons; potatoes, 1 million tons; cotton, 142,000 tons; hazelnuts, 127,000 tons; and tobacco, 100,000 tons. Production of cereals in 1955 was estimated at 13,000,000 tons, or 3,369,000 tons more than in 1954.

Mining.—In the decade since World War II, Turkey has substantially increased her mineral production. The output of iron ore has increased by four times; copper, by two and one-half times; and coal, by one half. Chromite and manganese production declined slightly after setting all-time records in 1953. Production figures for 1954 were as follows: coal, 5.7 million metric tons; lignite, 2.1 million tons; chromite, 530,000 tons; iron ore, 480,000 tons; manganese, 48,000 tons; copper, 25,000 tons; and crude petroleum, 59,000 tons.

Industrial Production.—Industrial production has increased steadily since 1945, with the most notable advances registered in the sugar, steel, and cement industries. Output of major industrial products in 1954 was as follows: electric power, 1.3 billion kw.-hr.; coke, 313,000 tons; steel, 169,000 tons; pig iron, 196,000 tons; artificial fertilizers, 25,000 tons; cement, 707,000 tons; refined sugar, 199,000 tons; and cotton and woolen textiles, 137 million meters.

Foreign Trade.—Turkey's exports in 1954 were valued at T £938 million, and imports at T £1,339 million—decreases of T £171 million and T £152 million, respectively, from 1953—leaving a slightly larger unfavorable trade balance (T £-401 million). Figures for the first eight months of 1955 indicated slightly lower exports (mainly due to the poor cereal crop in 1954) and higher imports. Exports consist largely of agricultural products (tobacco, T £240.5 million in 1954; cereals, T £215.8 million; and cotton, T £146.8) so that foreign earnings depend heavily on weather conditions and prices for a few commodities. The leading imports are machinery, building materials, textiles, iron and steel, and petroleum. Turkey's major trade partners are West Germany (17.3% of imports and 18% of exports), the United States (15% and 17.4%), and Great Britain (8.7% and 6.9%).

Transportation and Communications.—Turkey's road network, although inadequate, is being rapidly expanded and improved. At the end of 1954 there were 16,778 miles of stabilized highway serving 23,938 passenger cars, 5,510 buses, 24,722 trucks, and 6,587 motorcycles. (See also *Highways.*) The total railway net measures 5,293 miles, nearly all of which is single track. The Turkish State Airways connects the principal towns and cities of Turkey, and a number of major foreign airlines link the nation with all parts of the world. The Turkish Maritime Lines, which previously concentrated on coastal and Mediterranean traffic, began a regular monthly passenger-freight service between Istanbul and New York in September 1955. Turkey has three radio stations, all government operated; 935,000 radio sets were in use at the beginning of 1955.

Principal Events, 1955. Foreign Affairs.—In 1955, Turkey entered into close relations with

her Near Eastern neighbors and thus continued to play a leading part in the free world's defense planning for that region. In the pact of mutual cooperation between Iraq and Turkey (the Baghdad Pact), signed on February 24 and unanimously ratified by the Turkish Assembly on February 26, the two countries undertook "to cooperate for their security and defense." By the time the Ministerial Council, provided for by the pact, met at Baghdad (November 21), Britain, Pakistan, and Iran had joined the treaty. Hopes that other Arab countries would join the pact failed to materialize. When Syria, in March, joined Egypt and Saudi Arabia in outlining the principles of a new military-economic treaty, the Turkish-Syrian border was temporarily closed amid mutual recriminations.

In April, Turkey participated in the Asian-African Conference (q.v.) held at Bandung, Indonesia. On May 3, the United States and Turkey signed the first bilateral agreement for the peaceful use of atomic energy. Earlier Turkey, Greece, and Yugoslavia supplemented their year-old alliance by providing for a Balkan Consultative Assembly (March 2). But Greece and Turkey took sharply differing positions on the Cyprus question. Presenting his country's case, Premier Menderes declared that "maintenance of the status quo is the minimum acceptable to Turkey. If a change occurs in the status of the island it should revert to Turkey." As a result, discussions in London (August 29—September 7) among Britain, Greece, and Turkey ended in deadlock. (See also *CYPRUS*.)

Domestic Events.—The Cyprus issue also provided the immediate cause for the most severe internal crisis which Turkey experienced in 1955. Reports from Salonika, Greece, of a dynamite explosion near the home where Kemal Atatürk, founder of the Turkish Republic, was born led to anti-Greek mass demonstrations which turned into frenzied rioting in Istanbul and Izmir on September 6. In Istanbul the mobs smashed and looted stores and homes of Greek-speaking citizens, other non-Moslems, and in some cases wealthy Turks, and set fire to some 20 Greek churches. In Izmir the Greek consulate and homes of Greek officers with NATO's southeastern command were attacked. In Istanbul alone at least 400 victims of the rioting were hospitalized; preliminary damage claims filed with the authorities by early November amounted to \$25 million. The government proclaimed a state of siege in Istanbul, Izmir, and Ankara, and expressed its profound regrets over the incidents. Some 3,000 suspects were held for questioning by the police. On September 8 the North Atlantic Council was called into emergency session to consider the situation.

One of the central issues in the internal political debate in 1955 was the amount of freedom of expression which independent journalists, the opponents of Premier Menderes, and even his party followers were to enjoy. On March 18, H. C. Yalçın, 80-year-old editorial writer for the People's Party's *Halkçı*, was released after 3½ months in prison for "insulting" the premier. Kasım Gülek, leader of the opposition, was repeatedly arrested for his vigorous criticism of the govern-



WIDE WORLD

Turkish army tanks roll through the streets of Istanbul, Sept. 8, 1955, following rioting which destroyed a large portion of the Greek section of the city. Disorders resulted from disagreement over the Cyprus question.

ment. In August the People's and National Parties announced that they would boycott the provincial and municipal elections on September 26 and November 15. Erol Güney, a naturalized Turkish citizen and reporter for *France Presse*, was arrested on March 19 on unspecified charges and subsequently denaturalized and deported. In October a group of 19 deputies were expelled or forced to resign from the Democratic (government) Party for sponsoring a bill that would have liberalized the stringent press laws on some points. In December the dissident group, which had grown to 30 deputies, formed the Freedom Party.

Even those who stayed in the Democratic fold showed signs of restiveness, and events indicated that the political center of gravity was shifting from the premier to the assembly majority. In a heated caucus debate on November 29 the Democratic deputies reviewed Turkey's economic status and policies, and forced the resignation of the Menderes cabinet, which was held responsible for the growing crisis. Premier Menderes, who in a dramatic plea had won a personal vote of confidence, was reappointed by President Bayar to form another cabinet, his fourth in five years. On December 18 the new cabinet of 18 ministers, including 9 holdovers, won the assembly's confidence by a vote of 398 to 58 after promising a modification of the forced pace of economic development and a return to more democratic procedures toward the opposition. On December 22 the Democratic majority decided on a full-scale parliamentary inquiry into alleged irregularities in the issuing of foreign exchange permits, with a view to possible impeachment proceedings against three members of the outgoing cabinet.

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UGANDA. See **BRITISH EAST AFRICA.**
UKRAINE. See **UNION OF SOVIET SOCIALIST REPUBLICS.**
UN-AMERICAN ACTIVITIES. See **Index** entry *House Committee on Un-American Activities.*

UNEMPLOYMENT. See **BUREAU OF EMPLOYMENT SECURITY; CENSUS DATA, U.S.; LABOR;** and the **Index** entry, *Unemployment.*

UNEMPLOYMENT INSURANCE SERVICE. See **BUREAU OF EMPLOYMENT SECURITY.**

UNESCO. See **UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION.**

UNION OF SOUTH AFRICA. See **SOUTH AFRICA, UNION OF.**

UNION OF SOVIET SOCIALIST REPUBLICS. The USSR has the largest contiguous territory of any nation, and ranks third in the world in population, following only China and India. The areas and populations of the Soviet republics constituting the USSR in 1955 are shown in the accompanying table.

AREAS AND POPULATIONS OF THE SOVIET REPUBLICS

Republic	Area (sq. miles) ¹	Population (estimated) ²
Russian SFSR.....	6,500,000	121,200,000
Ukrainian SSR.....	223,000	42,900,000
Belorussian SSR.....	80,000	9,300,000
Kazakh SSR.....	1,042,470	7,200,000
Uzbek SSR.....	150,000	6,300,000
Georgian SSR.....	29,000	3,600,000
Azerbaijani SSR.....	33,000	3,300,000
Lithuanian SSR.....	25,000	3,000,000
Moldavian SSR.....	13,000	2,700,000
Latvian SSR.....	25,000	2,100,000
Kirgiz SSR.....	76,000	1,800,000
Tadzhik SSR.....	55,000	1,800,000
Armenian SSR.....	11,500	1,500,000
Turkmen SSR.....	187,000	1,500,000
Estonian SSR.....	17,370	1,200,000
Karelo-Finnish SSR.....	69,000	600,000
Total.....	8,536,340	210,000,000

¹ Area figures taken from *The Sixteen Republics of the Soviet Union*, by N. Mikhailov, USSR Embassy, Washington, D.C., 1951. ² Population statistics based on 1954 USSR election districts, dividing the nation into regions of 300,000 people each.

The largest Soviet cities are Moscow, the capital (est. 1954 pop., 5,400,000), and Leningrad (est. 1954 pop., 3,300,000). In other regions, the biggest cities are: Kiev, in the Ukraine; Gorki, in the Volga Valley; Baku, in the Caucasus; Sverdlovsk, in the Urals; Novosibirsk, in Siberia; and Tashkent, in Central Asia.

Despite the growth of population in Soviet Asia, 72% of the Soviet people still live in the European USSR west of the Urals. Siberia contains 14% of the population; Central Asia, 9%; and the Caucasus, 5%. The Soviet populace was still predominantly rural in 1955, with only 83 million persons (40% of the total) residing in cities. Great Russians constitute 50% of the population, and Ukrainians, 20%; the remainder is divided among 58 ethnic groups. About 20% of the population is of Mongoloid stock.

Religion.—The Soviet government is officially atheistic, and disseminates atheistic propaganda through its press, schools, museums, theaters, and Communist-led public organizations. In 1955, however, the USSR press complained that religion was still strong, with the largest following among the Russian Orthodox, Sunnite Moslem, Roman Catholic, Lutheran, Baptist, Judaic, and Buddhist groups.

Education and Culture.—In 1955 the USSR had

approximately 57 million students, with 2 million studying in the nation's 800 colleges and universities, 1,790,000 enrolled in the 4,000 vocational high schools, and about 20 million receiving training through night schools, adult education courses, or correspondence schools.

During 1955 the grade and high school curricula were altered, decreasing the classroom time devoted to the humanities to 47% of the total and increasing the time allotted to mathematics and science to 37%. Grades 1 to 4 now include as regular courses manual labor; grades 5 to 7, machine shop; and grades 8 to 10, practice work in farming, machine building, and electronics.

The Soviet press complained in 1955 about the mass student failure in mathematics and the Russian language in many grade schools. Disciplinary troubles were also reported in both grade and high schools, and the government recommended that unruly students be expelled and forced to take useful jobs.

The Soviet Union in 1955 had 60,000 motion picture theaters, and its 390,000 libraries contained 1.2 billion books. During the year the USSR published approximately 1 billion books, the largest categories of which were schoolbooks, technical manuals, and propaganda pamphlets. There were 7,200 newspapers with a total circulation of 47 million copies, and 1,700 magazines with a combined circulation of 13 million.

Government and Political Developments, 1955.—

The USSR is a dictatorship ruled by the powerful policymaking Presidium (formerly Politburo) of the Central Committee of the Communist Party of the Soviet Union. The formal framework of government, however, as of the close of 1955 was as follows:

(1) The Council of Ministers, consisting of a premier (Nikolai A. Bulganin), five first vice premiers (Vyacheslav M. Molotov, foreign minister; Lazar M. Kaganovich, chairman for the State Committee of Labor and Pay; Anastas I. Mikoyan; Mikhail G. Pervukhin; and Maksim Z. Saburov, chairman of the State Economic Commission), 8 vice premiers, and some 60 ministers or heads of organizations of ministerial rank. The Council of Ministers is the chief executive and legislative organ of the USSR, and is appointed by the Supreme Soviet or the latter's Presidium. The premier and five first vice premiers also constitute an inner cabinet, which on occasion meets separately.

(2) The Presidium of the Supreme Soviet, consisting of President Kliment E. Voroshilov (who is considered the president of the USSR), 16 vice presidents (the presidents of the 16 Soviet republics), a secretary, and 15 members. It has legislative, appointive, judicial, and treaty-making powers.

(3) The Supreme Soviet of the USSR, consisting of two equal houses elected for four years: the Soviet of the Union, with 708 deputies (one deputy per 300,000 inhabitants); and the Soviet of Nationalities, with 25 deputies from each Soviet republic, 11 from each autonomous republic, 5 from each autonomous region, and 1 from each national area. The Supreme Soviet meets only one to two weeks each year and, in the interim, delegates its supreme legislative power to the Council of Ministers and the Presidium.

All of the officials named above are also members of the all-powerful Presidium of the Central Committee of the USSR Communist Party. The other members of this party presidium are: Nikita S. Khrushchev, first secretary of the Central Committee of the USSR Communist Party; M. A. Suslov, a USSR party secretary; A. I. Kirichenko, first secretary of the Ukrainian Communist Party, and Georgi M. Malenkov, USSR minister of electric power stations.

The most spectacular event on the USSR internal political scene during 1955 was the resignation of Premier Georgi M. Malenkov on February 8. His letter of resignation, which he did not read, apologized for his inexperience in local political work, his lack of experience as an economic minister, and his responsibility for the unsatisfactory state of USSR agriculture. Upon the nomination by Secretary Khrushchev, Defense

Minister Bulganin was then appointed USSR premier on the same day.

In actuality, Malenkov's apology appeared very unreal. He had had much experience in local political work as a past leader of Moscow's college Communists; and during World War II, though not formally a cabinet minister, he supervised the entire Soviet aircraft industry. Khrushchev, rather than Malenkov, appears to have been mainly responsible for farm difficulties in the post-Stalin era.

Another unusual circumstance connected with Malenkov's resignation was Khrushchev's statement that the "Council of Elders" preferred Bulganin as premier. No such council had ever been mentioned before—nor was it mentioned again in 1955—by the Soviet press. Whether this body is a Communist Party or Soviet governmental organization still remains unexplained.

As expected, Malenkov's resignation was followed by considerable changes in the USSR governmental and Communist Party hierarchy. Malenkov himself was demoted to a vice premier and minister of electric power stations. On February 9, Bulganin was replaced as defense minister by Marshal Georgi K. Zhukov, the greatest Soviet field commander during World War II. In March, three new first vice premiers and four new vice premiers were appointed to the Council of Ministers. No less than 27 cabinet ministries received new chiefs. Six members of the USSR Supreme Court were dismissed and replaced by 7 new appointees. On March 11, ten officers of the USSR Army and Air Force were promoted to the rank of marshal or chief marshal. Regional Communist Party chiefs were purged in the Volga Valley and northern European USSR. Six former police officials in Georgia were executed, and two others were sentenced to life imprisonment for allegedly conspiring to seize supreme Soviet power with the late Kremlin collective leader, Lavrenti Beria, who himself had been executed in 1953. Two newcomers, Kirichenko and Suslov, were added to the party Presidium, and three others were appointed as USSR Communist Party secretaries. On Oct. 8, 1955, Foreign Minister Molotov was forced to publish an apology for a minor ideological error in relating the progress of "socialism" in the USSR.

By these personnel changes at a high level, Khrushchev and Bulganin apparently sought to consolidate their power. At the close of 1955 they appeared to be the new chiefs of the post-Stalin collective leadership in the USSR, replacing the earlier triumvirate of Beria, Molotov, and Malenkov. In economics the new leadership stressed the fast expansion of heavy, war-potential industry, rather than consumer goods as stressed by Malenkov. By contrast, in politics Khrushchev and Bulganin reduced the forced-labor sentences for a number of minor crimes; and in foreign affairs—at least through much of the year—they pursued a shrewd policy of Communist infiltration by friendship, rather than by the former crude methods of aggression. (See below, *Foreign Affairs*, 1955.)

Finance.—The 1955 plan for budget revenues and expenditures is shown in the accompanying table. The official exchange rate is 4 rubles per U.S.\$1.

The proportions of the various items in the 1955 budget were approximately the same as during Malenkov's premiership and before Stalin's death. The order of importance of all budget expenditures in 1955, according to the most detailed breakdown possible from published data,



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Restoration of St. Basil's Cathedral, Red Square, Moscow.

USSR REVENUES AND EXPENDITURES, 1954-55

Item	1954		1955	
	Billions of rubles	% of total	Billions of rubles	% of total
Revenues:				
Sales tax.....			233.7	40
Profits tax.....			117.5	20
Direct taxes.....			48.4	8
State loan.....			30.5	5
Other state revenue.....			146.1	25
Secret.....			14.0	2
Total.....	557.5		590.2	100
Expenditures:				
Economic.....	213.4	39	222.4	40
Social-cultural.....	141.9	26	147.0	26
Defense.....	100.3	18	112.1	20
Secret.....	73.1	12	57.2	10
Administration.....	13.9	3	12.6	2
Loan repayment.....	10.2	2	12.2	2
Total.....	552.8	100	563.5	100

was as follows (in billions of rubles): defense, 112.1; heavy industry (including war industry), 101.2; education and propaganda (including military training in civilian schools), 68.5; secret (probably military or military-economic), 57.2; agriculture, 55.1; public health and militarized sport, 30.5; social security (including military pensions), 25; transport and communications, 23; social insurance, 20.8; administration, 12.6; state loan repayment, 12.2; and light industry and trade, 11.5. As these figures indicate, the emphasis of the Soviet regime remained in 1955 on militarism and heavy, war-potential industry.

There is no true local taxation in the USSR, all tax funds going into the above-described combined budget, which includes 80,000 regional and local budgets. In 1955, the USSR central government itself spent 77% of the budget appropriations and turned over 23% to the regional and local authorities.

Like other recent Soviet budgets, that for 1955 showed a slight excess of revenue over expenditures, thus attempting to reduce inflation by withdrawing currency from circulation. The "profits tax" is levied on both state enterprise and cooperatives, with light industry paying the largest share. The 1955 "secret" budgetary revenue probably includes earnings from unfair trade with Soviet satellites, as well as income from state-owned machine-tractor stations within the USSR.

Personal savings accounts in the USSR during 1955 totaled 48 billion rubles. During May the annual state 20-year loan was issued, with a total subscription of 34,276,973,000 rubles. Bonds, purchasable only by the population, are actually lottery tickets. One fourth of the bonds will win prizes equal to 2% interest on the total bonds. The remaining bonds will eventually be redeemed at face value.

Armed Forces.—The Soviet Army in 1955 had a strength of approximately 3 million men, organized in 175 divisions, of which 65 were motorized or mechanized. In preparation for wartime mobilization, Soviet stockpiles of arms held a sufficient quantity of tanks, mortars, antitank guns, field artillery, and antiaircraft guns to equip 300 divisions. During the year the USSR claimed it was reducing its land army by 640,000 men.

The Soviet Navy in 1955 was estimated to comprise 800,000 men, manning 3 old battleships, 24 light cruisers, 125 destroyers, and 400 submarines. Thus the Soviet Union had the world's second largest navy (the United States being first), and its largest underwater fleet. Some of the submarines and cruisers are equipped to launch guided missiles. The naval air force consisted of 3,500 planes, all land-based since there were no known Soviet aircraft carriers. (See also NAVAL AFFAIRS.)

The Soviet Air Force in 1955 had 20,000 first-line planes and 20,000 others in reserve. Three fourths of its fighter planes are jet-propelled. There are also 2,500 twin-jet medium bombers. Though its strategic bombing force is still small, the USSR has at least several hundred big bombers capable of carrying an atom bomb from 6,000 to 10,000 miles. (See also AERONAUTICS.)

The size of the Soviet stockpile of nuclear weapons is unknown. However, a speech in May by Defense Minister Zhukov indicated that the USSR possessed at least 200 hydrogen bombs and 2,000 atom bombs. The Soviet Army is known to be experimenting with small atomic weapons, and has already tested an atomic cannon with a range of 30 miles. On November 26 the Soviet press confirmed the United States Atomic Energy Commission's report that the USSR had recently set off its largest atomic explosion to date. Party Secretary Khrushchev confirmed American suspicions that it was a hydrogen bomb, and that it had a power of several million tons of TNT. Japanese atomic scientists believed that this bomb was exploded in the Gobi Desert of Outer Mongolia. Also during 1955, Soviet research in guided missiles continued. A Soviet rocket has already been fired to a height of 240 miles.

In January 1955 a new "Ready for Labor and Defense" test was introduced for organized sportsmen in the USSR. This is a type of Soviet decathlon, combining track, field, swimming, and military skills. All Soviet athletes are pressured to attempt to pass the test. In addition, during the winter, all members of the Komsomol (Young Communist League) were urged to make rifle shooting one of their four main winter sports.

Manpower.—Excluding collective farmers, the total number of manual workers, white-collar workers, and professional people in the Soviet Union during 1955 was approximately 50 million, including perhaps 6 to 7 million in prison labor camps. At least half of the total labor force were women, including 1 million female teachers, and 2 million women doctors, nurses, and medical assistants. In addition, tens of millions of women worked on the collective farms. During the year the Soviet press urged more women to work in industry, transport, agriculture, and construction.

There were 16 million organized sportsmen in the USSR in 1955, the largest number in So-

viet history. This total included athletes in sport clubs at factories, offices, collective and state farms, machine-tractor stations, high schools, and colleges.

The Komsomol also achieved in 1955 its largest membership in Soviet history—18,825,327. During the year the organization was under considerable pressure to contribute youths to work in new governmental economic undertakings. Party Secretary Khrushchev urged that 100,000 Komsomol members move to North-Central Asia to till virgin soil, and that another 100,000 work in the chain of large cement mills the USSR is now constructing.

Standard of Living.—Since the new collective leadership of Bulganin and Khrushchev re-emphasized the old Soviet policy of favoring heavy industry at the expense of all other branches of the economy and abandoned Malenkov's modest program for a slight increase in the output of consumer goods, the Soviet standard of living remained very low in 1955. For the first year in more than half a decade, no price cuts in consumer goods occurred. Food supplies, though adequate, still provided a badly balanced diet. Clothing remained high-priced, of poor quality, and in short supply. Only Moscow, Leningrad, and a few other cities had gas for cooking in private homes. The most acute problem was the urban housing shortage, which has resulted in an average of 4 persons living in each dwelling house room. (See also STANDARDS OF LIVING.)

In an attempt to ease the housing shortage, the USSR government and the Communist Party issued a joint decree on November 9, which banned costly over-ornamentation in Soviet architecture, ordered mass construction of buildings from standard blueprints, abolished the USSR Academy of Architecture, and urged building designs to be more practical and useful. As a result of this decree, the chief architects of Moscow, Leningrad, and a number of other leading Soviet cities were dismissed and relegated to less important jobs.

Also in November the government legalized abortions for the first time since 1936. The reason for this change in official attitude was explained by the necessity of putting an end to the large number of harmful, illegal abortions that had been taking place.

Agriculture.—In 1955 the USSR had 90,700 collective farms, more than 5,000 state farms, and about 9,000 state-owned machine-tractor stations renting heavy farm machinery to the collectives. Field work in certain crops was fairly well mechanized, with agriculture utilizing 1,400,000 tractors, 350,000 harvesting combines, and 450,000 motor trucks. Only one fifth of USSR collective farms, however, had electricity.

During the year a series of agricultural innovations were undertaken in an effort to bring farm production up to plan. Henceforth the amount of livestock products which a collective farm must sell to the state will be calculated on the basis of the collective's harvests of field crops, rather than, as in the past, on the amount of land belonging to the collective.

In April 1955 the USSR Communist Party ordered 30,000 urban Communists to move into the countryside and become directors of collective farms. In addition, the amount of field crops that a collective must sell to the state will no longer be calculated on the basis of the collective's total arable land. Instead, the state stipulates how much produce each collective must sell, with the

collective then planning how much to sow in order to meet these forced sales. In turn, the local government organizations collecting food from the farms are encouraged to buy more than planned, with 70% of the above-plan procurement remaining in the region for local urban needs.

The most dramatic agricultural undertakings in 1955, however, were the sowing of 50 million acres of grain on the dry pasturelands north of the Central Asian Desert, and the planting of 40 million acres of corn throughout the USSR. Both were risky innovations aimed at greatly increasing the total grain crop. Grain will grow on semi-desert pastureland, but the Central Asian area is always endangered by periodic drought. Though corn has a higher yield per acre than other grains, most of the USSR is too dry and too cold for maize to ripen fully.

In explaining these dubious farm ventures, Communist Party Secretary Khrushchev stated that much more grain is needed immediately to fill the increasing USSR demand, supply the growing Soviet population and growing cities, lay up emergency grain reserves, increase grain exports, and feed livestock.

For the third year in a row the weather in 1955 was unkind to Soviet agriculture. The spring was late, delaying spring sowing. With a short growing season even under the best of circumstances, USSR harvesting in 1955 was, consequently, retarded, and part of the harvest perished under the autumn snow. Corn reaping was very slow throughout Belorussia and Central European Russia, and potato harvesting was slower in 1955 than in 1954 in all major potato-raising areas. Hay mowing was also much behind schedule.

However, the worst setback was the summer and autumn drought in the vast landbelt stretching from the lower Volga Valley across West Siberia and North Central Asia to the Altai region. This is the main belt in which the USSR tried to convert pastureland to grain. Even the Soviet press admitted that the 1955 harvest on these "new lands" was "insignificant."

No harvest totals have been published by the USSR for 1955, though it was claimed that overall grain production was larger than in 1954.

Industry and Mining.—Throughout 1955 Communist Party Secretary Khrushchev and other Soviet spokesmen affirmed that the USSR must give economic priority to heavy, war-potential industry, allegedly to protect the Soviet Union from the West. Any proposal that light industry be larger than or equal to heavy industry was declared "un-Marxist." Under this philosophy the USSR attempted to increase the speed of its heavy industry expansion in 1955 to a pace faster than ever before in Soviet history. The annual production goals for key heavy industries were as follows (in millions of metric tons): oil, 70; coal, 390; pig iron, 33; and crude steel, 45. The 1955 plan for electric power output was 166 billion kw.-hr. No production goals were published for consumer goods.

According to *Pravda*, over 70% of all Soviet industrial production in 1955 was capital goods, and about 50% was products of the engineering industries (including defense plants). Western experts estimated that Soviet shipyards can build a submarine per week and two cruisers each year. The Soviet press stated that the main centers of atomic research in the USSR are Moscow, Leningrad, Kiev, and Kharkov.

During the year three huge hydroelectric sta-



SOVFOTO

U.S. Supreme Court Justice Douglas (standing under portrait of Lenin) and U.S. farm delegates, visiting the USSR in the summer of 1955, dine at a collective farm.

tions neared completion. In October the first section of the Kakhovka power station on the Dnieper River commenced operations, and in November the first section of the Gorki station on the Volga River was also opened. Also in November, construction of the dam for the Kuibyshev station on the Volga was completed.

In 1955, the USSR economy continued to be based primarily on the use of coal for fuel. Coal filled 85% of the USSR's requirements for mineral fuel, with oil and gas accounting for the remaining 15%. The chief coal basins, in order of importance, were the Donbas, in the Ukraine; the Kuzbas, in mid-Siberia; and the Mosbas, south of the Soviet capital. Some 60% of the USSR's petroleum was produced outside the Caucasus in the Volga, Ural, Central Asian, and Far Eastern fields.

Data released in 1955 indicated that Soviet consumer goods production is still highly concentrated in the Central Industrial District lying between Moscow and the Volga Valley. This district produces 70% of USSR wool cloth, and 80% of Soviet woven cottons.

Other data showed the great extent to which handicraft cooperatives and local industry (factories under local and regional governmental control) participate in the output of consumer goods. Together, the two produce all Soviet musical instruments, pens, pencils, and chinaware; 80% of the crockery; half of the furniture, pots, pans, and felt boots; 40% of the knitgoods; and 30% of the sewn goods.

In world comparisons, the USSR was second only to the United States in industrial production during 1955. Soviet output of oil, coal, iron, electricity, and steel was second, following the United States, but in certain types of armament, the USSR was first.

Foreign Trade.—During 1955, Soviet foreign trade (imports plus exports) amounted to no more than \$4 or \$5 billion in value. About 80% of USSR trade is with the Soviet satellites of eastern Europe and the Far East, who, in turn, trade mostly with the USSR and other Soviet bloc nations.

Though exporting and importing a wide range of items in 1955, the USSR continued its past practice of exporting mainly raw materials and importing machinery, transport equipment, and certain strategic raw materials in which the Soviet Union has shortages. Thus the major exports were grain, lumber, furs, manganese, chrome, petroleum, cement, and steel. Of the small amount of machinery that was sent abroad, most of it went to the Soviet satellites and consisted mainly of farm machines. The chief Soviet imports were;

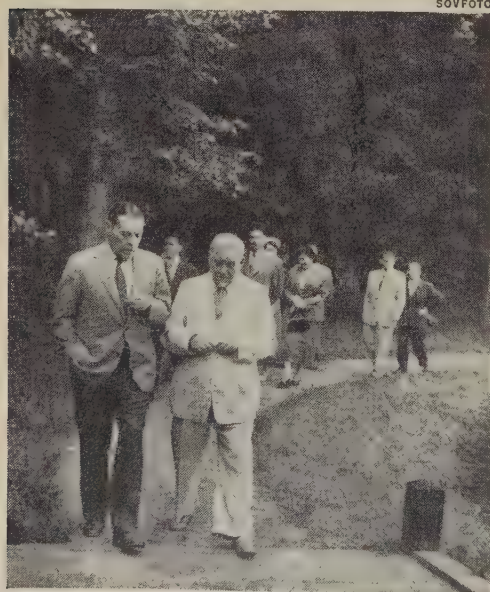
(of manufactured goods) ships of all types, railway rolling stock, electric power machinery, machine tools, and cranes; (of strategic minerals) aluminum, copper, molybdenum, tin, tungsten, and zinc; and (of agricultural raw materials) hides, rubber, and wool. Uranium was imported from Czechoslovakia, Poland, the German Democratic Republic (East Germany), Rumania, and Communist China.

Of special importance was the Soviet-Austrian reparations agreement of April 15. Austria agreed to pay \$150 million in goods for 6 years and 1 million tons of oil per year for 10 years. This was in payment for Austria's Danubian shipping, oilfields, and oil refineries, which the USSR had seized at the end of World War II and was now returning to Austria.

Besides rendering technical assistance to all of the Soviet satellites, the USSR in 1955 gave technical aid to the following nations outside the Soviet bloc: Yugoslavia, Afghanistan, Burma, and India. Offers of such assistance were also made to various Asian, African, and Latin American countries. It remained to be seen whether the USSR is actually willing to export to underdeveloped countries the quantities of machinery the latter seek. Soviet trade spokesmen have threatened the USSR entry into the free world machinery market for several years. Perhaps 1955 marked the beginning of such an entry. Any real change of Soviet trade policy in this new direction would undoubtedly have grave future consequences, both political and economic, for the free world.

Communications.—Railways, the main arteries of Soviet transport, in 1955 hauled 85% of all USSR internal freight, with the remaining 15% divided between river shipping, seagoing coastal traffic, motor transport, and airways. During July electrification of the western Siberian section of the Trans-Siberian railway between Novosibirsk and Omsk was completed. In November the first 6 miles of the new Leningrad subway were opened to traffic. Direct train service was established during the year between Moscow and Ber-

Soviet Premier Bulganin (r.) chats with U.S. Ambassador Bohlen at picnic for foreign diplomats in August 1955.



SOVPHOTO



WIDE WORLD

Soviet Communist Party Secretary Khrushchev reads his speech of reconciliation on arrival in Belgrade, Yugoslavia, May 26, 1955, for talks with Marshal Tito.

lin, via Poland, and between Moscow and the North Korean capital of Pyongyang. The Soviet press boasted that 500 USSR cities had bus service in 1955, and Western experts estimated the Soviet merchant marine to be the 10th largest in the world.

Many direct air routes were also instituted during 1955 between Moscow and various capitals of the Soviet satellite countries. In each case, these routes are flown by planes from both countries. They link Moscow with the following cities: Budapest, Warsaw, Prague, Bucharest, Tirana, and Sofia. Similar airways were established from Moscow to Belgrade, Yugoslavia, and to Helsinki, Finland. Within the USSR, jet planes are now employed to carry airmail from Moscow to the largest city in Siberia, Novosibirsk.

The USSR in 1955 had millions of privately owned radio receiving sets and 30,000 public radio receivers, which retransmitted into 16 million loudspeaker outlets. There were 8 television stations, telecasting into 475,000 television reception sets. Manufacture of 500,000 new television receivers was planned during the year. In June a direct radiotelephone line was opened between the USSR and India.

Foreign Affairs, 1955.—The resignation of Premier Malenkov early in 1955 resulted in a number of personnel changes in the Soviet foreign ministry and foreign service. V. V. Kuznetsov was appointed 1st deputy minister of foreign affairs, V. S. Semenov and N. T. Fedorenko as deputy foreign ministers, and Arkadi A. Sobolev as permanent representative of the USSR to the U.N. Security Council.

USSR foreign policy during 1955 was noteworthy for a number of minor concessions to the free world. Communist Party Secretary Khrushchev claimed that not a single Western request for a visa to visit the Soviet Union had been refused. Although this claim may have been exaggerated, hundreds of Western tourists were permitted to visit the USSR during the year, including several United States congressmen and other persons well known to be anti-Soviet.

In addition, during 1955 the USSR yielded on a number of disputes with minor powers, granting favors probably small from the Soviet viewpoint, but seemingly large to the recipient. Soviet diplomacy wooed the already neutralist Arab-Asian bloc of nations, apparently seeking to detach it permanently from the West. To the West itself, the new Kremlin collective leaders

offered appeasement, pleasantries, and cooperation in unimportant matters.

Basically, however, USSR foreign policy remained unchanged. As before, the main effort was to divide, disarm, and peaceably infiltrate the free world. What appeared on the surface to be a new Soviet policy actually was a mere continuation in more subtle form of the "cold peace" begun by Stalin and extended by his first successor, Malenkov. Khrushchev declared many times during 1955 that the new Soviet smiles did not mean abandonment of Communist world revolution.

Europe.—On January 25 the Soviet Union ended its state of war with Germany. After several warnings, the USSR announced on April 9 the annulment of the Anglo-Soviet alliance of 1942 and the Franco-Soviet alliance of 1944 because both France and England had agreed to the rearmament of West Germany (the German Federal Republic) and to West Germany's adherence to the North Atlantic Treaty Organization. (See GERMANY.) On May 14 a 20-year military alliance was formed between the USSR, Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Rumania, allegedly to counteract West German rearmament. This Communist answer to NATO includes a joint military command, headed by USSR Marshal Ivan S. Konev, with headquarters in Moscow, and a joint "political consultative committee."

The USSR finally granted Austria (q.v.) a peace treaty (May 15), the terms of which were proposed by the Soviet Union. According to these terms, to which England, France, and the United States adhered, Austria is forbidden to join Germany, may not join NATO, may not grant military bases on its soil to the Western allies, can arm only to a limited extent, and is prohibited from joining military alliances. In exchange, the USSR withdrew its troops from Austria, as did the other occupying powers, and returned Russian-held Austrian prisoners of war at Austrian expense.

On June 3, at the end of a visit by Bulganin and Khrushchev to Belgrade, the USSR announced its friendship for Yugoslavia; declared that it would respect Yugoslav sovereignty; and offered economic, cultural, and scientific cooperation to Yugoslavia, which country in 1948 had withdrawn from the Soviet orbit. (See YUGOSLAVIA.)

From September 9 to 13, West German Chancellor Konrad Adenauer visited Moscow, and the Soviet government agreed to establish diplomatic relations with the German Federal Republic and to return the 9,626 German prisoners still incarcerated in the Soviet Union.* On September 20 the Soviet Union gave theoretical full sovereignty to the German Democratic Republic, with the proviso that Soviet troops remain in East Germany. (See GERMANY.)

In October the USSR and Finland (q.v.) extended their existing military alliance to 1975, and the Soviet naval base at Porkkala on Finnish soil was returned to Finland. In November, the USSR obtained from Norway a pledge that the latter would not allow foreign military bases to be established on Norwegian soil unless that country was threatened by attack.

* By mid-October, when about 5,900 prisoners had been returned, the USSR stopped the repatriation program; on December 1, *Izvestia* revealed that the program had been halted because of what it described as Germany's forcible detainment of more than 100,000 Soviet nationals (refugees and displaced persons). The program was resumed, however, on December 11.

THE OLD DAYS—



THE NEW ERA—



JUSTUS IN THE MINNEAPOLIS STAR

"CHANGE IN THE COLD WAR"

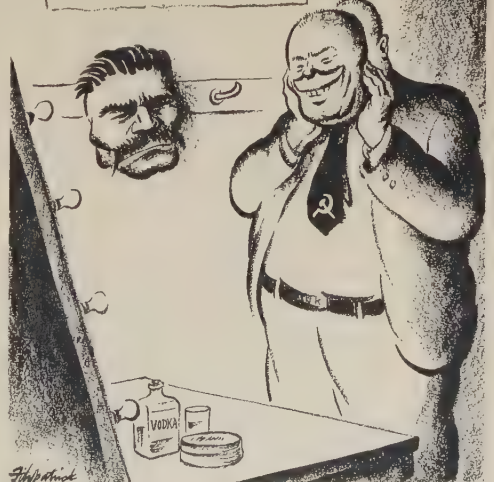
Asia and Africa.—On January 3, despite Soviet protests, Iraq announced that it was severing diplomatic relations with the USSR. On January 25 the Soviet Union offered to establish diplomatic relations with Japan. Lengthy Soviet-Japanese negotiations, which began on June 1 and continued throughout the year, failed, however, to achieve results, since Japan refused to buy Soviet recognition at the price of breaking its alliance with the United States.

Repeatedly during 1955 the USSR urged that Communist China be admitted to the United Nations, and that either the United Nations or a predominantly Asian conference decide the disposal of Formosa. On May 25, Soviet troops evacuated Port Arthur and turned over this naval base

"SUMMER STOCK THIS SEASON"

FITZPATRICK IN THE ST. LOUIS POST-DISPATCH

MOSCOW THEATER
NOW PLAYING
SWEETNESS AND LIGHT



to Communist China. Later the USSR sold its share in the joint Soviet-Korean companies for marine transport, oil refining, and commercial aviation to North Korea, to be paid by delivery of Korean goods to the USSR over a period of years.

On June 23 the Soviet Union made a joint declaration with India, which urged that Communist China be admitted into the United Nations. On October 12 and November 26 the USSR protested violently against the adherence of Iran to the Baghdad Pact, a defensive military alliance between Turkey, Iraq, Pakistan, and Great Britain. In 1955 the Soviet Union also established diplomatic relations with Libya and renewed an old treaty of friendship with Yemen.

In the autumn, in reply to Israel's protest against the sale of Czech arms to Egypt (q.v.), the USSR stated that Near Eastern countries had the right to purchase munitions from Communist countries. On October 23 the Soviet government announced that it was not selling arms to Israel in order to offset the Egyptian armament purchases from Czechoslovakia.

In late autumn and early winter, Khrushchev and Bulganin made an extensive tour through India, Afghanistan, and Burma. In each country, their speeches advocated colonial revolution, attacked the West, and urged Asian neutralism in the East-West cold war. In India (where they visited from November 18 to December 14, except for a trip to Burma, December 1-7) they were reported to have agreed to increase trade and otherwise strengthen economic relations between the two countries; and in Afghanistan (December 15-21) they agreed to grant that country a \$100 million loan to finance a technical aid program to be organized by the USSR.

United States.—Soviet-American relations were less tense in 1955 than in previous postwar years, despite the failure to resolve basic differences at the Geneva conferences (see GENEVA CONFERENCE) of July and November. The two countries exchanged agricultural and other delegations, and during June and July the USSR returned to the United States, 62 lend-lease naval craft and paid half the damages for an American naval plane shot down over the Bering Sea by Soviet fighter planes on June 22. In September the Soviet Red Cross gave \$25,000 to the United States to aid flood victims in the Northeastern states.

The USSR claimed, however, that it had captured 2 American spies in January, and on March 5 an American Catholic priest was expelled from Moscow. The Soviet continued its strong anti-American propaganda during the year, and Khrushchev openly expressed the hope that United States workers would overthrow the American capitalistic system. (See also COMMUNISM; UNITED NATIONS; and references under the Index entry, *Union of Soviet Socialist Republics*.)

ELLSWORTH RAYMOND,
USSR Area Specialist, New York University.

UNIONS, Labor. See AMERICAN FEDERATION OF LABOR; CONGRESS OF INDUSTRIAL ORGANIZATIONS; INTERNATIONAL CONFEDERATION OF FREE TRADE UNIONS; INTERNATIONAL LABOR ORGANIZATION; LABOR; and the Index entry, *Unions, Labor*.

UNITED CHURCH OF CANADA. The largest Protestant communion in Canada, the United Church of Canada celebrated in 1955 the 30th anniversary of the union of the Congregational,

Methodist, and Presbyterian churches. The year saw marked progress in every phase of the United Church's life. A record 38,196 persons were received into the church on profession of faith, bringing the total membership to 894,556, with 2,200,543 persons under pastoral oversight, and with Sunday School enrollment at 636,664. Candidates for the ministry numbered 592, another record high.

Gifts to the Missionary and Maintenance Fund, which finances the various enterprises of the church, reached a record total of \$4,309,844. The Woman's Missionary Society raised an additional amount of \$1,214,055.

Church extension continued in 1955 to be the most urgent task of the church in Canada. The country's rising population, rapid suburban growth, and expanding frontiers require the building in the five years ending December 1956 of more than 300 churches and 150 manses. To supplement local support in their construction, \$2,425,000 has been raised, and another \$2,000,000 is now being sought. A new congregation of the United Church is being established every 10 days. The *Robert C. Scott* was commissioned in May as the eighth vessel in marine mission work on the Atlantic and Pacific coasts.

The church moderator is the Right Rev. George Dorey, and the secretary of the General Council, who took office on Jan. 1, 1955, is Dr. Ernest E. Long. The official church paper, *The Observer*, with 165,000 circulation, has a new editor, the Rev. A. C. Forrest. A Board of Information and Stewardship has been established with Dr. Herbert L. Pottle as secretary.

ERNEST E. LONG,
Secretary of the General Council, The United Church of Canada.

UNITED KINGDOM. See GREAT BRITAIN.

UNITED NATIONS. The following review of the major activities of the United Nations in its tenth year is organized under the following headings:

- (1) Organization of the United Nations
- (2) Tenth Anniversary Meetings
- (3) Political and Security Matters
- (4) Economic and Social Matters
- (5) Trusteeship and Non-Self-Governing Territories Matters
- (6) Legal Matters
- (7) Administrative and Budgetary Matters

(1) ORGANIZATION OF THE UNITED NATIONS

THE SECRETARIAT

Secretary General: Dag Hammarskjöld

THE GENERAL ASSEMBLY

President of Tenth Session: José Maza (Chile)
(Membership is as of the opening of the tenth session.)

Afghanistan	Ethiopia	Pakistan
Argentina	France	Panama
Australia	Greece	Paraguay
Belgium	Guatemala	Peru
Belorussian SSR	Haiti	Philippines
Bolivia	Honduras	Poland
Brazil	Iceland	Saudi Arabia
Burma	India	Sweden
Canada	Indonesia	Syria
Chile	Iran	Thailand
China	Iraq	Turkey
Colombia	Israel	Ukrainian SSR
Costa Rica	Lebanon	U. of South Africa
Cuba	Liberia	USSR
Czechoslovakia	Luxembourg	United Kingdom
Denmark	Mexico	United States
Dominican Republic	Netherlands	Uruguay
Ecuador	New Zealand	Venezuela
Egypt	Nicaragua	Yemen
El Salvador	Norway	Yugoslavia

NEW MEMBERS (ELECTED DEC. 14, 1955)

Albania	Hungary	Libya
Austria	Ireland	Nepal
Bulgaria	Italy	Portugal
Cambodia	Jordan	Rumania
Ceylon	Laos	Spain
Finland		

COMMITTEES

General: Composed of 15 members as follows: the General Assembly president; the 7 General Assembly vice presidents (chiefs of delegations or their deputies of China, Ethiopia, France, Luxembourg, the USSR, the United Kingdom, and the United States); and the chairmen of the following 7 committees, which are composed of representatives of all member countries:

First (Political and Security): Sir Leslie Munro (New Zealand).

Ad Hoc (Special) Political: Prince Wan Waithayakon (Thailand).

Second (Economic and Financial): Ernest G. Chauvet (Haiti).

Third (Social, Humanitarian and Cultural): Omar Louth (Egypt).

Fourth (Trusteeship): Luciano Joubland-Rivas (Mexico).

Fifth (Administrative and Budgetary): Hans Engen (Norway).

Sixth (Legal): Manfred Lachs (Poland).

THE SECURITY COUNCIL

(Membership ends on December 31 of the year noted; asterisks indicate permanent membership.)

Australia (1957)	France*	United Kingdom*
Belgium (1956)	Iran (1956)	United States*
China*	Peru (1956)	Yugoslavia (1956)
Cuba (1957)	USSR*	

Military Staff Committee: Chiefs of staff (or their representatives) of China, France, the USSR, the United Kingdom, and the United States.

Disarmament Commission: Members of the Security Council and Canada.

THE ECONOMIC AND SOCIAL COUNCIL

President: Sir Douglas Copland (Australia)

(Membership ends on December 31 of the year noted.)

Argentina (1957)	Ecuador (1956)	Norway (1956)
Brazil (1958)	Egypt (1957)	Pakistan (1956)
Canada (1958)	France (1957)	USSR (1956)
China (1957)	Greece (1958)	United Kingdom (1956)
Czechoslovakia (1956)	Indonesia (1958)	United States (1958)
Dominican Republic (1957)	Netherlands (1957)	Yugoslavia (1958)

THE TRUSTEESHIP COUNCIL

President: Miguel Rafael Urquía (El Salvador), 15th session; Mason Sears (United States), 16th session (Membership ends on December 31 of the year noted.)

Australia ¹	France ¹	Syria (1958)
Belgium ¹	Haiti (1956)	USSR ²
Burma (1958)	India (1956)	United Kingdom ¹
China ²	Italy ¹	United States ¹
Guatemala (1958)	New Zealand ¹	

¹ Administers trust territories. ² Permanent member of Security Council which does not administer trust territories.

INTERNATIONAL COURT OF JUSTICE

President: G. H. Hackworth (United States)

E. C. Armand Ugon (Uruguay)	Hsu Mo (China)
A. H. Badawi (Egypt)	L. M. Moreno Quintana (Argentina)
J. Basdevant (France)	J. E. Read (Canada)
R. Córdova (Mexico)	B. Winiarski (Poland)
J. G. Guerrero (El Salvador)	M. Zafrulla Khan (Pakistan)
H. Klaestad (Norway)	M. Zoričić (Yugoslavia)
F. I. Kozhevnikov (USSR)	
H. Lauterpacht (U.K.)	

SPECIALIZED AGENCIES

Food and Agriculture Organization of the United Nations; International Bank for Reconstruction and Development; International Civil Aviation Organization; International Labor Organization; International Monetary Fund; International Telecommunication Union; United Nations Educational, Scientific and Cultural Organization; Universal Postal Union; World Health Organization; World Meteorological Organization.

(2) TENTH ANNIVERSARY MEETINGS

A special series of meetings in commemoration of the signing of the U.N. Charter on June 26, 1945, was held in San Francisco, Calif., on June 20-26, 1955. The delegates reaffirmed their countries' dedication to the purposes and principles of the charter, their determination to settle international disputes by peaceful means, and their pledge to continue their efforts to formulate a disarmament plan that would provide a greater measure of security and remove the threat of atomic destruction from the world. At private meetings the foreign ministers of France, the United Kingdom, the USSR, and the United



UNITED NATIONS

President Eisenhower welcomes U.N. delegates, June 20, 1955, in San Francisco. Delegates met to observe the 10th anniversary of the signing of the U.N. Charter.

States laid the groundwork for the Geneva Conference (q.v.) of the heads of government.

(3) POLITICAL AND SECURITY MATTERS

Political and security questions were considered by the tenth session of the General Assembly, held on Sept. 20-Dec. 20, 1955, by the Disarmament Commission, and by the Security Council. In addition to the items discussed separately below, the council adopted (August 11) its report to the General Assembly, and was kept informed of the dispute between Costa Rica and Nicaragua by the Council of the Organization of American States, as well as of problems in Cyprus, Kashmir, and Morocco.

Africa.—On October 27, the Ad Hoc Political Committee took up the report of the Commission on the Racial Situation in the Union of South Africa. The South African delegate stated that he had been instructed not to participate in the discussion, since his government considered the matter to be entirely within its domestic jurisdiction. When the committee voted on November 9 to continue the work of the commission, the entire South African delegation was withdrawn. By a vote of December 6 (33-7, with 9 abstentions, or less than the required two-thirds majority), however, the assembly failed to accept the committee's suggestion to continue the commission.

On December 14, the assembly called on the Union of South Africa, Pakistan, and India "to pursue negotiations" on the treatment of persons of Indian origin in the Union.

Algeria and Morocco.—On September 30, when a resolution presented by the Arab-Asian-African group to discuss the Algerian question was approved, France walked out of the General Assembly, since she claimed that this action constituted interference in her internal affairs. On November 25, however, the assembly dropped the question from its agenda, thus paving the way for the return of the French delegation four days later.

In a resolution passed on December 3, consideration of the Moroccan question was postponed in the hope that negotiations between France and Morocco would lead to a satisfactory solution.

Arab-Israeli Questions.—At 12 of its 23 meetings in 1955 the Security Council was concerned with the various charges and countercharges of Israel (q.v.) and her neighbors. The case of the Israeli ship *Bat Galim*, seized by Egypt on Sept. 28, 1954, seemed to have been peacefully settled following the release of its crew on Jan. 1, 1955,

when fighting broke out on the Gaza frontiers on February 28. After Maj. Gen. E. L. M. Burns, chief of staff of the U.N. Truce Supervision Organization, had reported orally to the council, it adopted (March 29) a unanimous resolution condemning Israel's attack on the Gaza strip. A second unanimous resolution (March 30) requested both sides to reduce border friction. Subsequent meetings in April and September considered Israel's charges of Egyptian attacks.

On September 26, General Burns sent a communication to both Israel and Egypt stating that military forces "in flagrant violation of the General Armistice Agreement" had moved into the El 'Auja demilitarized zone. The troops were withdrawn on October 2, but heavy fighting broke out again on November 2. On the following day, Secretary General Dag Hammarskjöld sent truce proposals to both parties.

A Syrian complaint on an attack attributed to Israel in the area of the Sea of Galilee on December 11 was still under consideration by the council at the end of the year (see also SYRIA).

The Conciliation Commission for Palestine, in its 14th progress report, stated that "this year . . . it had [had] no opportunity of exercising its general function of conciliation with any prospect of success, in view of the unchanged attitudes of the parties." In its report to the General Assembly, the U.N. Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) described its activities in welfare, health, and education. It noted particularly that for the first time since 1948 all 200,000 refugees in the Gaza strip were living in shelters instead of tents.

Atomic Energy. Conference.—Following the suggestions made by President Dwight D. Eisenhower in his Atoms for Peace plan in 1953, the General Assembly decided on Dec. 4, 1954, to call a conference "to explore means of developing the peaceful uses of atomic energy through international cooperation." The International Conference on the Peaceful Uses of Atomic Energy, held accordingly in Geneva on Aug. 8–20, 1955, proved surprisingly successful. Much information hitherto secret was released by the great powers,

and many other countries disclosed advanced developments in the medical and industrial uses of atomic energy.

General Assembly Action.—On December 3, the assembly established a committee to study the effects of atomic radiation. In another resolution, passed unanimously on the same day, it welcomed the intention of governments to establish an International Atomic Energy Agency, and recommended the calling of a second international conference for the exchange of scientific and technical information. (See also ATOMIC ENERGY.)

Charter Review.—On November 21, the assembly decided in principle to call a conference to review the U.N. Charter "in the light of experience gained in its operation," and appointed a committee consisting of all the members of the United Nations to report to the twelfth session of the assembly in 1957, giving its recommendations on the time, place, organization, and procedure of such a conference.

Communist China.—Secretary General Hammarskjöld, on instructions from the General Assembly (Dec. 10, 1954) to seek "by the means appropriate in his judgment" the release of the United States fliers imprisoned by Communist China, visited Peking on Jan. 5–11, 1955, for direct negotiations. On May 31, 4 officers were released; the remaining 11 airmen were released on August 4 after negotiations between United States and Communist Chinese ambassadors had begun in Geneva.

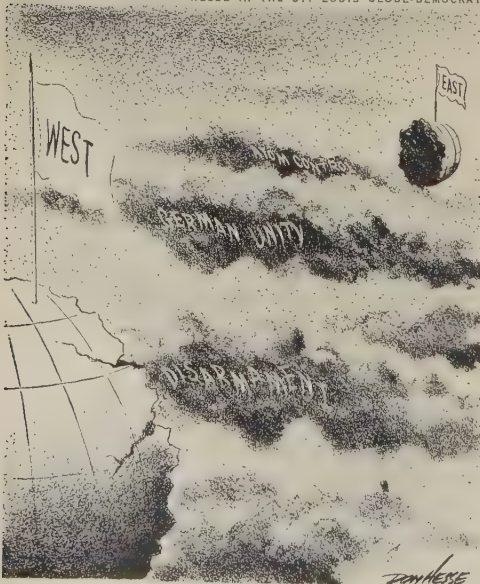
In a letter of January 28, New Zealand brought to the attention of the Security Council "the occurrence of armed hostilities . . . off the coast of the mainland of China. . . ." The council debated the matter on January 31 and voted (9–1, with 1 abstention) to invite the People's Republic of China to send a representative to participate in the discussion. In a cable received on February 3, the Communist Chinese replied that only when representatives of the Nationalist Chinese had been "driven out from the Security Council [could they] agree to send a representative to take part in the discussions of the Security Council." (See also CHINA; FORMOSA.)

Disarmament.—The Subcommittee of the U.N. Disarmament Commission held 47 meetings in London (February 25–May 18) and New York (August 29–October 7), and on Oct. 7, 1955, submitted its report to the commission. The commission met on October 21 and considered a Soviet suggestion that it meet on October 26 to consider the report and to make its own report to the General Assembly. Several speakers noted the "curious coincidence" that the suggested date was one day before the Big Four foreign ministers were to meet in Geneva, while others felt that the commission should meet later so that it could consider the proposals and views which might be expressed by the ministers. The meeting was eventually held on November 23–25, when the commission considered the subcommittee's report and decided to pass it along to the assembly.

On December 16, the assembly passed a resolution giving priority to President Dwight D. Eisenhower's plan for exchanging military blueprints and mutual aerial inspection and Marshal Nikolai A. Bulganin's plan for establishing control posts at strategic centers as steps toward reaching an agreement on a comprehensive disarmament plan. The assembly also called for a resumption of the talks by the Subcommittee of the U.N. Disarmament Commission.

"THE TWAIN ARE STILL FAR FROM MEETING"

HESSE IN THE ST. LOUIS GLOBE-DEMOCRAT



Elections.—On the first ballot to elect three nonpermanent members of the Security Council for two-year terms, Cuba and Australia were chosen, but no agreement was reached on the third member. After 35 inconclusive ballots a private arrangement was made by the assembly president between the two leading contenders, Yugoslavia and Philippines. Yugoslavia was to serve for 1956 and then resign, and the Philippines would take over the seat for 1957. With this understanding in mind, the assembly, on December 20, elected Yugoslavia to the remaining council seat.

Korea.—The report of the U.N. Commission for the Unification and Rehabilitation of Korea (UNCURK) submitted to the General Assembly on Sept. 29, 1955, described the aid given to Korea in fisheries, agriculture, and health. Particular attention was given to the difficulties arising over the armistice agreement, which the South Korean government stated was being faithfully observed by the U.N. Command and flagrantly violated by North Korea.

On August 6, South Korea demanded that the Neutral Nations Supervisory Commission (NNSC) leave Korea by August 13. Rioting broke out, and United States soldiers were forced to defend NNSC members. Finally, on August 13, President Syngman Rhee urged patience on the rioters and withdrew the time limit for the commission's withdrawal.

The assembly, on November 29, took note of UNCURK's report and reaffirmed its intention "to continue to seek an early solution of the Korean question." Appreciation was expressed to Argentina and Brazil for their offer to resettle those Korean ex-prisoners of war who desire to move to the two countries from their present temporary home in India. The work of the U.N. Korean Reconstruction Agency (UNKRA) was commended by the assembly on October 25, and plans for the United Nations to take over the memorial cemetery near Pusan were approved on December 15. (See also KOREA.)

New Members.—On December 8, the General Assembly requested the Security Council to consider the pending membership applications of 18 countries "about which no problem of unification" existed. The council, on December 13, failed to recommend any of the countries. Nationalist China vetoed the application of the Mongolian People's Republic, the second name on the ballot, and the USSR then vetoed 13 applicants; the 4 Soviet bloc countries not vetoed by the USSR did not receive seven affirmative votes on the final ballot.

On the next day, the USSR requested an "urgent meeting" of the council, at which 16 countries were recommended for membership. In a dramatic evening meeting the assembly elected Albania, Jordan, Ireland, Portugal, Hungary, Italy, Austria, Rumania, Bulgaria, Finland, Ceylon, Nepal, Libya, Cambodia, Laos, and Spain to membership, thus breaking a deadlock which had existed for some of these countries since 1946. On December 15, the council met again, and an attempt was made to recommend Japan to membership, but the USSR vetoed the resolution, as she had done on the previous day. The application of the Mongolian People's Republic was then presented, but it received only one affirmative vote, that of the Soviet Union.

(4) ECONOMIC AND SOCIAL MATTERS

Economic and Social Council (ECOSOC).—The council held two sessions in 1955. The 19th ses-

sion, in two parts, met in New York on March 29—April 7 and May 16—27. The first part established a committee to prepare a supplement to the International Slavery Convention of 1926, reconstituted the High Commissioner's Advisory Committee on Refugees as the U.N. Refugee Fund Executive Committee, and discussed reports of the International Monetary Fund and the International Bank for Reconstruction and Development. By far the greatest amount of discussion, however, concerned the economic development of underdeveloped countries, and specifically the effects of accelerated industrialization on them. ECOSOC requested the secretary general to prepare a special study of this problem for its 21st session.

The second part of the 19th session, in addition to noting and approving the reports of various commissions discussed below, noted the reports of the executive board of the U.N. Children's Fund (UNICEF) and of the agent general of UNKRA. Conferences were called to draw up conventions on the enforcement of international arbitral awards and the enforcement abroad of maintenance obligations. Resolutions were passed on various phases of the problem of freedom of information, and ECOSOC "bearing in mind that in the absence of a wide measure of agreement on the basic problems involved . . . conclude [d] that further action at this stage on the draft conventions on freedom of information would be unprofitable."

The 20th session was also held in two parts: in Geneva on July 5—August 5, and in New York on December 5—15. In addition to considering and approving additional commission reports, the first part conducted a general review of the coordination of the economic, social, and human rights activities of the United Nations and the specialized agencies as a whole. The 7th report of the Technical Assistance Board (TAB), on its expenditure of \$15,111,000 in 1954 for experts, fellowships, and equipment, and on its work program for the coming year, was accepted with appreciation. At the resumed session the council discussed holding in 1956 a special 10th anniversary appraisal of the effectiveness of ECOSOC, approved the program of the Economic Commission for Latin American (ECLA), added the German Federal Republic to the membership of the Economic Commission for Europe (ECE), and approved the agendas for the council's 21st and 22d sessions.

Subcommission on Prevention of Discrimination and Protection of Minorities.—The subcommission, a subsidiary body of the Human Rights Commission, is charged with making specific studies of discrimination, using the Universal Declaration of Human Rights as a standard. At its 7th session, held in New York on January 4—28, it considered two progress reports, one on discriminatory practices in schools and in access to education, and the other on discrimination in employment. Three new studies are to be completed during the next few years—on religious rights, on political rights, and on emigration, immigration, and travel.

Commission on International Commodity Trade.—This 18-member commission, established in 1954 by ECOSOC, held its 1st session in two parts, on January 17—February 2 and April 25—May 9, so that delegates after making initial arrangements could communicate with their governments on the proposed work program to be undertaken in the next few years. The commission's final report, as approved at the 20th session of ECOSOC, proposed an intensive study of

short-term and long-term factors in commodity markets and the publication of an annual survey of the general commodity position and the situation in the markets of primary commodities. The United States, though elected to membership, decided to participate only as an observer.

A 2d session of the commission was held at Geneva on November 28—December 10. It considered the trends in commodity markets during 1955 and requested the Secretariat to prepare a report on these trends during the latter part of 1955 and the early part of 1956. This report is to serve as a basis for the commission's deliberations at its 3d session and for its report to the 22d session of ECOSOC.

Transport and Communications Commission.—The commission's 7th session, held in New York on February 7–18, discussed and made recommendations on the standardization of listing and labeling dangerous goods, on a uniform system of road signs and signals, on licensing motor vehicle drivers, and on passport and frontier formalities. The secretary general was requested to circulate to member governments the various approved standards in the hope they might implement them. The commission debated and rejected a proposal by Norway to call a conference to amend the proposed Intergovernmental Maritime Consultative Organization Convention.

Population Commission.—The commission at its 8th session, held in New York on March 14–25, had before it the papers of the 1954 World Population Conference and plans for utilizing universities and other institutions in preparing studies and standards for the worldwide population censuses to be conducted about 1960. Its report suggested that studies on economic and social population trends be encouraged, that the cooperation of national scientific organizations be obtained, and that governments examine the proceedings of the World Population Conference.

Commission on the Status of Women.—This commission, which held its 9th session in New York on March 14–April 1, continued its consideration of the political, economic, and educational rights of women and of the status of women in private law, and completed work on a draft convention on the nationality of married women.

Economic Commission for Europe (ECE).—The commission's 10th session, held in Geneva on March 15–30, reviewed the activities of subsidiary bodies and approved a work program for 1955–56. Particular emphasis was placed on continued cooperation with the specialized agencies and various European organizations. The expansion of East-West trade during the past year was commended.

Economic Commission for Asia and the Far East (ECAFE).—At its 11th session, held in Tokyo on March 28–April 7, the commission had before it the reports of its subsidiary bodies. These were approved, and special attention was given to the problems of rapid economic development, flood control, and interregional trade cooperation.

Human Rights Commission.—The commission held its 11th session in Geneva on April 5–29. In addition to dealing with the reports of its Subcommittee on Prevention of Discrimination and Protection of Minorities and other aspects of human rights, it took up the recommendations of ECOSOC and the General Assembly on the rights of peoples and nations to self-determination. Three proposals were submitted to the 20th session of ECOSOC with the report of the commission: (1) establishment of a commission "to conduct a full survey of the status of the right

of peoples and nations to permanent sovereignty over their natural wealth and resources"; (2) establishment of a commission "to examine any situation resulting from alleged denial or inadequate realization of the right to self-determination . . ."; and (3) establishment of "an Ad Hoc Commission on Self-Determination . . . to conduct a thorough study of the concept of self-determination." These ideas were incorporated in ECOSOC's report to the General Assembly.

On December 14, the assembly decided to establish an advisory service in the field of human rights in order to coordinate the activities of the specialized agencies and the various commissions of the United Nations with the technical assistance programs. On the same day, it voted to postpone until its eleventh session consideration of the draft covenants on human rights, of the recommendations with respect to the rights of self-determination, and of the draft convention on the nationality of married women.

Commission on Narcotic Drugs.—The commission, at its 10th session, held in New York on April 18–May 12, continued its consideration of the proposed single convention on narcotic drugs, which would replace all existing treaties pertaining to narcotics. Its report contained a number of recommendations to member governments on controlling illicit traffic in drugs, on addiction, on synthetic drugs, and on development of new nonnarcotic strains of cannabis. (See also NARCOTICS.)

Social Commission.—The commission's 10th session, held in New York on May 2–20, reviewed progress in social welfare and recommended 37 projects to assist governments in their social development programs. Particular emphasis was placed on strengthening community development as a means of improving living conditions, on assisting governments in training social workers, and on the problem of financing housing through international mortgages. Its report, approved by ECOSOC, requested the secretary general, the TAB, and other pertinent bodies to take note of certain resolutions, and the General Assembly was requested to allot additional funds for the advisory social welfare services of the United Nations Expanded Technical Assistance Program (ETAP).

Economic Commission for Latin America (ECLA).—The ECLA Committee of the Whole met at Santiago, Chile, on May 9–10, to discuss and approve a report on ECLA activities from Feb. 10, 1954, to May 10, 1955. Problems of agricultural development, interregional trade, and coordination between ECLA and the Inter-American Economic and Social Council, as well as the work program for the coming year, were considered.

The 6th session of the commission, held at Bogotá on August 29–September 17, had before it the *Economic Survey of Latin America, 1954*, as well as reports on economic development, technical assistance, problems of agriculture, and international trade. Resolutions were passed dealing with all of these items, as well as with the coffee situation and the development of the Amazon Basin.

Refugees.—On October 25, the General Assembly urged both members and nonmembers of the United Nations "to give . . . serious consideration to making contributions to the United Nations Refugee Fund in order that the targets for 1955 and 1956 [might] be attained." On December 3, a similar appeal was made for UNRWA.

Technical Assistance and Economic Development of Underdeveloped Countries.—On December 3, the allocation of \$29,734,085 under ETAP for 1956 was approved by a unanimous decision. On December 9, also unanimously, a resolution was passed which laid the groundwork for the establishment of a Special U.N. Fund for Economic Development (SUNFED). A questionnaire is to be sent to member nations asking their views on the role, structure, and operation of such a fund, and an ad hoc committee was set up to analyze their replies. Reports are to be submitted by this committee to the 22d session of ECOSOC and the 11th session of the General Assembly, and a final report is to be made to the 23d session of ECOSOC.



(5) TRUSTEESHIP AND NON-SELF-GOVERNING TERRITORIES MATTERS

Trusteeship Council.—In 1955 the council held two regular sessions and one special session, all in New York. At the 15th session, on January 25—March 28, it reviewed reports on the Cameroons, Togoland, and Tanganyika under British administration, on the Cameroons and Togoland under French administration, and on Ruanda-Urundi under Belgian administration. It also considered over 400 written petitions from these six territories. The particular problem of determining the wishes of the people of Togoland on the possible termination of the British trusteeship agreement and the attainment of independence by the neighboring British colony of the Gold Coast was discussed.

At the 16th session, on June 8—July 22, the council reviewed conditions in Somaliland under Italian administration, in Nauru and New Guinea under Australian administration, in the Pacific Islands under United States administration, and in Western Samoa under New Zealand administration. The council particularly welcomed the rehabilitation and compensation of the people of Uterik and Rongelap who had been displaced by atomic tests. Missions were dispatched to Togoland and the Cameroons.

A special session of the council, held on October 24—November 25, sent a mission to the Pacific. It also considered the report of the mission to Togoland (August 7—September 23), made on October 30, that it favored a plebiscite in British Togoland to determine whether the people of the territory wished to continue under trusteeship or be integrated with the Gold Coast. The council approved this report and passed it along to the General Assembly.

General Assembly Action.—The assembly recommended on December 15 that Great Britain conduct a plebiscite to determine the future status of British Togoland under the supervision of a United Nations plebiscite commissioner. France was requested to implement the "contemplated political reforms [that would enable] the wishes of the inhabitants of the Territory as to their future to be ascertained at an early date by direct and democratic methods."

With the election of Italy, which administers Somaliland, to membership in the United Nations, the number of administering authorities in



(Top) U.S. ambassador to the U.N., Henry Cabot Lodge, Jr., (r.), and U.S. presidential assistant on disarmament, Harold Stassen, confer, Aug. 29, 1955, at meeting of U.N. Disarmament Commission. (Center) José Maza of Chile delivers acceptance speech as General Assembly president, September 20. (Bottom) Secretary General Hammarskjöld (1.) and President Maza, as 10th session opens.



UNITED NATIONS PHOTOS

the Trusteeship Council was automatically increased. Therefore the assembly, on December 16, under the provisions of Article 86c of the U.N. Charter, elected Burma as a nonadministering member in order to maintain the equal composition of the council between the two categories of membership.

Committee on Information from Non-Self-Governing Territories.—The committee held its 6th session in New York in two parts, on April 15–May 11 and September 7–8. In its discussions it emphasized particularly social conditions in the non-self-governing territories. It adopted a resolution



FLETCHER IN THE SIOUX CITY JOURNAL

"TENTH ANNIVERSARY"

that it was no longer necessary for the Netherlands to transmit information on the Netherlands Antilles and Surinam, and submitted its report to the tenth session of the assembly.

On November 8, the assembly approved the report of the committee and, over the strong objections of Belgium, extended the life of the committee until 1958.

Committee on South West Africa.—In its report to the tenth session of the General Assembly, the committee admitted that its attempted negotiations with the Union of South Africa on the status of this former mandated territory had again ended in failure. It requested a ruling from the assembly on whether it might grant a hearing to petitioners from South West Africa.

The assembly, on December 3, passed 10 resolutions appealing to the Union of South Africa to bring the territory under the trusteeship system and to improve educational and other facilities. An advisory opinion was requested of the International Court of Justice on whether the Committee on South West Africa could grant oral hearings to petitioners in relation to the territory.

(6) LEGAL MATTERS

International Court of Justice. Judgment.—On April 6, 1955, the court rendered a judgment in the case of Friedrich Nottebohm, a wealthy Ger-

man-born man whose nationality and assets were in dispute between Guatemala and Liechtenstein, in favor of the claims of Guatemala.

Advisory Opinion.—On June 7, the court gave its opinion that the procedure for voting in the General Assembly on the problem of the supervision of South West Africa was in accordance with the intent of its 1950 advisory opinion on the matter.

Applications.—On March 29, the United States filed an application dated March 22, instituting proceedings against Czechoslovakia (q.v.) for shooting down a U.S. Air Force plane in 1953.

On May 4, the United Kingdom filed applications instituting proceedings against Chile and Argentina for their claims to sovereignty over territories and islands in Antarctica (q.v.) which the British claim on the basis of discovery and occupancy. Both countries, however, rejected the arbitration of the court.

General Assembly Action.—On December 3, the assembly requested an advisory opinion from the court on whether it is "consistent with the advisory opinion of the . . . Court . . . of 11 July 1950 for the Committee on South West Africa . . . to grant oral hearings to petitioners on matters relating to the Territory. . . ."

International Law Commission.—The commission, at its 7th session, held in Geneva on May 2–July 8, continued its task of codifying maritime law. Draft articles were presented on the controversial subjects of the regime of the high seas and the territorial sea. Piracy was limited to acts by private vessels for private ends committed on the high seas, not within the territorial waters of a state. It was the commission's opinion "that international law does not justify an extension of the territorial sea beyond twelve miles." Final codification is scheduled to be placed before the eleventh General Assembly session in 1956.

(7) ADMINISTRATIVE AND BUDGETARY MATTERS

Budget.—On December 16, the assembly approved appropriations totaling \$48,566,350 for 1956.

U.N. Administrative Tribunal.—On November 8, the assembly endorsed a resolution which provides for a review procedure for the tribunal's judgments. The United States had taken issue with the compensation awarded by the tribunal in 1954 to 11 Americans dismissed from the U.N. Secretariat following congressional loyalty checks, and had proposed a method by which a member nation, the secretary general, or an individual could request of an assembly committee established for this purpose a reconsideration of the case with a possible appeal to the International Court of Justice for an advisory opinion.

CAROL CARTER MOOR,
United Nations Collection, New York University Library.

UNITED NATIONS CHILDREN'S FUND. UNICEF was established in December 1946 to help governments meet the food and health needs of children in war-devastated countries, all assistance to be given without regard for race, creed, nationality, or political belief. Since 1950 emphasis has been placed on meeting the long-range and continuing needs of children in underdeveloped countries. The U.N. General Assembly voted unanimously on Oct. 6, 1953, to continue the fund indefinitely.

The policies of UNICEF are laid down, and its operations are governed, by a 26-nation execu-

tive board designated by the U.N. Economic and Social Council. The United States representative on the board is Dr. Martha M. Eliot. Programs are approved and funds allocated at board sessions held in March and September of each year. Day-to-day administration is the responsibility of the executive director, under whom the work is carried out by an international staff of 130 members.

UNICEF aid is provided primarily in the form of supplies and equipment not available in the assisted countries. Other United Nations agencies provide technical advice and personnel to help governments implement the child-care programs or to train local personnel. UNICEF is financed by voluntary contributions from governments and private individuals. The number of governments contributing in 1954 reached a total of 61.

Primary responsibility for the child-care programs rests with the assisted governments themselves. For every dollar allocated by UNICEF in 1954, the assisted countries spent or committed \$1.94 to provide local staff, buildings, supplies, and administrative services.

Since the beginning of 1952, UNICEF aid has been extended for the first time to 44 countries and territories, of which half are in Africa. In 1955 the fund assisted 268 programs in 92 countries and territories. The executive board allocated about \$14.3 million in 1955. The target for 1956 is \$20 million. UNICEF aid falls in the following categories:

(1) Assistance for maternal and child health and welfare, including equipment and supplies for rural health centers, clinics, laboratories, hospitals, and other child-care institutions; school health programs; rehabilitation of handicapped children; care of prematurely born infants; and schools and centers for the training of health personnel.

(2) Mass disease control, including the provision of equipment, insecticides, penicillin, vaccines, drugs, and transport for mass campaigns to control diseases affecting children; and equipment for local production of insecticides, antibiotics, sera, and vaccines.

(3) Dried milk and fish-liver-oil capsules for feeding programs carried out through schools and maternal and child welfare centers; and equipment for processing milk and other high-protein foods for distribution to children.

(4) Emergency relief for child victims of war or natural disasters.

Over a period of seven years more than 135 million children have been tested for tuberculosis, and 52 million vaccinated with BCG in 61 countries and territories; more than 22 million children have been examined for yaws, and 4.2 million treated in 19 countries and territories; and 18 million children and mothers have received UNICEF milk and other food for varying lengths of time in 66 countries and territories.

UNICEF has helped 50 countries and territories in malaria control campaigns. In 1955, UNICEF and the World Health Organization launched a worldwide effort to help countries eradicate malaria, and the fund expects to provide DDT for the protection of 40 million persons annually over the next five years. In 1955 some 32 million children and mothers benefited from UNICEF-aided BCG vaccination campaigns, malaria control, yaws control, and child-feeding programs, as compared with 28.3 million benefited in 1954. The fund has also provided equipment for about 10,000 maternal and child

welfare centers in 67 countries. (See also CHILD WELFARE.)

MAURICE PATE,
Executive Director.

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION. A specialized agency of the United Nations, UNESCO has its headquarters in Paris. Its policies are formulated by a biannual general conference, of which the latest session was held on Nov. 12—Dec. 11, 1954, at Montevideo, Uruguay; and by an executive board composed of 22 members responsible to their governments, with Dr. Arcot L. Mudaliar of India serving as chairman. Its activities are carried out by an international secretariat headed by a director general, Dr. Luther H. Evans, former U.S. librarian of Congress, who was elected in 1953. At the end of 1955, UNESCO had 74 member states, including Ethiopia, which joined the organization on July 1. Its annual budget was \$10,800,000. The implementation of UNESCO's program depends chiefly on its member states, which act through national commissions established by governments to serve as liaison groups between UNESCO and the educational, scientific, and cultural life of their own countries, and to help carry out UNESCO's program.

Activities.—Following decisions taken at the 1954 general conference, UNESCO's program has undergone extensive remodeling. Priorities have been placed on service to member states in five specific fields: (1) free and compulsory education at the primary level; (2) fundamental education; (3) racial, social, and international tensions; (4) mutual appreciation of Eastern and Western cultural values; and (5) scientific research for the improvement of living conditions. In line with this emphasis on service, UNESCO also launched in 1955 a program of direct aid to member states. Under this program, 41 countries are to receive aid for projects ranging from research in nuclear physics to the establishment of libraries.

In general, however, education remains the organization's first concern. Statistics show that over half the world's adult population is still illiterate, a situation aggravated by a universal shortage of schools for children. Nations, especially in Africa, Asia, and Latin America, are faced with the dilemma of not being able to raise educational budgets because of low productivity, and of not being able to raise productivity because of low levels of education. UNESCO is attacking this problem by two means: (1) the extension of free and compulsory primary education, and (2) the organization of fundamental education campaigns. For the last five years, UNESCO has brought to the attention of the world the fact that some 200 million school-age children are without any school facilities whatsoever. In order to carry out its campaign for a more adequate provision of schools, UNESCO has conducted international conferences in collaboration with the International Bureau of Education in Geneva and a series of regional conferences to discuss specific educational problems facing various countries.

Fundamental education is the term used by UNESCO to cover the minimum of education required to combat the interrelated problems of illiteracy, ill health, undernourishment, and low productivity confronting the world's underdeveloped regions. UNESCO has adopted three broad approaches in this field: (1) training, (2) a system of associated projects, and (3) experi-

mental studies and activities. To train leaders of fundamental education, UNESCO has opened two regional training centers, one in Mexico to serve Latin America, and a second in Egypt for the Arab world. Through its share of the U.N. Expanded Technical Assistance Program (ETAP), UNESCO also helps a number of national fundamental education projects. A group training project for specialists in fundamental education, which was opened near Mysore, India, in 1953, was completed in May 1955, after two courses of eight months each with a total of 32 trainees. Three graduates of the course have already been sent out on UNESCO technical assistance missions to Bolivia, Cambodia, and Thailand, respectively.

To help organize an international attack on illiteracy and low living standards, UNESCO has set up a system of associated projects wherein major fundamental education activities throughout the world are linked by UNESCO's education department. In 1955 more than 50 such projects received information and, in some cases, field assistance from UNESCO. In addition, UNESCO has encouraged research and experimental activity in such fields as methods of teaching reading and writing and the use of radio in adult education.

In the field of science, UNESCO has continued its policy of encouraging action on problems of international scope, sponsoring a meeting of directors of national research centers at Milan, Italy, to discuss the professional status of research workers, and another in Paris, France, where recommendations were made to facilitate the international movement of radioisotopes. UNESCO also played a role in the organization of the International Arid Lands Symposium at Albuquerque, N. Mex.

In a move to ease restrictions on international travel for educational and cultural purposes, UNESCO and European labor organizations have continued to sponsor workers' tours. In 1955, 68 groups of workers from 17 countries, numbering in all over 1,200 persons, were able to study how their counterparts in other countries lived and worked. For the first time since the inception of this program, a United States labor organization participated, with UNESCO covering its travel costs in Europe. The annual brochure, *Study Abroad*, listing opportunities for fellowships and scholarships throughout the world, was again published in 1955.

The year 1955 was a milestone for UNESCO's program of cultural activities. On September 16, following its ratification or acceptance by 12 countries, the Universal Copyright Convention went into effect. (See also COPYRIGHTS.)

Among other activities of the organization in 1955 were a seminar in adult education in Scandinavia; an international seminar on public library development held in New Delhi, India; the inclusion of 60 secondary schools in 20 countries in a UNESCO experiment in education for international understanding; and the expansion of technical education and teacher training in the Arab refugee schools of the Middle East. Issuance of UNESCO coupons, a form of international money order used for the purchase of books, films, and scientific equipment in hard-currency countries, reached a total of \$6,500,000.

At the end of 1955, 142 experts sent out by UNESCO under ETAP were working in 39 countries.

GERALD L. CARNES,
Department of Mass Communication.

UNITED STATES. The United States of America at the beginning of 1956 comprised the 48 states (commonly referred to as the Union) and the District of Columbia. United States possessions include the territories of Alaska and Hawaii (both awaiting congressional action on statehood), the Canal Zone, the Virgin Islands, American Samoa, Guam, and other small Pacific islands. Puerto Rico became a self-governing commonwealth associated with the United States in 1952. Since World War II the United States has administered territories in the Pacific under United Nations trusteeship, and other former Japanese islands which, according to the Japanese Peace Treaty (1951), remain under United States control pending their transfer to United Nations trusteeship with the United States as sole administering trustee (see PACIFIC ISLANDS).

Area.—The area of continental United States is 3,022,387 square miles (land, 2,974,726; inland water, 47,661); that of the possessions and territories, 597,268 square miles; and that of the Trust Territory of the Pacific Islands, 8,475 square miles; total, 3,628,130 square miles. (See separate articles on the states, territories, and possessions.)

Population.—The census of April 1, 1950, placed the population residing in continental United States at 150,697,361, an increase of 14.5% over the 1940 census total of 131,669,275. (The 1950 census figure plus the estimate of armed forces overseas totaled 151,132,000.) A Census Bureau estimate of Dec. 1, 1955, placed the population as of that date at 166,512,000 (including armed forces overseas). Washington, D.C., the national capital, had a population of 802,178, according to the 1950 census. (See also CENSUS DATA.)

Government.—Republican in form, the government of the United States is divided into executive, legislative, and judicial branches.

Executive Branch.—Dwight D. Eisenhower (q.v.), Republican, was elected to the presidency in the national election of Nov. 4, 1952, and was sworn into office on Jan. 20, 1953. He receives a salary of \$100,000, plus \$50,000 for expenses; in addition, up to \$40,000, nontaxable, may be expended for traveling and official entertainment.

The vice president, Richard M. Nixon (q.v.), serves as president of the Senate. His salary is \$35,000, plus \$10,000 for expenses.

The executive branch also comprises 10 departments (the heads of which form the cabinet) and a number of independent establishments. The members of the cabinet receive salaries of \$22,500 each. As of Jan. 1, 1955, the 10 departments were:

DEPARTMENT OF STATE—Secretary, John Foster Dulles, since Jan. 21, 1953.
DEPARTMENT OF THE TREASURY—Secretary, George M. Humphrey, since Jan. 21, 1953.
DEPARTMENT OF DEFENSE—Secretary, Charles Erwin Wilson, since Jan. 28, 1953.
DEPARTMENT OF JUSTICE—Attorney General, Herbert Brownell, Jr., since Jan. 21, 1953.
POST OFFICE DEPARTMENT—Postmaster General, Arthur E. Summerfield, since Jan. 21, 1953.
DEPARTMENT OF THE INTERIOR—Secretary, Douglas McKay, since Jan. 21, 1953.
DEPARTMENT OF AGRICULTURE—Secretary, Ezra Taft Benson, since Jan. 21, 1953.
DEPARTMENT OF COMMERCE—Secretary, Sinclair Weeks, since Jan. 21, 1953.
DEPARTMENT OF LABOR—Secretary, James P. Mitchell, since Oct. 9, 1953.
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Secretary, Marion B. Folsom, since Aug. 1, 1955.

Legislative Branch: Congress.—The first session of the 84th Congress was held from Jan. 5 to Aug. 3, 1955. The second session convened on

Jan. 3, 1956 (see list of members, pages 768-769), with the following party composition:

SENATE: 96 senators (49 Democrats, 47 Republicans).
HOUSE OF REPRESENTATIVES: 435 representatives (230 Democrats, 203 Republicans, 2 vacancies); 2 delegates; 1 resident commissioner. The two vacancies were filled by elections held in Pennsylvania's 30th Congressional District on Jan. 24, 1956, and in New York's 22d on Feb. 7, 1956.

The members of Congress receive salaries of \$22,500; the salary of the speaker of the House of Representatives is \$35,000, plus \$10,000 for expenses.

(For information on major congressional activities in 1955, see the section *The United States in 1955* in this article; also Index entries on special subjects, such as *Foreign Aid Programs*, *Housing*, *Labor*, *National Security*, *Taxation*.)

Judicial Branch.—The judiciary consists of a Supreme Court, circuit courts of appeal, district courts, special courts, District of Columbia courts, and territorial courts. On Jan. 1, 1956, the personnel of the Supreme Court was as follows: chief justice, Earl Warren; associate justices, Hugo L. Black, Stanley Reed, Felix Frankfurter, William O. Douglas, Tom C. Clark, Sherman Minton, Harold H. Burton, and John M. Harlan. The salary of the chief justice is \$35,500; that of the associate justices, \$35,000. (For a discussion of the Supreme Court's principal decisions in 1954-55, see the article LAW.)

Education.—The United States Office of Education is the country's chief advisory authority on education. For particulars regarding the general trend of education in the United States see the articles EDUCATION and OFFICE OF EDUCATION, U.S.; the subsection *Education* in the articles on the states and possessions; COLLEGES and UNIVERSITIES; LIBRARIES; and Index entries under *Education*.

Religion.—See the article RELIGION and Index entries under this heading.

Social Welfare.—See the article SOCIAL WELFARE and Index entries under this heading.

Finances.—See the article TREASURY OF THE U.S.

Economy.—See the Index entry, *Financial and Economic Review*.

Agriculture.—See the article AGRICULTURE and Index entries under this heading.

Industry.—See the article INDUSTRIAL PRODUCTION.

Labor.—See the article LABOR.

Mineral Production.—See the articles MINERAL PRODUCTION; MINING; and articles on minerals.

Foreign Trade.—United States exports in 1954 were valued at \$15,095.0 million, according to the U.S. Department of Commerce; and imports, \$10,210.3 million. For the first 9 months of 1955, United States exports were valued at \$11,386.3 million, and imports, \$8,296.3 million. (For a discussion of United States foreign trade, see the articles INTERNATIONAL TRADE and TARIFFS, and the Index entries on these subjects.)

Defense.—The organization for national security at the beginning of 1956 included the following principal posts:

NATIONAL SECURITY COUNCIL: Membership includes the president of the United States, the vice president, the secretaries of state and defense, and the director of the Office of Defense Mobilization.

OFFICE OF DEFENSE MOBILIZATION: Director—Arthur S. Flemming (sworn in on June 25, 1953).

SECRETARY OF DEFENSE: Charles E. Wilson (took office on Jan. 28, 1953); assisted by a deputy secretary of defense (Robert B. Anderson), 9 assistant secretaries of defense, a general counsel, and an assistant to the secretary of defense for atomic energy.

Department of the Army: Wilber M. Brucker, secretary of the army (sworn in on July 21, 1955).



UNITED PRESS

President Eisenhower delivers his State of the Union message, Jan. 6, 1955. Behind him are Vice President Nixon (left) and House Speaker Sam Rayburn of Texas.

Department of the Navy: Charles S. Thomas, secretary of the navy (sworn in on May 3, 1954).

Department of the Air Force: Donald A. Quarles, secretary of the air force (sworn in on Aug. 15, 1955).

Joint Chiefs of Staff: Chairman—Adm. Arthur W. Radford; Chief of Staff, U.S. Army—Gen. Maxwell B. Taylor; Chief of Naval Operations—Adm. Arleigh A. Burke; Chief of Staff, U.S. Air Force—Gen. Nathan F. Twining. The commandant of the Marine Corps, Gen. Randolph McCall Pate, has a voice on the Joint Chiefs of Staff whenever it considers policy or strategy measures which "directly concern the Marine Corps."

Armed Forces Policy Council: Chairman—The secretary of defense.

(See the article NATIONAL SECURITY and the Index entries *Military* and *National Security*.)

Communications.—See Index entries under this heading.

Transportation.—See Index entries under this heading.

THE UNITED STATES IN 1955

Easing international tensions and mounting prosperity kept the nation in a relaxed mood during 1955. As cold war jitters receded, persons who had shuddered for years before the Communist menace found vicarious thrills in the life of Davy Crockett, a forgotten folk hero plummeted into national fame by a Walt Disney television series, or in the fortunes of contestants on *The \$64,000 Question*, a television quiz contest that attracted the largest audiences in history and inspired newspaper headlines usually reserved for major events.

The Cold War in Asia.—The situation in the Far East, already tense as a result of Communist China's announced intention of seizing the Nationalist-held coastal islands of Quemoy and Matsu and its sentencing on Nov. 22, 1954, of 11 United States airmen and 2 civilians to prison on charges of espionage, reached a crisis on Jan. 20, 1955, when the Communists captured Yikiang, an island just north of the Nationalist-occupied Tachen Islands. On January 24, President Dwight D. Eisenhower sent a special message to Congress in which he declared that "the United States must remove any doubt regarding our readiness to fight, if necessary," and asked permission to use armed force in the defense of Formosa and the Pescadores. A resolution author-

(Continued on Page 770)

EIGHTY-FOURTH CONGRESS OF THE UNITED STATES

(SECOND SESSION)

SENATE

(Democrats, 49; Republicans, 47; total, 96)

President: Vice President Richard M. Nixon, Calif.
President Pro Tempore: Walter F. George, Ga.
Secretary: Felton M. Johnston

Majority Leader: Lyndon B. Johnson, Texas
Minority Leader: William F. Knowland, Calif.

Letters after senators' names refer to party affiliation—D for Democrat, R for Republican. Single asterisk (*) denotes term expiring in January 1957; double asterisk (**) denotes term expiring in January 1959; triple asterisk (***) denotes term expiring in January 1961.

Alabama *Lister Hill, D ***John J. Sparkman, D	Iowa *B. B. Hickenlooper, R ***Thomas E. Martin, R	Nebraska **Roman L. Hruska, R ***Carl T. Curtis, R	Rhode Island ***Theodore F. Green, D **John O. Pastore, D
Arizona *Carl Hayden, D *Barry M. Goldwater, R	Kansas ***Andrew F. Schoeppel, R *Frank Carlson, R	Nevada **George W. Malone, R *Alan Bible, D	South Carolina *Olin D. Johnston, D ***Strom Thurmond, D
Arkansas ***John L. McClellan, D *J. William Fulbright, D	Kentucky *Earle C. Clements, D ***Alben W. Barkley, D	New Hampshire ***Styles Bridges, R *Norris Cotton, R	South Dakota ***Karl E. Mundt, R *Francis Case, R
California **W. F. Knowland, R *Thomas H. Kuchel, R	Louisiana ***Allen J. Ellender, D *Russell B. Long, D	New Jersey **H. Alexander Smith, R ***Clifford P. Case, R	Tennessee ***Estes Kefauver, D **Albert Gore, D
Colorado *Eugene D. Millikin, R ***Gordon Allott, R	Maine ***Margaret C. Smith, R **Frederick G. Payne, R	New Mexico **Dennis Chavez, D ***Clinton P. Anderson, D	Texas ***Lyndon B. Johnson, D **Price Daniel, D
Connecticut *Prescott S. Bush, R *William A. Purtell, R	Maryland *John Marshall Butler, R *J. Glenn Beall, R	New York **Irving M. Ives, R *Herbert H. Lehman, D	Utah **Arthur V. Watkins, R *Wallace F. Bennett, R
Delaware ***John J. Williams, R **J. Allen Frear, Jr., D	Massachusetts ***Leverett Saltonstall, R **John F. Kennedy, D	North Carolina *Samuel J. Ervin, Jr., D ***W. Kerr Scott, D	Vermont *George D. Aiken, R **Ralph E. Flanders, R
Florida **Spessard L. Holland, D *George A. Smathers, D	Michigan **Charles E. Potter, R ***Pat McNamara, D	North Dakota **William Langer, R *Milton R. Young, R	Virginia **Harry Flood Byrd, D ***A. Willis Robertson, D
Georgia *Walter F. George, D ***Richard B. Russell, D	Minnesota **Edward J. Thye, R ***Hubert H. Humphrey, D	Ohio **John W. Bricker, R *George H. Bender, R	Washington *Warren G. Magnuson, D **Henry M. Jackson, D
Idaho ***Henry C. Dworshak, R *Herman Welker, R	Mississippi ***James O. Eastland, D **John Stennis, D	Oklahoma ***Robert S. Kerr, D *A. S. Mike Monroney, D	West Virginia **Harley M. Kilgore, D ***Matthew M. Neely, D
Illinois ***Paul H. Douglas, D *Everett M. Dirksen, R	Missouri *T. C. Hennings, Jr., D *Stuart Symington, D	Oregon *Wayne Morse, D **R. L. Neuberger, D	Wisconsin **Alexander Wiley, R *Joseph R. McCarthy, R
Indiana *Homer E. Capehart, R *William E. Jenner, R	Montana ***James E. Murray, D **Mike Mansfield, D	Pennsylvania **Edward Martin, R *James H. Duff, R	Wyoming **Frank A. Barrett, R ***Joseph C. O'Mahoney, D

HOUSE OF REPRESENTATIVES

(Democrats, 232; Republicans, 203; total, 435)

Speaker: Sam Rayburn, Texas
Clerk: Ralph R. Roberts

Majority Leader: John W. McCormack, Mass.
Minority Leader: Joseph W. Martin, Jr., Mass.

Letters after representatives' names refer to party affiliation—D for Democrat, R for Republican. The abbreviation "At-L." in place of congressional district number means "representative at large." Asterisk (*) before member's name indicates re-election in 1954 (served in 83d Congress); dagger (†) denotes election in 1955 or 1956 to fill vacancy.

Alabama 1. *F. W. Boykin, D 2. *G. M. Grant, D 3. *G. W. Andrews, D 4. *K. A. Roberts, D 5. *A. Rains, D 6. *A. I. Seiden, Jr., D 7. *C. Elliott, D 8. *R. E. Jones, D 9. G. Huddleston, Jr., D	7. *J. J. Allen, Jr., R 8. *G. P. Miller, D 9. *J. A. Younger, R 10. *C. S. Gubser, R 11. *L. Johnson, R 12. B. F. Sisk, D 13. C. M. Teague, R 14. *H. Hagen, D 15. *G. L. McDonough, R 16. *D. L. Jackson, R 17. *C. R. King, D 18. *C. Hosmer, R 19. *C. Holifield, D 20. *C. Hinchshaw, R 21. *E. W. Hiestand, R 22. *J. Holt, R 23. *C. Doyle, D 24. *G. P. Lipscomb, R 25. *P. J. Hillings, R 26. J. Roosevelt, D 27. *H. R. Sheppard, D 28. *J. B. Utt, R 29. *J. Phillips, R 30. *R. C. Wilson, R	4. *W. N. Aspinall, D Connecticut 1. *T. J. Dodd, D 2. *H. Seely-Brown, Jr., R 3. *A. W. Cretella, R 4. *A. P. Morano, R 5. *J. T. Patterson, R At-L. *A. N. Sadlak, R Delaware At-L. H. B. McDowell, Jr., D Florida 1. W. C. Cramer, R 2. *C. E. Bennett, D 3. *R. L. F. Sikes, D 4. D. B. Fascell, D 5. *A. S. Herlong, Jr., D 6. †P. G. Rogers, D 7. *J. A. Haley, D 8. *D. R. Matthews, D Georgia 1. *P. H. Preston, D 2. *J. L. Filcher, D 3. *E. L. Forrester, D 4. *J. Flynt, Jr., D 5. *J. C. Davis, D 6. *C. Vinson, D	7. *H. Lanham, D 8. I. F. Blitch, D 9. *P. M. Landrum, D 10. *P. Brown, D Idaho 1. *G. Pfof, D 2. *H. H. Budge, R Illinois 1. *W. L. Dawson, D 2. *B. O'Hara, D 3. J. C. Murray, D 4. *W. E. McVey, R 5. *J. C. Kluczynski, D 6. *T. J. O'Brien, D 7. *J. B. Bowler, D 8. *T. S. Gordon, D 9. *S. R. Yates, D 10. *R. W. Hoffman, R 11. *T. P. Sheehan, R 12. C. A. Boyle, D 13. *M. S. Church, R 14. *C. W. Reed, R 15. *N. M. Mason, R 16. *L. E. Allen, R 17. *L. C. Arends, R 18. *H. H. Velde, R 19. *R. B. Chipfield, R 20. *S. Simpson, R
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21. *P. F. Mack, Jr., D
22. *W. L. Springer, R
23. *C. W. Vursell, R
24. *M. Price, D
25. K. J. Gray, D

Indiana

1. *R. J. Madden, D
2. *C. A. Halleck, R
3. *S. J. Crumacker, Jr., R
4. *E. R. Adair, R
5. *J. V. Beamer, R
6. *C. M. Harden, R
7. *W. G. Bray, R
8. W. K. Denton, D
9. *E. Wilson, R
10. *R. Harvey, R
11. *C. B. Brownson, R

Iowa

1. F. Schwengel, R
2. *H. O. Talle, R
3. *H. R. Gross, R
4. *K. M. LeCompte, R
5. *P. Cunningham, R
6. *J. L. Dolliver, R
7. *B. F. Jensen, R
8. *C. B. Hoeven, R

Kansas

1. W. H. Avery, R
2. *E. P. Scrivner, R
3. *M. V. George, R
4. *E. H. Rees, R
5. *C. R. Hope, R
6. *W. Smith, R

Kentucky

1. *N. J. Gregory, D
2. *W. H. Natcher, D
3. *J. M. Robison, Jr., R
4. *F. Chelf, D
5. B. Spence, D
6. *J. C. Watts, D
7. *C. D. Perkins, D
8. E. Siler, R

Louisiana

1. *F. E. Hébert, D
2. *H. Boggs, D
3. *E. E. Willis, D
4. *O. Brooks, D
5. *O. E. Passman, D
6. *J. H. Morrison, D
7. *T. A. Thompson, D
8. *G. S. Long, D

Maine

1. *R. Hale, R
2. *C. P. Nelson, R
3. *C. G. McIntire, R

Maryland

1. *E. T. Miller, R
2. *J. P. S. Devereux, R
3. *E. A. Garmatz, D
4. *G. H. Fallon, D
5. R. E. Lankford, D
6. *D. S. Hyde, R
7. *S. N. Friedel, D

Massachusetts

1. *J. W. Heseltan, R
2. *E. P. Boland, D
3. *P. J. Philbin, D
4. *H. D. Donohue, D
5. *E. N. Rogers, R
6. *W. H. Bates, R
7. *T. J. Lane, D
8. T. H. Macdonald, D
9. *D. W. Nicholson, R
10. *L. Curtis, R
11. *T. P. O'Neill, Jr., D
12. *J. W. McCormack, D
13. *R. B. Wigglesworth, R
14. *J. W. Martin, Jr., R

Michigan

1. *T. M. Machrowicz, D
2. *G. Meader, R
3. A. E. Johansen, R
4. *C. E. Hoffman, R
5. *G. R. Ford, Jr., R
6. D. Hayworth, D
7. *J. P. Wolcott, R
8. *A. M. Bentley, R
9. R. Thompson, R
10. *E. A. Cederberg, R
11. *V. A. Knox, R
12. *J. B. Bennett, R
13. C. C. Diggs, Jr., D
14. *L. C. Rabaut, D
15. *J. D. Dingell, D
16. *J. Lesinski, Jr., D
17. M. W. Griffiths, D
18. *G. A. Dondero, R

Minnesota

1. *A. H. Andresen, R
2. *J. P. O'Hara, R
3. *R. W. Wier, D
4. *E. J. McCarthy, D
5. *W. H. Judd, R
6. *F. Marshall, D
7. *H. C. Andersen, R
8. *J. A. Blatnik, D
9. C. Knutson, D

Mississippi

1. *T. G. Abernethy, D
2. *J. L. Whitten, D
3. *F. E. Smith, D
4. *J. B. Williams, D
5. *A. Winstead, D
6. *W. M. Colmer, D

Missouri

1. *F. M. Karsten, D
2. *T. B. Curtis, R
3. *L. K. Sullivan, D
4. G. H. Christopher, D
5. *R. Bolling, D
6. W. R. Hull, Jr., D
7. *D. Short, R
8. *A. S. J. Carnahan, D
9. *C. Cannon, D
10. *P. C. Jones, D
11. *M. M. Moulder, D

Montana

1. *L. Metcalf, D
2. O. B. Fjare, R

Nebraska

1. P. Weaver, R
2. J. B. Chase, R
3. *R. D. Harrison, R
4. *A. L. Miller, R

Nevada

- At-L. *C. Young, R
2. P. Bass, R

New Hampshire

1. *C. E. Merrow, R
2. P. Bass, R

New Jersey

1. *C. A. Wolverton, R
2. *T. M. Hand, R
3. *J. C. Auchincloss, R
4. F. Thompson, Jr., D
5. *P. Frelinghuysen, Jr., R
6. *H. A. Williams, Jr., D
7. *W. B. Widnall, R
8. *G. Canfield, R
9. *F. C. Osmer, Jr., R
10. *P. W. Rodino, Jr., D
11. *H. J. Addonizio, D
12. *R. W. Kean, R
13. *A. D. Sieminski, D
14. T. J. Tumulty, D

New Mexico

- At-L. *A. M. Fernandez, D
- At-L. *J. J. Dempsey, D

New York

1. *S. Wainwright, R
2. *S. B. Derounian, R
3. *F. J. Becker, R
4. *H. J. Latham, R
5. *A. H. Bosch, R
6. *L. Holtzman, D
7. *J. J. Delaney, D
8. V. L. Anfuso, D
9. *E. J. Keogh, D
10. *E. F. Kelly, D
11. *E. Celler, D
12. *F. E. Dorn, R
13. *A. J. Multer, D
14. *J. J. Rooney, D
15. *H. J. Ray, R
16. *C. A. Powell, Jr., D
17. *F. R. Coudert, Jr., R
18. *J. G. Donovan, D
19. *A. G. Klein, D
20. I. D. Davidson, D
21. H. Zelenko, D
22. *J. C. Healy, D
23. *J. Dollinger, R
24. *C. A. Buckley, D
25. *P. A. Fino, R
26. *R. A. Gamble, R
27. *R. W. Gwinn, R
28. *K. St. George, R
29. *J. E. Wharton, R
30. *L. W. O'Brien, D
31. *D. P. Taylor, R
32. *B. W. Kearney, R
33. *C. E. Kilburn, R
34. *W. R. Williams, R
35. *R. W. Riehlman, R
36. *J. Taber, R

37. *W. S. Cole, R
38. *K. B. Keating, R
39. *H. C. Ostertag, R
40. *W. E. Miller, R
41. *E. P. Radwan, R
42. *J. R. Pillion, R
43. *D. A. Reed, R

North Carolina

1. *H. C. Bonner, D
2. *L. H. Fountain, D
3. *G. A. Barden, D
4. *H. D. Cooley, D
5. *T. Chatham, D
6. *C. T. Durham, D
7. *F. E. Carlyle, D
8. *C. B. Deane, D
9. *H. O. Alexander, D
10. *C. R. Jonas, R
11. *W. W. Jones, D
12. *G. A. Shuford, D

North Dakota

- At-L. *U. L. Burdick, R
- At-L. *O. Krueger, R

Ohio

1. *G. H. Scherer, R
2. *W. E. Hess, R
3. *F. F. Schenck, R
4. *W. M. McCulloch, R
5. *C. Clevenger, R
6. *J. G. Polk, D
7. *C. J. Brown, R
8. *J. E. Betts, R
9. T. L. Ashley, D
10. *T. A. Jenkins, R
11. *O. P. Bolton, R
12. *J. M. Vorys, R
13. A. D. Baumhart, Jr., R
14. *W. H. Ayres, R
15. J. E. Henderson, R
16. *F. T. Bow, R
17. *J. H. McGregor, R
18. *W. L. Hays, D
19. *M. J. Kirwan, D
20. *M. A. Feighan, D
21. C. A. Vanik, D
22. *F. P. Bolton, R
23. W. E. Minshall, R

Oklahoma

1. *P. Belcher, R
2. *E. Edmondson, D
3. *C. Albert, D
4. T. Steed, D
5. *J. Jarman, D
6. *V. Wickersham, D

Oregon

1. *W. Norblad, R
2. *S. Coon, R
3. E. Green, D
4. *H. Ellsworth, R

Pennsylvania

1. *W. A. Barrett, D
2. *W. T. Granahan, D
3. *J. A. Byrne, D
4. *E. Chudoff, D
5. *W. J. Green, Jr., D
6. *H. D. Scott, Jr., R
7. *B. F. James, R
8. *K. C. King, R
9. *P. B. Daguer, R
10. *J. L. Carrigg, R
11. D. J. Flood, D
12. *I. D. Fenton, R
13. *S. K. McConnell, Jr., R
14. *C. M. Rhodes, D
15. *F. E. Walter, D
16. *W. M. Mumma, R
17. *A. R. Bush, R
18. *R. M. Simpson, R
19. J. M. Quigley, D
20. *J. E. Van Zandt, R
21. *A. B. Kelley, D
22. *J. P. Saylor, R
23. *L. H. Gavin, R
24. *C. D. Kearns, R
25. F. M. Clark, D
26. *T. E. Morgan, D
27. *G. F. Fulton, R
28. *H. P. Eberharter, D
29. *R. J. Corbett, R
30. *E. J. Holland, D

Rhode Island

1. *A. J. Forand, D
2. *J. E. Fogarty, D

South Carolina

1. *L. M. Rivers, D
2. *J. J. Riley, D
3. *W. J. B. Dorn, D
4. *R. T. Ashmore, D

5. *J. P. Richards, D
6. *J. L. McMillan, D

South Dakota

1. *H. O. Lovre, R
2. *E. Y. Berry, R

Tennessee

1. *B. C. Reece, R
2. *H. H. Baker, R
3. *J. B. Frazier, Jr., D
4. *J. L. Evins, D
5. *R. F. Priest, D
6. R. Bass, D
7. *T. Murray, D
8. *J. Cooper, D
9. *C. Davis, D

Texas

1. *W. Patman, D
2. *J. B. Brooks, D
3. *B. Gentry, D
4. *S. Rayburn, D
5. B. Alger, R
6. *O. E. Teague, D
7. *J. Dowdy, D
8. *A. Thomas, D
9. *C. W. Thompson, D
10. *H. Thornberry, D
11. *W. R. Poage, D
12. J. Wright, D
13. *F. Ikard, D
14. J. J. Bell, D
15. J. M. Kilgore, D
16. J. T. Rutherford, D
17. *O. Burleson, D
18. *W. Rogers, D
19. *G. Mahon, D
20. *P. J. Kilday, D
21. *O. C. Fisher, D
- At-L. *M. Dies, D

Utah

1. H. A. Dixon, R
2. *W. A. Dawson, R

Vermont

- At-L. *W. L. Frouty, R

Virginia

1. *E. J. Robeson, Jr., D
2. *P. Hardy, Jr., D
3. *J. V. Gary, D
4. *W. M. Abbitt, D
5. *W. M. Tuck, D
6. *R. H. Poff, R
7. *B. P. Harrison, D
8. *H. W. Smith, D
9. W. P. Jennings, D
10. J. T. Broyhill, R

Washington

1. *T. M. Pelly, R
2. *J. Westland, R
3. *R. V. Mack, R
4. H. Holmes, R
5. *W. Horan, R
6. *T. C. Tollefson, R
- At-L. *D. Magnuson, D

West Virginia

1. *R. H. Mollohan, D
2. *H. O. Staggers, D
3. *C. M. Bailey, D
4. M. G. Burnside, D
5. *E. Kee, D
6. *R. C. Byrd, D

Wisconsin

1. *L. H. Smith, R
2. *G. R. Davis, R
3. *G. R. Withrow, R
4. *C. J. Zablocki, D
5. H. S. Reuss, D
6. *W. K. Van Pelt, R
7. *M. R. Laird, R
8. *J. W. Byrnes, R
9. *L. R. Johnson, D
10. *A. E. O'Konski, R

Wyoming

- At-L. E. K. Thomson, R

Alaska**Delegate**

- *E. L. Bartlett, D

Hawaii**Delegate**

- *Mrs. J. R. Farrington, R

Puerto Rico

- Resident Commissioner
- *A. Fernós-Isern, D

(Continued from Page 767)

izing the president to use such "measures as he judges to be required" was passed (409-3) by the House of Representatives on January 25 after only three hours of debate, and was adopted (85-3) by the Senate on January 28. Thus armed, the president initiated diplomatic moves designed to enlist the aid of neutral nations and the United Nations in persuading Communist China to consider a peaceful settlement.

For a time the war clouds thickened. In a cable received by the United Nations on February 3, Premier Chou En-lai rejected a Security Council invitation to discuss the Formosa Strait situation with a curt announcement that Communist China would be satisfied with nothing less than Formosa. Two days later it was announced that the U.S. Seventh Fleet would aid in the evacuation of the Tachen Islands, which had been made indefensible by the capture of Yikang, despite a warning from the Peking radio that this might start "a major war." The evacuation was, however, completed without incident. Encouraged by this, the Senate approved the ratification of two treaties, one aligning the United States with other nations in the Southeast Asia Treaty Organization (q.v.), on February 1; the other assuring Nationalist China that any attack on the territories of Formosa or the Pescadores would be considered a "common danger," and would be met by the United States "in accordance with its constitutional processes," on February 9. Since the latter treaty did not bind the nation to fight in defense of Quemoy and Matsu, the Chinese Communists were left wondering whether an attack on those islands would provoke retaliation.

After more than two months of uncertainty with war constantly imminent, Communist China backed down. On April 23, Premier Chou En-lai announced that his government was willing to discuss the whole question of relaxing tensions in the Formosa Strait. Signs that a Chinese peace offensive was under way continued through the spring and summer. On May 31, 4 United States pilots grounded during the Korean War were released from China, largely through the efforts of U.N. Secretary General Dag Hammarskjöld. In June, 3 of the 21 United States soldiers who had refused to be repatriated after the Korean War expressed a desire to return home, and on July 10 they were released from Communist China to United States control in Hong Kong.

When the United States, on July 11, notified Chou En-lai that it was ready to begin the discussions proposed on April 23, ambassadors of the two powers met at Geneva, with the United States diplomat instructed to work for acceptance of the principle on nonrecourse to force and for a cease-fire in the Formosa Strait. These objectives were not immediately forthcoming, but on August 4 the Communists released the 11 United States airmen who had been convicted of espionage in 1954, and on September 10 agreed that all Americans in China who wished to return home should be allowed to do so. By the end of the year all but 13 of the Americans in jail had been released, and others had been permitted to leave China. (See also CHINA; FORMOSA.)

The Cold War in Europe.—Tensions also relaxed in Europe in 1955, as the USSR adopted a more conciliatory attitude, especially after February 8, when Nikolai A. Bulganin became premier.

As the year began, the principal United States effort was directed toward securing ratification of the Paris agreements granting sover-

eignty to West Germany and providing for its arming as a member of the North Atlantic Treaty Organization (NATO). After Italy (March 11) and France (March 27) finally ratified them, the U.S. Senate, on April 1, approved (76-2) ratification by the United States.

These signs of European accord, combined with a sudden reversal by the USSR when it announced on April 15 that it would sign an Austrian State Treaty on terms long demanded by the West (such a treaty was signed on May 15), encouraged the United States to suggest that the time was ripe for a conference of the heads of government of Great Britain, France, the USSR, and the United States. Details of a conference to be held at Geneva were worked out at San Francisco, when delegates from the 60 member nations met there on June 20-26 to celebrate the 10th anniversary of the United Nations.

Solid support for the president's peace objectives was shown on June 22, when a Senate resolution introduced by Sen. Joseph R. McCarthy, asking that the conference consider the status of the Soviet satellite states, was overwhelmingly defeated (77-4). Instead, the Senate, on July 14, agreed on a mild administration resolution assuring the satellites of the continued sympathy of the United States (88-0).

This harmonious spirit so pervaded the meeting, which opened on July 18, that a new phrase, "the spirit of Geneva," was added to the world's vocabulary. Sir Anthony Eden, Edgar Faure, Marshal Bulganin, and President Eisenhower discussed in a friendly vein the unification of Germany, the status of the satellite nations, and international atomic control. The conference's most dramatic moment occurred on July 21, when the president spoke on world disarmament, proposing (1) that the USSR and the United States give each other "a complete blueprint of . . . military establishments," and (2) that each nation provide the other with "facilities for aerial photography" as a check against hidden arms concentrations. The conference adjourned on July 23 after agreeing that the disarmament proposals should be submitted to the Subcommittee of the U.N. Disarmament Commission, and that the foreign ministers of the four powers should meet to consider details of other matters discussed at the conference.

That the spirit of Geneva could not long predominate was shown by the speeches of Secretary of State John Foster Dulles (September 22) and Foreign Minister Vyacheslav M. Molotov (September 23) at the tenth session of the U.N. General Assembly. The former deplored the suppression of free peoples in the satellite countries, charged the USSR with abuse of the veto power in the Security Council, and branded the government of Communist China as "evil." Molotov answered by asserting that only the Soviet Union and Communist China were friends of peace, that NATO must be scrapped, that the United States must abandon its bases abroad, that the veto power should be allowed to stand, and that Communist China should be admitted to the United Nations. These differences came to a head when the foreign ministers began their sessions at Geneva on October 27. After two weeks of bitter discussion, Molotov, on November 8, angrily rejected all proposals for German unification, and two days later ended all hope of a harmonious agreement on disarmament. The conference closed on November 16 after failing to reach an agreement on any topic. (See also GENEVA CONFERENCE.)

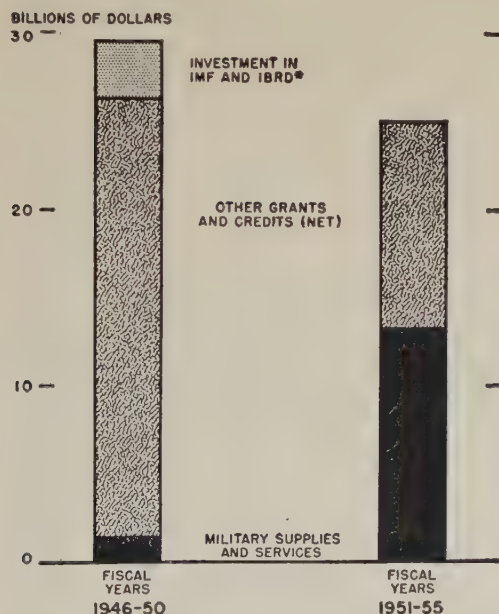
Optimists, however, could see some hope as a result of developments that occurred during the brief period when the spirit of Geneva prevailed. In this interval the Iron Curtain was raised to allow a greater popular interchange than at any time since World War II. During the summer, 12 Russian farm experts toured the American West while a similar American delegation was hospitably received in the Soviet Union. On October 3–November 10, a group of 10 Russian housing specialists toured American cities under the auspices of the National Association of Home Builders, while other organizations besieged the State Department with requests to bring similar groups to the United States. A number of congressmen went to the USSR in the summer, and tourists also took the opportunity to become acquainted with people behind the Iron Curtain.

Scientists took advantage of the new spirit to step up international cooperation. On July 29, it was announced that President Eisenhower had approved plans for the United States to launch an earth-circling satellite during the International Geophysical Year (1957–58). Data obtained from it would be available to all scientists. (See SPACE FLIGHT.) More significant was the International Conference on the Peaceful Uses of Atomic Energy, held at Geneva on August 8–20, which allowed about 1,200 scientists from 72 nations on both sides of the Iron Curtain to exchange information toward speeding the day when the atom would do more of the work of man. (See ATOMIC ENERGY.)

The Legislative Record.—A spirit of harmony also prevailed in Washington, where the 84th Congress assembled on Jan. 5, 1955, with 231 Democrats¹ and 203 Republicans in the House of Representatives, and 48 Democrats, 47 Republicans, and 1 independent (Wayne Morse of Ore-

¹ After a special election held on January 11 in Florida, there were 232 Democrats.

Postwar Foreign Aid



* International Monetary Fund and The International Bank for Reconstruction and Development

U. S. DEPARTMENT OF COMMERCE, OFFICE OF BUSINESS ECONOMICS

85-55-6

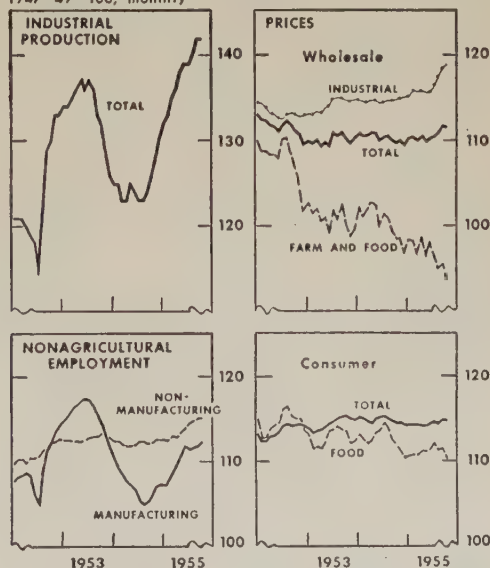
gon, who became a Democrat in February) in the Senate. So effectively did the Democrats work with the president that of the 20 major legislative proposals contained in his State of the Union message of January 6, 11 were adopted, though not always exactly as recommended by the administration.

The greatest unanimity was shown on measures concerned with international affairs and national defense. A bill extending the Reciprocal Trade Agreements Act for three years and authorizing the president to reduce tariffs up to 5% each year on imports from nations granting similar concessions to the United States was passed by the House (295–110) on February 18 and by the Senate (75–13) on May 4, the principal opposition being voiced by Republicans and conservative Southern Democrats; the final bill was passed on June 15. (See TARIFFS.) Congress also authorized (June 17) the expenditure of \$75 million, as requested by the president, to complete the Inter-American Highway, and appropriated (July 28) \$2,703 million for foreign aid. (See FOREIGN AID PROGRAMS, U.S.)

A military training program laid before Congress on January 18 also was approved. On June 28, a bill extending the draft for four years was passed. The Reserve program suggested by the president to assure a "higher degree of readiness to meet immediate mobilization requirements" was approved (315–78) by the House on July 25 and by the Senate on the following day. Under this program the Ready Reserve can be increased to 2,900,000, regular trainees will serve 4 years in the Reserve after their 2 years of training, and a new class of trainees will serve in the Ready Reserve for 7½ years after only 6 months of active service. The \$31.5 billion originally requested by the president for the armed services was raised to \$31.8 billion by the Senate on June 20, when it added funds to maintain the Marine Corps at 215,000 men and to increase the

SELECTED BUSINESS INDEXES

1947-49 = 100, monthly



FEDERAL RESERVE BULLETIN, NOV. 1955

Note—Seasonally adjusted series, except for prices. Bureau of Labor Statistics data for employment and prices, and Federal Reserve data for production. Industrial prices include those other than farm products and foods. Latest figures shown are for October, with consumer price indexes estimated by Federal Reserve.



BIMROSE IN THE PORTLAND OREGONIAN

"NOT SO BAD, AFTER ALL"

production of jet bombers. The final bill was passed on June 30. (See NATIONAL SECURITY.)

Administration-congressional relations were less harmonious when dealing with the economy. The president on January 6 recommended pay increases for members of Congress and the federal judiciary, as well as for postal and other federal employees. A bill to raise congressional and judicial salaries was passed by the Senate on February 28 by voice vote, and by the House on March 1 (223-213); it was signed by the president on the next day. On March 30, salaries of career military officers and noncommissioned officers were increased from 6 to 25% in order to attract more capable men into the armed forces. Against this background, congressmen feared a hostile public opinion if they voted postal employees only the 7.5% increase recommended by the president. On May 9, the House passed (328-66) a measure granting an average 8.8% raise; the Senate concurred (66-11) two days later. President Eisenhower vetoed the bill on May 19, arguing that the increase was higher than was justified by the cost of living and that it would increase the postal deficit. After the Senate upheld this veto (54-39) on May 24, Congress adopted (June 7) a substitute measure granting postal workers an 8% increase, which the president approved on June 10. Other government employees received an average raise of 7.5% in a measure signed on June 28.

Democrats also sought to win income tax relief for low-income groups. On February 25 they attached (210-205) a rider lowering each person's tax \$20 to a House bill extending for one year the corporation and excise taxes due to expire on April 1, but it was eliminated by the Senate on March 15. On July 30, Congress defied the president once more by raising the minimum wage payable under the Fair Labor Standards Act from 75 cents to \$1 an hour, effective March 1, 1956, rather than to 90 cents as requested; the bill was signed reluctantly on August 12. On June 30, an administration proposal to extend the

\$281 billion debt limit for another year was adopted.

Conflicts over welfare legislation were so intense that little was accomplished. A presidential plan announced on February 8 for a three-year, federal-state-local school construction program, to cost \$7 billion, was not acted on by Congress, partly because Democrats insisted that the program was inadequate and partly because anti-segregation riders introduced by Northern congressmen aroused Southern resentment. (See also EDUCATION.) An administration proposal to build 35,000 federal public housing units a year for the next two years was rejected by the Senate on June 7 in favor of a bill providing for 200,000 to 800,000 units to be built within four years. The House measure differed so radically that the final measure was virtually written in conference and passed the day before Congress adjourned on August 3. This provided for 45,000 units for one year only. (See also HOUSING.)

Even less successful was the president's attempt to secure approval for a 10-year road building program, to cost \$31 billion in federal funds and \$70 million in state and local funds and to be financed by special bond issues. The method of financing was denounced by House Democrats, and in July they advanced their own plan, which would cost \$50 billion over 13 years and be financed by higher taxes on gasoline and tires. On July 27, the administration proposal was defeated (221-193); then the House voted against its own plan (292-123), partly because this had aroused the opposition of the American Trucking Association.

The House also rejected the president's plea for statehood for Hawaii by first linking Hawaiian and Alaskan statehood, and then returning (218-170) the combined bill to committee on May 10. Also unacted on were administration proposals for revision of the Refugee Relief Act of 1953 and the Taft-Hartley Act, and for an expanded health program. A controversial measure to exempt natural gas producers from federal control was passed (209-203) by the House on July 28, but was deferred by the Senate, and the president's request for \$21 million to build an atomic peace ship was omitted from the atomic construction bill passed on June 29.

Possible proposals for future legislation were contained in the reports of the Hoover Commission (q.v.).

The President's Illness.—On September 24, the legislative machinery was slowed when President Eisenhower suffered what was at first described as a "mild coronary thrombosis" while vacationing in Denver, Colo. A more thorough examination showed the attack to be more serious than had been realized, but the nation was soon cheered by regular reports of his recovery. In his absence from Washington, Vice President Richard M. Nixon presided over the Cabinet and the National Security Council, while both Nixon and Presidential Assistant Sherman Adams shuttled between Washington and Denver to place vital matters before the president for decision. By November 11, Eisenhower was able to return East and resume a limited work schedule, and on November 14 he went to his farm near Gettysburg, Pa., where temporary offices were set up in the post office.

Political Developments.—Since many experts agreed that his illness would prevent the president from running for re-election in 1956, a storm of controversy soon arose over his successor. Democrats were especially hopeful, for no one

of their candidates appeared able to challenge Eisenhower's popularity; a Gallup poll taken just before his illness showed that 61% of the voters favored Eisenhower and only 39% Adlai E. Stevenson. The most widely favored Democratic prospects were Stevenson, Gov. Averell Harriman of New York, and Sen. Estes Kefauver of Tennessee, with Stevenson gaining strength as autumn progressed. Mentioned as Republican candidates if Eisenhower did not run were Vice President Nixon, Chief Justice Earl Warren, Sen. William F. Knowland of California, Harold E. Stassen, and Secretary of the Treasury George M. Humphrey.

That the Democratic swing notable in 1954 was still strong was shown in local elections held on November 8. The Democrats elected a governor in Kentucky and mayors in Philadelphia and in a surprisingly large number of cities in Indiana and Connecticut. They also gained three seats in the New Jersey Senate. Although local issues predominated in the 1955 elections, observers agreed that the Republican Party faced a real struggle to retain the presidency in 1956. (See also DEMOCRATIC PARTY; ELECTIONS; REPUBLICAN PARTY.)

The National Economy.—Republican political aspirations were favored by the booming economy. The president's annual budget message, submitted on January 17, proposed expenditures of \$62.4 billion for the 1956 fiscal year (July 1, 1955—June 30, 1956). Receipts were estimated at \$60 billion, leaving an anticipated deficit of \$2.4 billion. A Treasury Department report of July 20 for the fiscal year 1955 showed an income of \$60.3 billion and expenditures of \$64.5 billion, leaving a deficit for the year of \$4.2 billion.

The inflationary pressures of these budgets meant prosperity for both industry and workers. The gross national product rose from an annual rate of \$375.3 billion in the first quarter of 1955 to \$391.5 billion in the third quarter, while employment climbed from 62,703,000 in May to 65,161,000 in October. With new construction at an all-time high of \$27 billion in the first eight months of the year, and at a yearly rate of \$41.8 billion in October, there seemed every likelihood that expansion of both production and employment would continue for some time. Wages also moved upward; by July average weekly gross earnings in manufacturing industries amounted to \$76.36, up \$5.44 over July 1954, and by September had risen to \$77.71. This money was spent

so freely that by October consumer spending was at the rate of \$256.5 billion yearly, the highest in history. (See also BUILDING AND CONSTRUCTION; INCOME; LABOR.)

The buying spree sent corporate profits soaring and touched off an upward swing of the stock market. In their half-year reports, the United States Steel Corporation showed profits 89% above those of the year before; General Motors Corporation, 40%; Standard Oil Company of New Jersey, 17%; and others in proportion. This sparked a wave of stock buying that sent the Dow-Jones industrial average to 437.62 by June, a 32-point gain since January 3, and to 471.73 in July. After a brief adjustment slump in the late summer, the advance began again, reaching a peak of 487.75 just before the president's heart attack launched a new decline that wiped out an estimated \$14 billion in profits in one day (September 26). The climb soon began again, with the Dow-Jones average reaching 458.47 by the end of October. (See also PROFITS AND DIVIDENDS; STOCKS AND BONDS.)

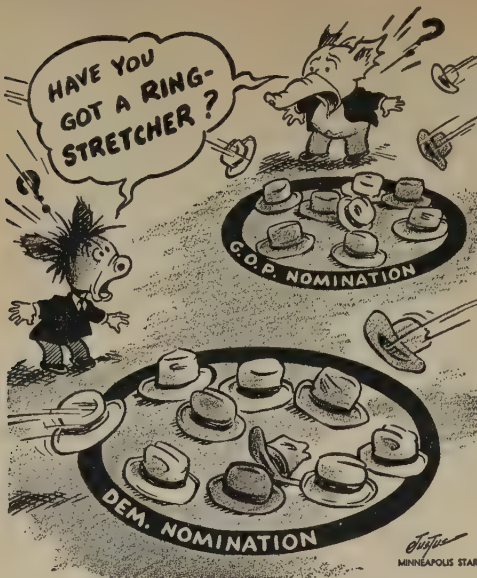
Weak spots in the economy were still apparent. Farm income continued to decline until in August farmers were receiving 9.3% less than a year before. Equally alarming was the increase in consumer credit as installment buying expanded; this stood at \$29.7 billion in January, \$32.9 billion in July, and \$34.3 billion in September, an all-time high.

Both Congress and the administration took steps to halt or control the boom. A "friendly" investigation of the stock market by the Senate Banking and Currency Committee under J. William Fulbright resulted in a report, issued on May 26, that called for stronger regulatory laws to govern the market and a further study of the increasingly "unhealthy speculative developments in the stock market." The brake was also applied to business borrowing for plant expansion in April, when the Federal Reserve Board authorized member banks to raise their rediscount rates from 1½% to 1¾%. Later, in August and September, most of the banks raised their rediscount rates to 2%, and three of them (Cleveland, St. Louis, and Minneapolis) to 2¼%. New York commercial banks in turn raised their minimum interest charges on business loans from 3% to 3¼%, the highest in 22 years. To discourage speculative building the Federal Housing Administration (FHA) announced on July 30 that it had reduced the maximum FHA loan period from 30 to 25 years and boosted minimum down payments

(Left) Yankees manager Casey Stengel explains the fine points of baseball to Premier Nu and Mrs. Nu of Burma on their visit to the U.S. in 1955. (Right) Adlai Stevenson (left) greets ex-President Truman on April 16 in Washington, D.C., at a testimonial dinner for House Speaker Sam Rayburn of Texas.



UNITED PRESS: WIDE WORLD



JUSTUS IN THE MINNEAPOLIS STAR

"ANOTHER BOOMING BUSINESS

from 5% to 7%. (See also BANKS AND BANKING; CONSUMER CREDIT; FEDERAL RESERVE SYSTEM.)

Organized Labor.—Prosperity meant important gains for organized labor. New union contracts negotiated in basic industries in June and July boosted wages by 5 to 10 cents an hour, 50% more than had been granted in 1954. More significant was the acceptance on June 6 of the guaranteed annual wage (GAW) principle in a contract between the Ford Motor Company and the United Automobile Workers, CIO. Designed to offset pay losses suffered by workers in seasonal industries where layoffs are frequent, the GAW contract bound the company to set aside a fund which could rise to \$55 million. This would be used to supplement state unemployment compensation so that laid-off workers would receive

"WELL, DOC, IT'S A RECURRING PAIN"

WOOD IN THE RICHMOND NEWS-LEADER



a total of 65% of their normal take-home pay for 4 weeks and 60% for another 22 weeks. The General Motors Corporation (June 13) and Chrysler Corporation (September 1) signed similar contracts. On November 8, Ohio voters handed the GAW plan a setback by defeating a CIO-sponsored measure to allow workers to receive income from supplementary layoff benefits while collecting state unemployment insurance.

Basic steps were taken in 1955 for the merger of the AFL and CIO. On February 9, President George Meany of the AFL and President Walter P. Reuther of the CIO announced an agreement on terms of unity. The new organization, called the American Federation of Labor and Congress of Industrial Organizations, was formed on December 5. (See also AMERICAN FEDERATION OF LABOR; CONGRESS OF INDUSTRIAL ORGANIZATIONS; LABOR.)

The Farm Problem.—The continuing slump in agricultural income made the farm problem a major political issue. On April 27, the administration proposed a long-range program of education, research, and credit and off-farm job expansion, which was denounced by Democrats as inadequate to meet the emergency. Their solution was a farm bill, adopted (206-201) by the House on May 5, which would have restored rigid price supports on five basic crops at 90% of parity. Although this bill was not considered in the Senate, the Democrats had fashioned a tool for the 1956 elections by going on record in favor of rigid rather than flexible supports.

That this would be effective was indicated by the criticism of the administration's flexible program. By dropping the average 1955 support price for wheat from \$2.24 to \$2.08 a bushel, Secretary of Agriculture Ezra T. Benson reduced production from 969.8 million bushels in 1954 to 915.5 million in 1955. Encouraged by this, he announced a support price of \$1.81 (76% of parity) for 1956. Farmers, faced with the choice of reducing their acreage and securing this price or accepting the market price of \$1.19, voted on June 25 by a 77.5% majority to accept quotas in 1956. Despite mounting objections, Benson announced in September that price supports on five other basic crops would be lowered from 5% to 13% in 1956. The president officially endorsed this program on October 29. (See also AGRICULTURE.)

Making the most of this situation, both the Democratic Party's national chairman, Paul M. Butler, and two of its leading 1956 candidates, Stevenson and Harriman, announced themselves as favoring price supports at 90% of parity.

Public Power.—The principal controversy over public power centered in 1955, as in 1954, on the Dixon-Yates contract.² Negotiated by the Atomic Energy Commission (AEC) and signed on Nov. 11, 1954, this authorized two private utility companies to construct a \$107 million power plant at West Memphis, Ark., which would feed electrical power to replace that being supplied for the expanding atomic energy program into the lines of the Tennessee Valley Authority (TVA). Advocates of public power held that the government should generate its own electricity by expanding the TVA.

The issue was joined on January 28, when the Democratic-controlled Joint Congressional Committee on Atomic Energy asked the president to cancel the Dixon-Yates contract. Instead, on Feb-

² Named for E. H. Dixon, president of Middle South Utilities, Inc., and E. A. Yates, board chairman of the Southern Company.

ruary 5, the AEC voted (2-1) to abide by the contract, while on February 9 the Securities and Exchange Commission (SEC) approved (4-1) a stock-selling plan to raise funds for the plant's construction. Ground was broken at West Memphis on June 2. Meanwhile, the Memphis City Commission voted to build its own public plant, and at the same time notified the TVA that it would buy no more power after 1958. As this increase in generating facilities would make the Dixon-Yates plant unnecessary, the president canceled the disputed contract on July 11.

The last word on Dixon-Yates had not yet been spoken. The Senate Antimonopoly Subcommittee, in a routine investigation of the contract, announced on July 22 that it had found "evidences of corruption" in the method of drafting, and charged that the AEC had withheld vital information from the public. It reported that Adolphe H. Wenzell, an official of the First Boston Corporation of New York, an investment banking concern, had served as a government consultant on the contract, and that only a month later the concern had been named financial agent for the project. On November 23, the AEC ruled that, because of a possible violation of the conflict-of-interest laws, the contract was invalid and it would not make cancellation payments to Dixon-Yates. Then, on December 13, the Dixon-Yates interests sued the government for \$3,534,778 in expenses incurred in connection with the canceled contract.

Security and Civil Liberties.—The government's security procedures were subjected to mounting criticism during 1955, as lessening world tensions allowed spokesmen for civil liberties to become more vocal. Resentment was aroused especially by the handling of the Wolf I. Ladejinsky case. Ladejinsky, an agricultural expert originally employed by the State Department in Japan and transferred in 1954 to the Agriculture Department, was dismissed by the latter on "technical and security grounds." These, it developed, were based on the fact he had been born in Russia, had relatives there, and had worked briefly as a translator for Amtorg in 1930-31. When Secretary Benson refused to back down, Ladejinsky was given an important post in South Viet-Nam by the Foreign Operations Administration (FOA) on January 5.³

Criticism of the handling of this case was

³ On July 2, Benson disclosed that the Agriculture Department had subsequently cleared Ladejinsky.

(Left) Secretary of Health, Education, and Welfare Oveta Culp Hobby (resigned July 13, 1955), discusses polio vaccine program with President Eisenhower, May 16. Surgeon General Scheele stands between them. (Right) John Thompson, one of 11 U.S. airmen released by Chinese Communists, meets his mother at Bolling Air Force Base, Wash., August 13.

partially responsible for a presidential announcement on March 4 of procedural changes in the security program for government employees. These provided for personal interviews with employees against whom charges had been made before suspension, a clearer presentation of charges, and the appearance of witnesses who had given derogatory information in cases in which national security would not be jeopardized. The basic right of accused persons to confront their accusers in all cases was, however, still denied. Hopes that the U.S. Supreme Court would insist on that right in the case of Dr. John P. Peters, a part-time consultant dismissed from the Public Health Service, were frustrated when the court, in a 7-2 decision on June 6, ordered his record cleared on a technical point.

Continuing objections to the program forced the president to reverse himself and sign, on August 9, a congressional resolution calling for the appointment of a 12-member bipartisan commission to investigate the entire loyalty-security program. The commission was appointed on November 10. The Senate Subcommittee on Constitutional Rights, headed by Thomas C. Hennings, Jr., held public hearings on November 14-29 on cases in which citizens' rights had been infringed by government security procedures. (See also CIVIL LIBERTIES.)

Conflict-of-Interest Cases.—In addition to the charges concerning Adolphe H. Wenzell in the Dixon-Yates matter, there were several other instances in which government officials or consultants were alleged to have violated conflict-of-interest laws. In July, the Senate Permanent Subcommittee on Investigations heard charges that Secretary of the Air Force Harold E. Talbott had retained a \$50,000-a-year partnership interest in a New York clerical-efficiency firm after entering government service, and that he was using his position to solicit business for it. Talbott admitted the charges, but professed to see nothing wrong with the practice. Although the president took no stand, he accepted Talbott's resignation on August 1.

On November 25, the chairman of the Interstate Commerce Commission, Hugh W. Cross, resigned following charges before the Senate subcommittee that he had violated conflict-of-interest laws.

Public Health.—On April 12, the National Foundation for Infantile Paralysis announced that a vaccine developed by Dr. Jonas E. Salk had



PHOTOS BY UNITED PRESS



UNITED PRESS

Women's activities director of the Federal Civilian Defense Administration, Mrs. Jean Fuller, wears protective clothing at atomic explosion in Nevada, May 5, 1955.

been shown by statisticians who had analyzed the results of a trial program conducted in 1954 to be 80-90% effective against paralytic poliomyelitis. On the same day, the Public Health Service licensed six pharmaceutical firms to produce the vaccine under carefully controlled conditions; mass inoculations began almost at once, with children in the 5-to-9 age group receiving priority. Hope soon turned to dismay when a number of the children thus treated developed polio. Tests showed that 58 of 73 who contracted the disease following vaccination had received vaccine produced by the Cutter Laboratories of Berkeley, Calif. Use of Cutter vaccine was halted by the Public Health Service on April 27, and on May 7 all further inoculations were banned. The ban was lifted for some vaccine six days later, only to be followed by a halt in the release of further vaccine on May 18.

Criticism of the Public Health Service, and especially of Mrs. Oveta Culp Hobby, secretary of health, education, and welfare, for this indecision and for the inadequacy of the testing methods enforced by the government, was widespread. Mrs. Hobby resigned her post, effective August 1, for personal reasons, and was replaced by Marion B. Folsom (q.v.).

With tests improved and more rigid controls established, distribution of the vaccine was resumed. An announcement by the Public Health Service on October 1, at the end of the polio season, revealed that the incidence of the disease among 7 million children who had been vaccinated was 25-50% lower than among those who had not, even though most had received only one shot. With a more efficient testing and distributing system planned for 1956, the defeat of this crippling disease seemed certain. (See also POLIOMYELITIS.)

School Desegregation.—In a unanimous decision announced on May 31, the Supreme Court laid down the procedure through which desegregation in the nation's schools was to be achieved. Instead of setting a definite date when segregation must end, the court ruled that federal district courts should require school officials to "make a prompt

and reasonable start toward full compliance," but grant them "additional time" if it seemed desirable in the light of "public interest." In effect, the ruling made no compromise with the principle of desegregation, but provided that the process could be sufficiently delayed to allow public opinion in Southern communities to be prepared for integration.

The opening of schools in September showed that some progress had been made. Missouri had integrated white and Negro pupils in the majority of its school districts, while in Arkansas, Texas, Kentucky, Oklahoma, Maryland, and West Virginia a beginning had been made in some districts, usually in urban areas. In other states, notably North Carolina and Tennessee, plans were under way to begin desegregation in 1956. Seven states—Alabama, Georgia, Florida, Louisiana, Mississippi, South Carolina, and Virginia—were, however, devising plans to maintain segregated schools. (See also EDUCATION; NEGROES, AMERICAN.)

Disasters, Imagined and Real.—To offset the growing apathy toward civil defense inspired by relaxing world tensions, the administration on June 15-17 staged Operation Alert 1955, a realistic air-raid test on a national scale. When the air-raid warnings sounded, the president and 15,000 government employees evacuated Washington, to spend three days in 31 secret locations nearby. The president, operating from a tent, directed operations as reports poured in of simulated atomic and hydrogen bomb attacks that "killed" 8.5 million persons, left 25 million "homeless," and "destroyed" 16% of the nation's industrial capacity. Mock martial law was proclaimed, and a meeting of the National Security Council was held in a secret Pentagon. The tests showed that weaknesses existed in methods of distributing medical supplies and personnel; they also reminded the American people of the grim disaster that is modern war. (See also FEDERAL CIVIL DEFENSE ADMINISTRATION.)

More real was the damage resulting from storms that swept the Eastern seaboard. Hurricane Connie, sweeping a lethal path from South Carolina to Lake Erie on August 12-13, left 43 dead in its wake as well as millions of dollars in property damage. Then, on August 18 and 19, hurricane Diane dumped an unprecedented rainfall from Virginia to New England, sending rivers into roaring torrents of destruction. (See also FLOOD CONTROL.) The death toll for the area as a whole amounted to 191, with many others missing, and property damage was estimated at \$500 million. Western Connecticut, which had been severely hit by Diane, again sustained heavy damage from rains and floods that struck the Middle Atlantic and New England states on October 14-17. In the area as a whole, 44 persons were dead or missing.

The West was hard hit in December when overflowing rivers in eastern Nevada, northern California, and southern Oregon brought floods which caused damage estimated at over \$150 million. A total of 74 persons lost their lives in California and Oregon.

(See also FOREIGN POLICY OF THE U.S., and the Index entry, *United States*.)

RAY A. BILLINGTON,
Professor of History, Northwestern University.

UNITED STATES AIR FORCE. See AIR FORCE, U.S.

UNITED STATES ARMY. See ARMY OF THE U.S.
UNITED STATES BUREAU OF MINES. See MINING

UNITED STATES COAST AND GEODETIC SURVEY. See COAST AND GEODETIC SURVEY, U.S.

UNITED STATES COAST GUARD. See COAST GUARD, U.S.

UNITED STATES EMPLOYMENT SERVICE. See BUREAU OF EMPLOYMENT SECURITY.

UNITED STATES INFORMATION AGENCY. In 1955 this agency (Theodore C. Streibert, director) operated 200 posts in 79 countries to give information to foreign peoples about United States policies and about those aspects of American life and culture which help to explain them. Through virtually all means of communication—press and publications, pamphlets, posters, radio, television, film, books, lectures, music, and exhibits—emphasis was given to promoting worldwide understanding of America's peace objectives, the president's program for peaceful use of the atom, American cultural achievements, international trade fair participation, and industrial and economic stability. The aggressive nature and threat of international communism were also portrayed.

The agency's radio arm, the Voice of America, originated more than 40 hours of broadcasts daily in 38 languages. Repeats brought the total to more than 100 hours each day. About three fourths of the radio output went to Soviet orbit countries. In September 1955 the Voice of America discontinued its foreign-language shortwave broadcasts direct to western Europe and put into effect arrangements for its broadcasts to that area to be made by local stations to which radio audiences customarily listen. The Voice of America also provided American-made films for use on television in countries where that medium is gaining in importance.

The press service of the agency sent daily by wireless 7,000 words of United States news and background materials six days a week to 66 countries. It prepared and distributed abroad two books, *What Is Communism?* and *What Is Democracy?* as well as a bimonthly magazine, *Problems of Communism*. The film service produced film documentaries in the United States and in 22 foreign countries. It made and showed, from trucks and boats, the first motion pictures with Laotian and Cambodian sound tracks.

The 160 libraries in 67 countries, containing a total of 2.6 million books, were visited by 39 million persons. In addition, 42 binational centers in nearly self-supporting programs in 24 countries (37 centers in Latin America and 5 in the Middle and Far East) taught English to about 48,000 adult students. The translation program assisted in issuing through publishers abroad 5.1 million copies of 590 editions of American books in 45 languages. Over 6 million persons saw exhibits on peaceful uses of the atom. International editions of the photographic exhibit, *The Family of Man*, originally prepared for the Museum of Modern Art in New York by Edward Steichen, were shown to large audiences in Latin America and Europe. In the fiscal year 1955 the Informational Media Guaranty Program guaranteed the conversion to United States funds of \$7.5 million of foreign currencies received by American publishers from the sale of their books in ten countries. During 1955 this program was extended to Chile, Indonesia, Pakistan, the Philippines, and Turkey. Through private cooperation with the agency, several colleges opened American reading rooms in overseas institutions. A number of national groups joined in buying and sending, through the facilities of CARE, the agency's 99-

volume paperbound set of "Books Americans Are Reading."

Of 10,157 persons employed by the agency on June 30, 1955, foreign nationals numbered 6,674 and Americans totaled 3,483. The appropriation of agency funds for the fiscal year 1956 was \$85.3 million.

FRANKLIN L. BURDETTE,
Chief, Information Center Service,
U.S. Information Agency.

UNITED STATES INVESTMENTS. See FOREIGN INVESTMENTS.

UNITED STATES MARINE CORPS. See MARINE CORPS, U.S.

UNITED STATES MARITIME COMMISSION. See MERCHANT MARINE.

UNITED STATES MINT. See MINT ESTABLISHMENT, U.S.

UNITED STATES NAVY. See NAVAL AFFAIRS.
UNIVERSITIES. See COLLEGES AND UNIVERSITIES; EDUCATION.

URANIUM. Prospecting, development, and mining of uranium ores have been greatly stimulated by the Atomic Energy Commission's establishing guaranteed minimum prices, the present schedule of which is effective through March 31, 1962. Although uranium production has increased greatly, statistics released by the AEC, as given in the accompanying table, cover nonenergy uses only.

CONSUMPTION OF URANIUM COMPOUNDS FOR
NONENERGY PURPOSES IN THE UNITED STATES
(Pounds of contained U_3O_8)

	1951	1952	1953	1954
Chemical (including catalytic).....	2,016	3,048	2,539	2,462
Ceramic (including glass).....	875	1,627	...	...
Electrical.....	88	226	42	58
Total.....	2,979	4,901	2,581	2,520

Significant deposits of uranium are found throughout the world, the Belgian Congo being the major producer. Prior to the Korean War, the United States imported 90% of its uranium. Since then, however, there has been a boom in uranium prospecting and mine development. In 1955 deposit discoveries were made in Arizona, New Mexico, Texas, and Wyoming. This trend will undoubtedly continue unabated, inasmuch as known deposits (as of 1955) will be exhausted by 1962.

In 1955, Canada bid fair to become the world's leading source of uranium ore. Ontario's Blind River area alone contains known deposits estimated in value at \$3 billion. In both the United States and Canada the governments are by law the only purchasers of uranium.

URBAN PLANNING. See CITY PLANNING.

URBAN RENEWAL. See CITY PLANNING.

URBAN TRANSIT. The transit industry in the United States is composed of nearly 1,600 companies supplying more than 5,000 communities of over 1,000 population with low-cost public transit service. The mass transit facilities in these communities require an investment of \$3.9 billion in motorbuses, streetcars, trolley coaches, rapid transit cars, other equipment, shops, and property.

During 1955 the transit industry operated 2.4 billion vehicle miles and carried more than 11.5 billion passengers. Some 108,000 miles of route were served by 73,000 passenger vehicles.

Industry gross revenue totaled more than \$1.4 billion in 1953. Wages and salaries of 198,000

U.S. URBAN TRANSIT INDUSTRY

	Calendar year 1955 (preliminary)	Calendar year 1954 (final)
RESULTS OF OPERATION:		
Operating revenues.....	\$1,443,000,000	\$1,471,000,000
Operating expenses ¹	1,286,000,000	1,337,260,000
Operating taxes ²	77,000,000	78,380,000
Net operating revenues ³ ...	80,000,000	56,160,000
OPERATING STATISTICS:		
Number of passengers (total).....	11,530,000,000	12,392,000,000
Vehicle miles operated....	2,380,000,000	2,548,800,000
Route miles operated ⁴	108,000	109,395
Passenger vehicles owned ⁴ ..	73,200	76,198
Employees (average).....	198,000	211,000
Total payroll.....	\$861,000,000	\$895,000,000

¹ Including depreciation. ² Except federal income and excess profits taxes. ³ Before income deductions and federal income and excess profits taxes. ⁴ As of December 31.

employees amounted to \$861 million, representing nearly 60 cents out of every revenue dollar. On an industry-wide basis, average annual compensation for each employee during 1955 was \$4,348.

Material supplies and other services called for a further expenditure of \$425 million. Operating taxes, including all taxes except federal income taxes, amounted to \$77 million in 1955. (See also CITY PLANNING; PUBLIC UTILITIES.)

ARTHUR W. BAKER,

General Secretary, American Transit Association.

URUGUAY. Situated on the southeastern coast of South America and bordering on Brazil (north), Argentina (west), and the estuary of the Río de la Plata (south), Uruguay is the continent's smallest republic (72,153 square miles). Its population, estimated (December 1954) at 2.6 million, is the densest among South American countries. The last census was taken in 1908, and the Uruguayan government keeps only the most elementary statistics. Montevideo, the capital and leading port, has an estimated population of 900,000, which, more than any other city in the world, places it in a commanding position in relation to its country's total population. Next in rank are the minor ports of Paysandú (est. 65,000) and Salto (est. 55,000) on the Uruguay River. Spanish is the official language and Uruguayans are primarily of Spanish and Italian descent. Mestizos, located in outlying rural districts, represent 8% of the population and Negroes, approximately 2%.

Government.—A 9-man National Council, whose presidency rotates annually, functions as the executive power under the 1951 constitution. National councilors, who are elected for one 4-year term, make decisions by majority vote. The National Council exercises powers traditionally given a president, including the appointment of a 9-member cabinet, which has ministries of interior, foreign relations, national defense, and agriculture, among others.

A bicameral General Assembly is composed of a Senate and Chamber of Representatives with 31 and 99 members, respectively, who are elected by proportional representation for a 4-year term. The ascendant role of the Uruguayan legislature is reflected in its power to override the National Council's veto by a two thirds vote, and in its right of interpellation and informal censure of cabinet ministers. The congress also elects the 5-member Supreme Court for a 10-year term.

Religion and Education.—Uruguay shares with Argentina the highest literacy rate (about 85%) in Latin America. Since 1877 free public education has been encouraged, and compulsory attendance has been required, though not enforced, since 1934. About one fifth of the 1954–55 national budget or 95 million pesos* was appropriated for educational purposes. In 1949–50 (the last school census) there were 223,049 elementary school

* The Uruguayan peso has no official exchange value. The multiple rates range from 1.519 pesos per dollar for basic exports to 2.45 pesos for luxury imports. The free rate in November, 1955 was 3.92 pesos per dollar.

students, 31,250 secondary school students, and 8,540 students at the University of Montevideo. Nearly all the 2,000 elementary schools were public, but 38 of the 92 secondary schools were private. Religious teaching has been forbidden in the public schools since 1909, and since 1917 the church has been legally separated from the state. Although most Uruguayans are Roman Catholics, there are only one archbishop, 10 bishops, and 250 secular priests in the country.

Finance.—The mounting public debt of 1,187.3 million pesos on Dec. 1, 1954 (197.6 million pesos more than the previous year) was primarily represented by internal loans (1,082 million pesos). The deficit for 1954 alone was 53 million pesos, of which 50 million pesos represented excess government spending over total revenues. In 1952 direct taxes accounted for 52% of government revenue, while customs, excess profits, and foreign exchange each contributed about 14%. The government did not publish its budget, which commenced March 1, 1955; but deficit spending, together with tax and wage increases, had raised the cost of living in Montevideo to 175 (1948 = 100), 9% above the previous year.

Agriculture.—As a pastoral country, Uruguay devotes 90% of its 37.8 million acres to stock raising, and reserves the rest for crops. As in the United States, the family-size farm is the basic unit of agriculture, and rural workers are relatively well paid. According to the most recent agricultural census (1951), there were 8,154,109 cattle and 23,408,642 sheep in the country. The wool clip has averaged 93,000 metric tons in recent years; exports of greasy and washed wool during 1954–55 totaled 117,117 bales, as compared with 156,853 bales during the corresponding period of the previous season.

The 1955 estimated production of wheat (780,390 metric tons) and flaxseed (2,680,000 bushels) fell short of the previous season. Both wheat and rice (estimated 1955 production of 70,000 metric tons) created a large surplus, which was partly relieved by special exports to Brazil and Japan, respectively. The total 1954 production of oats (3 million bushels), barley (870,000 bushels), and corn (237,334 tons) each fell somewhat below that of the previous year. Other important agricultural products included sugar, wine, and fruit.

Industry.—A complex system of subsidies and social legislation contributed to economic deterioration during 1955. The lack of coal, petroleum, and electric power have prevented heavy industrial development in Uruguay. Nevertheless, capital investment in industry increased from 500 million to 927 million pesos between 1948 and 1952, while production increased from 875 million to 1,094 million pesos during the same period. An estimated 202,000 industrial workers are generally employed in Montevideo, although there were about 75,000 unemployed in 1955 (twice as many as the previous year). Foodstuffs represented 31.4% of the total production in 1951, followed by textiles, 17.3%; construction, 11.5%; and power, 10.1%. Productivity in the meatpacking industry fell off drastically in 1955. However, the manufacture of wool tops, which during the previous two years had accounted for 10% of Uruguay's exports, suffered from inflationary costs. Other principal industries are petroleum refining, tires and other rubber goods, cement, electrical equipment, chemicals, metallurgy, tanning, and the distilling of beverages.

Foreign Trade.—Uruguay's foreign trade in 1954 increased 12.5% above the previous year. Exports totaled \$249 million, while imports were \$273.4 million. Chief 1954 exports (by percentages) were wool, 38%; meat and hides, 25%; linseed, wheat, and other agricultural products, 16%; and textiles, 14%. Principal imports (by percentages) included raw materials, 28.4%; machinery and spares, 10%; and fuel and lubricants,

14%. It was clear that Uruguay's trade situation was worsening in 1955; reluctance to accept lowering international prices for wool resulted in a 20% drop in shipments during the 1954-55 season, as compared with the previous year. The United Kingdom dominated Uruguay in trade (32%), followed by the United States (28%), Brazil (25%), Netherlands (16%), and Germany (14%).

Transportation.—A standard-gauge, 1,874-mile national railway system joins the Brazilian border at four places. Similarly, the 26,000 miles of highway, 3,200 of which are paved, fan out from the capital. In 1954 there were 48,012 automobiles and 41,623 trucks and buses in the country. Two rivers, the Río de la Plata and the Uruguay, provide 500 of the 700 navigable miles of waterways which are available.

There are 7,508 miles of telegraph lines in the country, and in 1954 telephones numbered 104,510, the per capita figure being second only to Argentina in South America. Direct cable service between New York and Montevideo was established on June 25, 1955. In 1954 there were 44 long-wave and 13 short-wave broadcasting stations and an estimated 362,000 receiving sets. Domestic air service is provided by the government-owned PLUNA (Primeras Líneas Uruguayas de Navegación Aérea), and the Pan American Airways connects the modern airport at Carrasco, outside Montevideo, with North American cities.

Principal Events, 1955.—National elections on Nov. 28, 1954, gave the various divisions of the Colorado Party 6 seats on the nation's 9-man executive council, while former President Luis Batlle Berres (president from 1947 to 1951) became the council president. Señor Batlle promised in his inaugural address on March 1, 1955, to encourage more effective economic production. The difficulties associated with the operation of a plural executive, however, were evident, as the new regime was unable to secure agreement on a budget or to cope successfully with the inflationary rise in the cost of living.

Uruguay welcomed the Lonardi regime in Argentina; it was the first to grant diplomatic recognition to the new government (Sept. 22, 1955). However, tourist travel between the two countries had already been reopened on Jan. 11, 1955, and diplomatic relations had been resumed with the Perón administration on April 19, 1955, after a 2-year rupture. A mutual aid treaty, dealing with the peacetime uses of atomic energy, was signed by Uruguay and the United States on June 15, 1955. The visit of Señor Batlle to the United States in December 1955 also fostered cordiality between the two nations. Uruguay quietly re-established diplomatic relations with the USSR in September 1955, after an 8-year lapse.

Uncontrolled inflation, labor discontent, and economic stagnation plagued Uruguay during the year. The large meatpacking plants began slaughtering for the first time in a year during July 1955, after the government had agreed to subsidize adequately their high-cost operations. However, the shortage of cattle induced a hunger strike in August, when 1,400 national packing plant workers were joined by students in a sympathy strike. To develop its electric power, Uruguay received a World Bank loan of \$5.5 million on August 30.

MARTIN B. TRAVIS,
Assistant Professor of Political Science,
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USSR. See UNION OF SOVIET SOCIALIST REPUBLICS.

UTAH. Western state, United States; admitted to the Union, Jan. 4, 1896. The "Beehive State" ranks 10th in area and 38th in population (1955) among the 48 states.

Area and Population.—Area: 84,916 square miles (land, 82,346; inland water, 2,570), divided into 29 counties. Population: (1950) 688,862; (est., July 1, 1955) 776,000. Urban places with 1950 populations above 7,500 are: Logan, 16,832; Murray, 9,006; Ogden, 57,112; Orem, 8,351; Provo, 28,937; Salt Lake City, the capital, 182,121; and South Salt Lake, 7,704.

Executive.—Chief state officers in 1955:

Governor: J. Bracken Lee (Republican)

Secretary of State: Lamont F. Toronto

Treasurer: Sid Lambourne

Attorney General: E. R. Callister

Supt. of Public Instruction: E. Allen Bateman

Constitution and Judiciary.—The present constitution went into effect in 1896. The Supreme Court comprises five justices; chief justice in 1955 was Roger I. McDonough.

Legislature.—The legislature (Senate, 23 members; House of Representatives, 60) meets in odd-numbered years commencing the second Monday in January.

The 1955 legislative session appropriated \$71,511,120 from all funds for the 1955-57 fiscal biennium, including \$48,028,638 from the general fund. One of the major of the 212 bills which became law reapportioned the legislature, increasing Senate membership from 23 to 25 and House membership from 60 to 64. Other enactments created a new gas and oil conservation act and a right-to-work act prohibiting membership in a labor union as a condition of employment; amended the police and firemen's pension systems; set annual salaries for Supreme Court justices at \$10,000 and of District Court judges at \$8,000; provided \$2,130,000 in additional state aid for emergency school building needs; revised income tax regulations; increased corporate franchise tax rates to 4%; imposed an occupation tax on oil and gas wells and uranium and tungsten mines; required an eye examination every five years for a driver's license; and officially designated the sea gull as the state bird.

Finances.—State treasury receipts (1954-55 fiscal year), \$110,629,405.50; expenditures, \$115,672,421.90; treasury balance, \$38,154,341.53. As of Feb. 13, 1955, the state was free from bonded indebtedness for the first time in its history.

Taxation.—State tax revenue (1953-54 fiscal year): \$55,158,604.17, including \$33,341,572.26 from a 2% general sales tax and selective sales and gross receipts taxes; \$1,868,031.96 from licensing; \$5,657,683.32 from individual income taxes; and \$4,610,118.05 from corporate franchise taxes. The state has no poll tax.

Banking.—As of June 30, 1955, the state's 9 national banks had \$342,197,000 in assets, \$240,704,000 in demand deposits, and \$78,685,000 in time deposits. The state's 45 other banks had \$468,711,808.44 in assets, \$178,966,982.79 in demand deposits, and \$178,889,250.26 in time deposits.

Education.—School attendance is compulsory for all between the ages of 6 and 18, inclusive. Operating expenditures of \$36,099,003 (\$321.89 per pupil) for public elementary and secondary schools in the 1953-54 school year comprised \$20,576,432 from local school districts, \$14,078,611 from the state, and \$1,443,960 from the federal government. Expenditures for construction and improvements amounted to \$13,907,834. Teachers' salaries averaged \$3,595.70 (elementary school teachers, \$3,436.26; high school teachers, \$3,722.03).

UTAH SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (k-8).....	371	3,118	114,386
Public junior high (7-10).....	67	981	28,932
Public senior high (7-12).....	82	1,430	39,815
Private and parochial elementary and secondary.....	18	138	2,980
Public vocational and special....	4	138	2,908
Public junior colleges.....	4	172	1,516
Colleges and universities.....	5	...	29,509*

* 1954-55 figures.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) for the 1954-55 fiscal year totaled \$15,251,931.86, including \$6,801,829.23 for old-

UTAH

age assistance, \$4,241,983.13 for dependent children, and \$178,053.50 for the needy blind; a monthly average of 27,905 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$3,329,000; for correctional and penal institutions, \$1,144,-298.

UTAH WELFARE INSTITUTIONS

(As of June 30, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic..	1	716
Hospitals for the mentally ill.....	1	1,357
Sanatoriums for the tubercular.....	1	76
Schools for the blind (Sept. 19, 1955).....	1	52
Schools for the deaf (Sept. 19, 1955).....	1	155
Training schools for delinquent boys and girls..	1	152
Prisons (June 30, 1954).....	1	585

Labor Force.—The labor force on June 15, 1955, numbered 283,000, including 43,500 agricultural workers and 12,400 unemployed. Non-agricultural employment was 225,800, and for 1954 had averaged 210,700. The state paid \$4,-757,385 in unemployment compensation during the year ending June 30, 1955.

Manufacturing.—Estimates indicate that in 1955 there were 990 establishments employing an average of 36,000 persons who received \$140,-000,000 in salaries and wages. Value added by manufacture was an estimated \$305,000,000. Investment in new plant and equipment (1953) amounted to \$15,009,000. Earnings of production workers in manufacturing averaged \$73.42 for an average work week of 39.9 hours during the year 1954, and \$78.38 for 40.4 hours in the first half of 1955.

Principal manufactures include food processing, which in 1953 employed 8,873 persons, paid \$24,335,000 in salaries and wages, and added \$42,241,000 in value by manufacture; primary metal industries, with 8,532 employees (wages, \$41,395,000; value added, \$113,101,-000); fabricated metal products, with 1,777 employees (wages, \$6,552,000; value added, \$15,-707,000); and petroleum and coal products, which in 1952 had 1,533 employees (wages, \$6,-710,000; and value added, \$12,222,000).

Mining.—Mineral production in Utah in 1954 declined 17% in value from 1953, the loss being due primarily to substantial decreases in output of copper, coal, and iron ore. Utah is one of the leading producers of uranium, production figures for which are concealed for security reasons. The state normally ranks second in production of copper, gold, silver, and molybdenum, and third in lead and potash. It stood 13th in the value of its 1953 mineral output, with 2.08% of the United States total.

UTAH MINERAL PRODUCTION, 1954¹

(In short tons, except as noted)

Mineral	Quantity	Value
Asphalt (gilsonite).....	60,500	\$ 2,184,000
Clays.....	250,000	1,590,650
Coal.....	4,850,000	27,985,000
Copper.....	211,300	125,512,200
Gold (ounces).....	407,000	14,245,000
Iron ore (long tons).....	2,930,000	16,847,000
Lead.....	43,700	11,886,400
Petroleum (bbl.).....	1,750,000	²
Sand and gravel.....	4,727,000	3,247,450
Silver (ounces).....	5,975,000	5,407,677
Stones.....	965,000	1,350,000
Zinc.....	32,300	7,170,600
Other minerals.....		31,018,023
Total.....		248,444,000

¹ Preliminary. ² Value included in "Other minerals."

³ Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

The long strike against the Kennecott Copper Corporation's Utah properties was announced as settled on Aug. 12, 1955, and work was resumed almost immediately. Arrangements were also completed in June 1955 for the building of a large uranium ore processing mill at Moab by the Uranium Reduction Company and the Utex Exploration Company.

Agriculture.—Cash farm income for the first half of 1955 totaled \$60,810,000, and for the full year 1954 comprised \$110,539,000 from livestock and livestock products, \$38,752,000 from crops, and \$2,662,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$35,593,000; dairy products, \$23,353,000; sheep, \$13,116,000; eggs, \$11,476,000; turkeys, \$10,635,000; and wheat, \$10,082,000.

The state's 22,825 farms (12,234,222 acres; harvested cropland, 1,228,520) averaged 536 acres and \$23,480 in value of land and buildings per farm in 1954. There were 17,037 farms with telephones and 21,948 with electricity. Livestock on farms on Jan. 1, 1955, included 762,000 cattle, 1,412,000 sheep, and 2,717,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 47,222 family and hired workers were engaged in farming.

UTAH CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	422	370	380
Apricots (tons).....	4,900	5,100	4,900
Barley (1,000 bu.).....	6,000	7,240	7,790
Cherries (tons).....	5,054	8,200	5,000
Hay (1,000 tons).....	1,161	1,182	1,217
Peaches (1,000 bu.).....	636	584	480
Potatoes (1,000 bu.).....	3,066	3,380	3,538
Sugar beets (1,000 short tons).....	467	535	440
Wheat (1,000 bu.).....	8,126	6,633	6,651

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for highways and roads in the 1954-55 fiscal year totaled \$17,498,652.12, and newly completed construction and reconstruction aggregated 368.1 miles.

Highways and roads on Dec. 31, 1954, totaled 31,-039 miles (16,009.4 surfaced). Registered motor vehicles numbered 310,134 on the same date, including 243,884 passenger cars. There were (1955) 9 railroads operating (1954) 1,805.53 line miles, and (1955) 5 regularly scheduled airlines and 113 airports and airfields (44 commercial and municipal, 5 military, 54 private, and 10 others).

Communications media (1955) included 20 AM and 2 FM radio stations and 3 VHF operating television outlets; 5 daily newspapers (circulation, 222,701) and 55 other newspapers; and (Jan. 1, 1955) 71,066 business and 177,590 residential telephones.

Principal Events, 1955.—In its biennial session, Utah's legislature passed 179 bills, 17 of which were repealers of statutes declared unconstitutional by the Utah or U.S. Supreme Court or which had become obsolete by reason of other later legislation. Two of the repealers were to remove from the statute books the laws transferring three junior colleges to the Church of Jesus Christ of Latter-day Saints (q.v.) and closing a fourth. These had been disapproved by the electorate in referendum in 1954.

The state's attorney general ruled in 1955 that under Utah law unpatented mining claims are taxable by the state under the net proceeds tax. In the past a property tax has been levied on machinery, but on the theory that title had not yet been obtained, the owners were not subject to the net proceeds tax.

During the summer the Mormon Tabernacle

Choir made a European tour, singing in Great Britain, Belgium, the Netherlands, Germany, and France. Favorable notices were printed in all the cities where concerts were held.

The city of Provo adopted a home rule charter with a majority of only 25 votes. The main purpose for the charter was to change from the commission to the council-manager form of city government. Democratic Mayor Earl J. Glade of Salt Lake City failed in his bid for a fourth four-year term on November 8. He was defeated in a "nonpartisan" race by Adiel F. Stewart, who moved up from his post as a Republican Salt Lake County commissioner.

A local government survey commission was created by the legislature to study the problem of overlapping functions, metropolitan problems, and financial difficulties. The commission of 11 members was scheduled to make its report on Sept. 15, 1956.

Principal Events by: ELLSWORTH E. WEAVER,
Associate Professor of Political Science,
University of Utah.

UTILITIES. See PUBLIC UTILITIES and the Index entry, *Public Utilities*.

UTRILLO, Maurice, French painter: b. Paris, France, Dec. 26, 1883; d. Dax, France, Nov. 5, 1955. Regarded as one of France's greatest modern painters, Maurice Utrillo produced important works of art, notably landscapes of Paris and its environs, while his mind and body underwent degeneration from acute alcoholism.

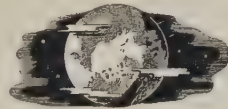
He was the illegitimate son of Suzanne Valadon, a well-known painter in her own right and an artist's model for Renoir, Toulouse-Lautrec, and Degas. By the age of 18, Maurice had become an alcoholic and then, on the advice of his physician, took up painting as a form of physical therapy. His first and only instruction was given him by his mother. The artist received his name from an admirer of his mother, Miguel Utrillo, a Spanish journalist and amateur painter, and his first canvases were signed "Maurice Valadon,"

later, "Maurice Utrillo-Valadon," and finally, "Maurice Utrillo, V." Although he did not particularly like to paint, Utrillo produced 150 works in his first year as an artist.

Utrillo is known best for his street scenes of the Montmartre section of Paris and the Paris suburbs. Although he did some painting directly from nature, because of an obsessive shyness which made it difficult for him to appear in public, much of his most famous work was done from picture postcards. By 1908, after a brief period of impressionism, Utrillo had developed a personal style, and the next six years, his "white period," saw the production of his most famous canvases. This period was marked by two distinct phases. From 1908 to 1910 he used his palette knife to spread his pigments (which were often mixed with plaster to simulate the texture of weather-beaten walls), and from 1910 to 1914 he added the use of his brush to smooth the surface, producing radiance in his landscapes.

Although not accorded early public recognition, by 1924, after his work had been exhibited in a number of galleries, including the Salon d'Automne, the Galerie Berthe Weill, and the Salon des Indépendants, he had become one of the most discussed painters in Paris. As his fame increased so did his income, and in 1923 the Bernheim-Jeune Gallery guaranteed him and his mother (who died in 1938) a yearly income of about \$50,000 for their future output.

In 1935, Utrillo was married to Lucie Pauwels, who cared for the emotionally unstable artist until his death. In 1937 they purchased a villa in Le Vésinet, a Paris suburb, where Utrillo continued his prolific output. According to critics, however, after the 1920's the quality of the canvases showed evidence of the artist's increasing mental debility, although they continued to command high prices on the market. Among his important works are: *La basilique Saint-Denis* (1909); *La Square Saint Pierre à Montmartre* (1914); *Au Lapin Agile* (1914); *Le moulin de la Galette* (1915); and *Les Mesnuls* (1919).



ANADIUM. See MINERAL PRODUCTION.

VANCOUVER. Canada's third city has an area of 44 square miles and an estimated 1955 population of 395,416. It lies on a promontory ending in Point Grey and is bounded on the north by English Bay and Burrard Inlet, on the west by the Strait of Georgia, on the south by the Fraser River and on the east by the municipality of Burnaby (pop. 80,000). Adjacent to the city are the municipalities of North Vancouver, West Vancouver, Burnaby, and Richmond, which have a combined population of 170,000. The University of British Columbia, with a registration (1955) of 6,356, is located on the westerly boundary of the city at the extremity of Point Grey.

Vancouver is governed by a mayor (Fred Hume in 1955), whose term is two years, and by eight aldermen, four of whom are elected each year.

The Second Five-Year Plan, voted in 1953, has resulted in many miles of new paving, sew-

ers, bridges, park development, and schools, and in the completion of plans for a new central library. Schools and parks are administered by elected boards, while hospitals, exhibitions, the art gallery, libraries, and the museum are administered by appointed boards. The city has 115 parks comprising 2,677 acres. A new police headquarters and court was opened during 1955. There was an unprecedented development with respect to buildings in 1955. By Dec. 31, 1955, building permits had reached a total of \$55,446,193, representing a 22% gain over 1954. A new federal post office, two skyscrapers for office purposes, and a large apartment block were the major buildings under way, while home building continued to form the bulk of new construction.

Vancouver's all-year harbor makes it one of the largest ports on the Pacific coast, especially for shipments to the Orient and through the Panama Canal to Europe. Direct shipping lines go to nearly every country, and airlines connect with other major lines or go directly to Europe and the Orient. Inauguration in 1955 of a direct line

over the North Pole to Amsterdam enables travelers to reach Europe in 18½ hours from Vancouver. In the nine months ending Sept. 30, 1955, 859 deep-sea ships entered the harbor with 3,655,749 net tons of shipping, while 3,661,892 net tons were outbound.

Vancouver is a trading and transportation center through which much traffic, tourist and commercial, is routed. In 1954 there were 752,601 visitors to the city, chiefly from the prairie provinces and the western United States. The Pacific National Exhibition had a total attendance of 750,040 for its 12 day-opening.

Since World War II, thousands of new immigrants have added to the cosmopolitan nature of the city, as well as to its business and cultural life. Chiefly from middle Europe, the new citizens have found places in the skilled and semi-skilled trades, in catering, and in clerical and domestic service. A few are in the professions and small businesses, but all have made a contribution to the culture of a new city, particularly in musical and art circles.

E. S. ROBINSON,

Director, Vancouver Public Library.

VARNISH. See PAINTS, VARNISHES, AND LACQUERS.

VATICAN CITY. An independent papal state within the city of Rome. It includes the Basilica of St. Peter, Vatican Palace, the Vatican Gardens, the Vatican Observatory, and some detached palaces and churches. Area, 108.7 acres; pop. (est. 1952), 651 citizens and 296 residents. Vatican City was recognized as an independent state, with the pope as its head, by the Lateran Treaty with Italy on Feb. 11, 1929. This treaty, slightly modified, is incorporated in the Italian Constitution of 1947.

The pope exercises sovereignty with complete executive, legislative, and judicial powers, in accordance with canon law and pontifical rules. The reigning pope is Pius XII (q.v.), elected supreme pontiff by the College of Cardinals on March 2, 1939. Executive powers are exercised by a governor responsible to the pope. The Holy See has accredited diplomatic representatives in some 40 countries. The city-state has its own currency, railway station, stamps, and postal system. The Vatican radio station, located on Italian soil and having extraterritorial rights, broadcasts in nearly 30 languages. The Vatican daily newspaper, *Osservatore Romano*, has a circulation of about 320,000. Nearly a million pilgrims, tourists, and other visitors were reported to have come to the Basilica of St. Peter in 1955. (See also RELIGION—*Catholicism*; ROMAN CATHOLIC CHURCH.)

VEGETABLE OILS. See FATS AND OILS.

VEGETABLES. Production of vegetables in the United States for both fresh market and processing increased during 1955. The Agricultural Marketing Service estimated output of the 28 principal vegetables for fresh market in the major producing states at 10,289,800 tons, slightly above the previous record set in 1954 and 6% more than the 1949-53 average. These crops account for about four fifths of commercial production in the United States. Value of the 28 crops was estimated at \$786,494,000, or 8% more than in 1954. Tomatoes, at \$141,032,000, was the leading crop in value, followed by lettuce, \$138,934,000; celery, \$59,366,000; and onions, \$53,507,000. Output of these crops, in tons, is shown in the following table.

COMMERCIAL VEGETABLES FOR FRESH MARKET¹
(In tons)

	1954	1955
Artichokes.....	18,000	17,800
Asparagus.....	51,700	51,200
Lima beans.....	22,000	21,000
Snap beans.....	268,600	280,800
Beets.....	42,000	34,300
Broccoli ²	94,300	109,300
Brussels sprouts ²	31,300	18,800
Cabbage.....	1,124,900	994,600
Cantaloupes ³	666,600	647,600
Carrots.....	776,400	715,800
Cauliflower ²	190,000	221,400
Celery ²	754,400	741,300
Sweet corn.....	624,500	655,900
Cucumbers.....	197,500	195,200
Eggplant.....	24,400	24,400
Escarole.....	30,600	31,900
Garlic ²	7,300	9,800
Honeydew melons.....	88,200	79,700
Kale.....	9,400	8,900
Lettuce.....	1,424,300	1,467,800
Onions ²	1,090,000	1,017,400
Green peas.....	21,300	21,900
Green peppers.....	141,300	143,000
Shallots.....	6,400	10,700
Spinach.....	92,300	90,100
Tomatoes.....	992,200	1,039,600
Watermelons.....	1,497,500	1,639,600
Total (28 crops ⁴).....	10,287,400	10,289,800
Mint for oil:		
Peppermint.....	700	900
Spearmint.....	500	300

¹ Includes some quantities not harvested. ² Includes production for processing; carrots, celery, garlic, and onions for dehydration included. ³ Includes casabas, Persians, and other muskmelons, but not honeyball and honeydew melons. ⁴ Figures not given for honeyball melons. (Source: Agricultural Marketing Service, U.S. Department of Agriculture.)

California again was the leading producing state, accounting for 30% of the 1955 output of the 28 vegetables. Florida produced 15%; Texas, 10%. New York and Arizona ranked fourth and fifth, respectively.

Output of the 11 principal vegetables for processing in 1955 was 4% above both 1954 and average. The 6,142,900 tons produced was harvested from an acreage 2% smaller than in 1954 and 7% smaller than average. Average yield per acre continued the upward trend. California retained its lead among the states, producing 36% of the total output of the 11 crops. Tomatoes accounted for the bulk of California's production. Wisconsin ranked second with 8% of the total, and Minnesota, New York, Illinois, and Indiana each had 5% or more of the United States tonnage.

Value of the 11 processing crops was estimated at \$252,361,000 in 1955, compared with \$241,580,000 in 1954. Leading crops in value were: tomatoes, \$80,449,000; green peas, \$40,-

VEGETABLES FOR COMMERCIAL PROCESSING
(In tons)

	Average 1944-53	1954	1955
Asparagus.....	99,000	101,600	128,400
Beans, lima (shelled).....	70,900	103,000	87,300
Beans, snap.....	236,800	341,400	310,100
Beets (for canning).....	143,100	146,800	139,400
Cabbage (for sauerkraut).....	189,100	208,100	160,700
Corn, sweet (in husk).....	1,239,800	1,488,800	1,163,700
Cucumbers (for pickles).....	250,600	304,600	312,100
Peas, green (shelled).....	438,200	400,100	454,200
Pimientos*.....	20,000	22,200	34,500
Spinach.....	113,400	91,300	123,000
Tomatoes.....	3,109,100	2,697,700	3,224,500
Total (11 crops).....	5,903,300	5,905,600	6,142,900

* Georgia and Tennessee, plus acreage contracted by Georgia processors in other states. (Source: Agricultural Marketing Service, U.S. Department of Agriculture.)

658,000; snap beans, \$34,114,000; and asparagus, \$31,588,000.

Potatoes.—United States production in 1955 rose 7% over 1954 to 381,631,000 bushels. Yields per acre averaged 271.3 bushels, a new record, exceeding the former 1950 peak by nearly 18 bushels. The 1,406,900 acres from which the crop was harvested was slightly less than in 1954. Leading producing states in 1955 were: Maine, 64,325,000 bushels; Idaho, 51,550,000; California, 40,640,000; and New York, 29,700,000.

Sweet Potatoes.—The 1955 crop in the United States was 38,406,000 bushels, 27% more than production in 1954 and the largest crop since 1950. However, production was still 18% below the 1944-53 average. Farmers harvested 357,400 acres, 4% more than in 1954, and yields increased 20 bushels per acre above 1954 to an average of 107.5, the highest on record. States with the largest crops were: Louisiana, 10,500,000 bushels; North Carolina, 4,400,000; Texas, 3,480,000; Virginia, 3,045,000; New Jersey, 2,550,000; and South Carolina, 2,400,000.

Dry Beans.—The United States produced 17,287,000 bags (100 pounds each, cleaned basis) in 1955, compared with 17,063,000 bags in 1954 and the 1944-53 average of 15,961,000. The 1,567,000 acres harvested was slightly more than in 1954, but the average yield of 1,198 pounds (uncleaned) per acre was slightly lower. Pea (navy) beans were the leading variety produced in 1955, totaling 4,622,000 bags. Other leading classes were: pinto, 3,853,000; great northern, 2,029,000; red kidney, 1,121,000; large lima, 1,077,000; and small red, 1,038,000. Michigan, with 4,668,000 bags of beans, led the states in production. California ranked second with 4,109,000 bags; and Idaho ranked third, with 2,441,000.

Dry Peas.—The 2,457,000 bags (100 pounds each, cleaned basis) produced in the United States in 1955 was about one fifth less than in 1954 and, except for 1952, the smallest crop since 1940. The 292,000 acres harvested was 23,000 more than in 1954, but the average yield of 957 pounds (uncleaned) was 341 pounds less. The bulk of the United States crop was produced in two states—Washington, with 1,193,000 bags; and Idaho, with 922,000.

Vegetable Consumption.—Consumption per person of vegetables in the United States has been trending generally upward since 1937. The proportion consumed in fresh form has declined, however, while that of processed vegetables has increased. In 1954, consumption per person of fresh and processed vegetables totaled 204.9 pounds (fresh equivalent basis), compared with 164.9 pounds in 1937. Vegetables used in fresh form made up 57% of the 1954 total, compared with 67% in 1937. Canned vegetables comprised 37% of the 1954 consumption, compared with 32% in 1937. Use of canned vegetables has fluctuated between 35% and 38% of total vegetable consumption per person for several years. Use of frozen vegetables has increased rapidly, but still makes up a small proportion of the total. In 1954, about 12 pounds of frozen vegetables were consumed per person, compared with only 1 pound in 1937. However, frozen vegetables made up only 6% of the per capita total in 1954. (See also AGRICULTURE; FROZEN FOODS.)

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374,000 cases of venereal diseases reported by state and territorial health departments in the fiscal year 1955 exceeded the combined total of all other notifiable communicable diseases of adults.

Nearly 125,000 cases of syphilis in all stages were reported. This was 11.9% below the number reported the previous year. Early syphilis (primary, secondary, early latent) accounted for 28,900 cases during the same period, as compared with 33,700 early cases in the previous year.

The estimated 239,800 cases of gonorrhea reported in the United States during the fiscal year 1955 was slightly higher than the previous 12-month total. This was the first time an increase has been shown in gonorrhea morbidity since the general decline which began in 1946.

Other venereal diseases—chancroid, lymphogranuloma venereum, and granuloma inguinale—accounted for 4,400 cases, of which chancroid comprised two thirds. These diseases were 2% under the total for the fiscal year 1954.

Mortality and Insanity from Syphilis.—One of the chief aims of syphilis control is the prevention of the disabling complications of late untreated syphilis. Advanced cases of syphilis can result in mental and physical disability and premature death. In the calendar year 1954, there were an estimated 4,970 deaths due to syphilis, a rate of 3.1 per 100,000 population. Final figures for 1953 show 5,273 deaths, a rate of 3.3 per 100,000 population. From 1940 to 1951 the death rate due to syphilis dropped from 10.7 to 4.1 per 100,000 population. Since 1951, this rate has continued to decline, but at a slow rate.

Insanity due to syphilis is measured by the rate of first admissions to hospitals because of syphilitic psychoses. Since 1940, first admission to mental hospitals due to syphilis has dropped from a rate of 6.1 per 100,000 population to a rate of 1.8 in 1952. While the rate has declined in 12 years, the cost of maintenance per case has been rising. The cost in tax-supported installations of maintenance of patients with syphilitic psychoses in 1952 was over \$40 million. The estimated loss of income by males so hospitalized in 1952 was \$98 million.

The rate of infant mortality due to syphilis in 1953 was 1.4 per 100,000 live births, as compared with 2 per 100,000 live births in 1952. Efforts are made to prevent these infant deaths by means of routine diagnostic blood tests on all pregnant women, and adequate treatment of syphilitic women during pregnancy. Forty-two states and three territories have passed prenatal health examination laws to assist in the control of this disease. These legal measures, plus the lowering rate of syphilis in the general population, have resulted in a decline since 1939 of 97.6% in infant mortality due to syphilis.

Control of Venereal Disease.—The control of venereal disease depends on treatment of all infectious persons, curing the disease before the late disastrous consequences can develop, and case finding of the infected person's contacts. State and local health departments primarily are responsible for planning and providing public health services in venereal disease case finding, diagnosis, and treatment, but in 1955 approximately 41% of syphilis cases and 15% of gonorrhea cases were reported by private physicians. Twenty prevention and control centers operating in 7 states and the District of Columbia provided full-time services in case finding, diagnosis, and treatment to 289,385 persons during 1955.

VENEREAL DISEASE. Morbidity.—Approximately

There are also 2,096 venereal disease clinics in 48 states and 4 territories. The centers and clinics made an estimated 1,720,000 diagnostic observations on persons suspected of having a venereal disease. Of those persons examined, 293,000 (17%) were found to be infected, and were admitted for treatment to clinics or other public health facilities. In support of this work done by state and territorial health departments, the Venereal Disease Program continued its aid to case finding activities in 34 states, 3 territories, and the District of Columbia. As a result of 380,000 investigations, 266,000 persons were brought to examination, and 104,500 with a venereal disease were treated. (See also DERMATOLOGY.)

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VENEZUELA. A federal republic in northeastern South America, Venezuela borders on the Caribbean Sea in the north, Colombia in the west, British Guiana in the east, and Brazil in the south. It has an area of 352,143 square miles, and is geographically divided into four major regions: the Andes ranges (where the majority of the people live), the Maracaibo Basin, the llanos (interior plains crossed west to east by the Orinoco River), and the Guiana Highlands.

Population.—The Venezuelan population reached an estimated 5,858,000 by January 1955 (1950 census, 4,985,716), representing a 2.9% annual increase for the last decade. The majority of people are of mixed Spanish and Indian ancestry; tribal Indians number 105,000, while mulattoes and zambos represent 10% of the population. Since 1941 Venezuela has had the world's second highest immigration ratio in relation to total population; in 1954 immigrants totaled 328,185, of whom a third were Italian and 76,880 were Spanish. Urban population, now 50% of the total, includes the Federal District with the rapidly growing metropolitan area around Caracas (1 million on Oct. 1, 1955), Maracaibo (330,470), and Barquisimeto (142,225). Spanish is the official language.

Government.—Venezuela's 22d constitution, approved on April 15, 1953, divides the country into 20 states, 2 federal territories, a federal district, and federal dependencies consisting of 72 islands. The president (Brig. Gen. Marcos Pérez Jiménez) has a 5-year term of office, which began on April 19, 1953 and which runs consecutively with that of the legislature and the Supreme Court. A Senate of 42 members is elected by the state legislatures, and a Chamber of Deputies of 102 delegates is elected by direct vote. The current legislative, administrative, and judicial officials were appointed by the Constituent Assembly, a temporary body controlled by the president.

Education and Religion.—A 10-year school building program was launched in 1951 to provide free education for every child. By December 1954 there were 7,014 elementary schools, in which 16,944 teachers instructed 608,976 pupils, and 197 secondary schools with 877 teachers and 33,481 students. There are 44 normal schools, with 4,374 teachers in training. Roman Catholicism is the prevailing religion, but religious instruction in primary schools must be requested by parents. Three national and 2 private universities provide professional training. During the last decade 808 literacy centers have helped reduce the illiteracy rate from 80% to 40% of the population.

Finance.—Governmental revenues for 1954-55 totaled \$844.6 million, \$133.7 million more than the budget had anticipated and \$83.5 million more than was spent. The 1955-56 record budget of 2,680 million bolivars exceeded the previous year by 300 million. (According to the official rate of exchange, 1 bolivar equals 29.85 U.S. cents.)

Venezuela's gross national product (per capita) rose from \$549 in 1950 to \$642 in 1954, a more rapid rise than in any other Latin American country. Large investments accounted for the rapid growth; since 1950, 24% of the total gross product had been reinvested, while an additional 12% of this total came from the United States. Foreign capital in Venezuela on Jan. 1, 1954, totaled \$3.3 billion, 88.5% of which was invested in oil. United States investments represented 60.63% of this total, followed by the Netherlands (25.35%), and the United Kingdom (12.02%). Venezuela has not been plagued by inflation; however, the April 1955 cost of living (1938 = 100) had reached 180.2, almost 8 points

above the previous year. Venezuela's direct internal debt totals \$12 million but the government-guaranteed debt of public agencies (primarily public roads) was over \$150 million in 1955.

Petroleum Production.—As the world's largest oil exporter and second only to the United States as an oil producer, Venezuela had 12,109 producing wells on Dec. 31, 1954, from which had come 692 million barrels of crude oil, 9% more than the previous year and 13.9% of world oil production. The average daily production during the first half of 1955 reached a record high of 2.11 million barrels.

Eleven active oil refineries within Venezuela produced 161.9 million barrels of petroleum products, or more than half as much as the Netherlands Antilles. While 72.6% of the natural gas was allowed to burn as waste in 1954, the average monthly production of gas between January and June 1955 amounted to 68,864 million cubic feet.

Agriculture.—Venezuela has improved its agricultural productivity; since 1950 its food crops have increased 35%. In 1955, the domestic supply of corn, beans, sugar, rice, and cotton was enough to satisfy national demand. However, the production was still below the consumption of wheat, oats, flour, lard, vegetable oils, and dairy products. Food purchases accounted for 15% of the total imports in 1954, compared with 21% in 1950.

Agriculture is presently characterized by a decline in cacao and coffee, the country's traditional crops. About one fifth of Venezuela's 4.9 million acres under cultivation are devoted to coffee production. During the 1954-55 coffee season, 400,000 bags of 132.3 pounds each (200,000 bags less than the previous season) were produced. Cacao exports in 1954 were 16,818 tons.

Mineral Industries.—The development of extensive mineral resources has broadened Venezuela's economy. The most important minerals discovered to date are gold, diamonds, iron ore, asbestos, manganese, bauxite, sulfur, phosphates, coal, and magnesite. The Bethlehem Steel Company and the United States Steel Corporation shipped 5,420,600 metric tons of Venezuela's 65% iron-rich ore to the United States in 1954, while iron exports in the first quarter of 1955 had reached 2,516,228 metric tons.

Gold production continued to rise; in 1954 it totaled 1,744,088 grams, and during the first quarter of 1955 it reached 602,180 grams. Diamond exploitation has been left to primitive extractive methods. Diamonds weighing 96,983 carats were mined in 1954, and 72,092 carats were produced by the end of June 1955. The production of cement reflected construction activity; the monthly average of 108,000 metric tons for the second half of 1954 dropped to 103,000 metric tons through June 1955.

Foreign Trade.—Venezuela's exports in 1954 totaled Bs.5,661 million, an increase of 19.5% over 1953; imports totaled Bs.2,746 million, an increase of 11.3% above the 1953 figure. Sparked by a record petroleum output, exports and imports during the first quarter of 1955 reached a new seasonal peak. Petroleum accounted for 94.3% of the 1954 exports, which included 655 million barrels of crude oil or 166 million more than the 1953 figure. Iron ore exports rose to 2.14% of the total, while coffee and cacao represented 1.97% and 0.84%, respectively. The market value of coffee dropped considerably in 1954 and again in 1955, although petroleum prices were stabilized.

Venezuela's imports in 1954 included machinery (33%), items for manufacturing metals (23%), and food products (15%). These imports were supplied principally by the United States (61.6%), the United Kingdom (7.8%), Germany (6.8%), Canada (3.96%), and France (3.5%).

Communications.—According to a master highway building program adopted in 1950, Venezuela requires 14,430 miles of main roads, of which 7,475 miles have been constructed, with the remainder scheduled for completion by 1965. There were 112,048 passenger cars, 75,921 trucks, and 5,260 buses registered in July 1954. A \$2 billion railroad development program was inaugurated on Jan. 4, 1955; 2,640 miles of standard-gauge track will eventually link metropolitan areas and ports with agricultural and mining areas.

Venezuela's 2,000-mile coastline and 10,000 miles of navigable inland waterways were being developed by a major port and shipyard construction program. To the 11-vessel fleet of the Venezuelan Navigation Company, 4 merchant ships were added by the 1955-56 budget. Development of land and water transportation, however, has not kept pace with aviation facilities. Four airlines connect Venezuela's 100 airports; 42 of these are national, and 58 are privately owned. The country's network of 152,000 telephones was developed through the construction of 17 new central stations in as many cities, and the laying of 513.3 miles of cable.

Principal Events, 1955.—Of his style of rule, President Pérez Jiménez stated in February 1955: "I make every effort to give Venezuelans the kind of government best adapted to them. People may call it a dictatorial regime . . . (but) my country is not ready for the kind of democracy that brings abuses of liberty."

The American Federation of Labor and the Congress of Industrial Organizations issued a joint statement protesting labor suppression in Venezuela and declared they would not be represented at the Fifth Meeting of the Petroleum Committee of the International Labor Organization (ILO), held in Caracas on April 25, 1955. Venezuelan authorities expelled a member of the ILO's governing body after he had spoken critically of the Venezuelan regime, and on May 3, Venezuela announced its withdrawal from the ILO. However, a less rigid labor policy was evidenced in June 1955, when two trade union leaders were exiled to Mexico after four years in prison without trial. By September 1955 it was estimated that no more than 100 political prisoners were still in prison.

The Venezuelan economy profited by the adoption of a compromise amendment to the United States Reciprocal Trade Agreements Act which permitted, but did not demand, limitation of United States imports, including Venezuelan oil, should the imports threaten American industries. Growing cordiality between the United States and Venezuela was evidenced by the American award of the Legion of Merit to President Pérez Jiménez in November 1954, and in the pledge of Foreign Minister Aureliano Otañez to support the United States during the Formosan crisis in January 1955. On May 3, 1955, Venezuela signed an agreement with the United States on cooperation in the use of atomic energy for peaceful purposes.

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VERMONT. New England state, United States; admitted to the Union, March 4, 1791. The "Green Mountain State" ranks 42d in area and 46th in population (1955) among the 48 states.

Area and Population.—Area: 9,609 square miles (land, 9,278; inland water, 331), divided into 14 counties. Population: (1950) 377,747; (est., July 1, 1955) 377,000. Towns (defined as civil divisions) and urban places with 1950 populations above 7,500 are as follows:

Barre city.....	10,922	Montpelier city ²	8,599
Bennington town.....	12,411	Rutland city.....	17,659
Bennington village.....	8,002	Springfield town.....	9,190
Brattleboro town.....	11,522	St. Albans city.....	8,552
Brattleboro.....	9,606	St. Johnsbury town.....	9,292
Burlington city.....	33,155		

¹ Unincorporated. ² Capital.

Executive.—Chief state officers in 1955:

Governor: Joseph B. Johnson (Republican)

Lieutenant Governor: Consuelo N. Bailey

Secretary of State: Howard E. Armstrong

Treasurer: George H. Amidon

Attorney General: Robert T. Stafford

Commissioner of Education: A. John Holden

Constitution and Judiciary.—The present constitution went into effect in 1793, and was rearranged in 1913. The Supreme Court comprises five justices; chief justice in 1955 was Olin M. Jeffords.

Legislature.—The General Assembly (Senate, 30 members; House of Representatives, 246) meets in odd-numbered years, commencing the first Wednesday after the first Monday in January.

The legislative session of 1955 had the state's longest sitting, 158 days, and the largest biennial appropriations, \$81,049,614.75. Proposed and hoped-for legislative reforms may shorten later sessions, but new financial precedents may increase financial burdens.

Despite ingrained objections to bond issues, except in emergency situations, the session authorized \$12,000,000 in bonds for highways, and \$1,529,000 in bonds for new armory construction. By authorizing construction of limited access roads under federal controls, the session marked the end of an era.

Increased appropriations for welfare, education, and highways brought a total biennial budget vote of \$67,520,614. Maximum aid to the aged was raised to \$63 a month, unemployment compensation payments were substantially increased, and the governor's request for increased highway funds for construction was granted.

The governor's proposals for tax increases also were granted. The state poll tax for old-age assistance was raised from \$3 to \$5 per year, and the gasoline tax was increased one-half cent, the increase going to town highways. The income tax was increased one third, and corporation franchise taxes went up one fourth. To meet an estimated \$600,000 revenue deficit the collateral inheritance tax was nearly doubled.

Voting machines were legalized. The hottest debates and the most ill-will were engendered in the defeat of a proposed bill furnishing bus transportation for parochial school children at public expense. A discussion between public and private power interests over the proper agency to bargain with New York for St. Lawrence Seaway power was mild by comparison. Private power interests won a partial victory when the Public Service Commission triumphed over a proposed public power agency. (See also below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$38,193,467; expenditures, \$51,954,308.94; treasury balance, \$5,985,647.92; long-term indebtedness, \$7,531,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$27,153,000, including \$12,164,000 from selective sales and gross receipts taxes; \$6,648,000 from licensing; \$5,398,000 from individual income taxes; and \$1,594,000 from corporate franchise taxes. The state also has a poll tax of \$5 per person.

Banking.—As of June 30, 1955, the state's 36 national banks had \$171,397,000 in assets, \$71,903,000 in demand deposits, and \$80,260,000 in time deposits; the state's 37 other banks had \$271,200,880.62 in assets, \$36,107,446.61 in demand deposits, and \$200,908,517.37 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for public elementary and secondary schools in the 1953-54 school year totaled \$14,518,535.95 (\$219.67 per pupil). Revenue comprised \$11,495,738 from local school districts, \$4,233,713 from the state, and \$339,247 from the federal government. Outlays for construction and improvement amounted to \$2,278,656.64. Teachers' salaries (1954-55) averaged \$3,039.45 (elementary school teachers, \$2,893.96; high school teachers, \$3,415.62).

VERMONT

In the 1954-55 school year there were an estimated 650 public elementary schools (grades k-6 and k-8) with 2,023 teachers and 51,320 students; 81 public secondary schools (grades 7-12 and 9-12) with 837 teachers and 18,022 students; 53 private and parochial elementary and secondary schools with 14,626 students; and 3 junior colleges, 3 state teachers colleges, and 8 colleges and universities.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$4,972,261, including \$3,649,353 for old-age assistance, \$988,719 for dependent children, and \$92,994 for the needy blind; a monthly average of 11,160 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$2,199,215.89; for correctional and penal institutions, \$774,791.

VERMONT WELFARE INSTITUTIONS
(As of June 30, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.	1	543
Hospitals for the mentally ill.	2	1,679
Sanatoriums for the tubercular.	2	116
Soldiers and sailors homes (July 31, 1955).	1	60
Training schools for delinquent boys and girls.	1	116
Reformatory for females.	1	28
Prisons.	1	277

Labor Force.—Nonagricultural employment in August 1955 numbered 104,350, and for the year ending July 1955 averaged 100,350. There were 1,916 insured unemployed workers in August 1955, and the state paid \$3,328,372 in unemployment compensation during 1954.

Manufacturing.—Establishments numbering 604 in 1954 employed 35,769 workers who received \$122,767,858 in salaries and wages. Value added by manufacture in 1953 totaled \$246,754,000, and investment in new plant and equipment amounted to \$9,527,000. Earnings of production workers in manufacturing averaged \$59.83 for an average work week of 40.7 hours, and \$63.91 for 42.2 hours during the first half of 1955.

MAJOR VERMONT MANUFACTURES, 1954

Product or industry	Ave. no. of employees	Salaries and wages
Nonelectrical machinery.	7,901	\$33,409,555
Stone, clay, glass products.	3,698	13,318,657
Lumber and wood products.	4,658	11,973,474
Textile products.	2,640	8,085,395
Food, food products, beverages.	2,295	7,977,478
Paper and allied products.	1,918	7,692,844
Transportation equipment.	1,840	7,238,746
Printing and publishing.	1,389	4,715,943
Apparel & other fabric products.	2,131	4,491,477
Furniture and fixtures.	1,348	4,325,676

Mining.—Vermont normally ranks first among the states in production of asbestos and marble, second in slate, and fourth in talc. The state stood 40th in the value of its mineral output in 1953, with 0.14% of the United States total.

VERMONT MINERAL PRODUCTION, 1953
(In short tons, except as noted)

Mineral	Quantity	Value
Copper.	3,947 ¹	\$ 2,265,578
Sand and gravel.	1,113,607	690,073
Silver (oz.).	43,128	39,033
Stone ² .	527,150	8,859,703
Talc.	80,209	240,627
Other minerals.		8,207,318
Total.		20,302,332

¹ Copper output in 1954: 4,181 short tons (\$2,483,514).
² Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$55,666,000, and for the full year 1954 comprised \$90,872,000 from livestock and livestock products, \$12,938,000 from crops, and \$1,051,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$72,253,000; cattle, \$8,043,000; eggs, \$6,400,000; maple sirup and sugar, \$3,156,000; and hay, \$2,069,000.

The state's 15,981 farms (3,317,737 acres; harvested cropland, 799,145) averaged 207.6 acres and \$12,720 in value of land and buildings per farm in 1954. There were 11,910 farms with telephones and 15,510 with electricity. Livestock on farms on Jan. 1, 1955, included 479,000 cattle and 929,000 chickens (excluding commercial broilers). During the week of Sept. 26-Oct. 2, 1954, 31,946 family and hired workers were engaged in farming.

VERMONT CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.)	770	880	1,200
Corn (1,000 bu.)	2,602	2,856	2,992
Hay (1,000 tons)	1,340	1,343	1,355
Maple sirup (1,000 gal.)	690	721	673
Maple sugar (1,000 lb.)	108	54	43
Oats (1,000 bu.)	1,219	840	735
Potatoes (1,000 bu.)	1,146	720	731

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$16,295,508.76, and newly completed construction and reconstruction aggregated 91,567 miles.

Highways and roads in August 1955 totaled 13,807 miles (3,421 surfaced). Registered motor vehicles numbered 135,468 on Aug. 31, 1955, including 113,209 passenger cars. There were 14 railroads (1955) operating, in 1953, 942.87 track miles, and (1955) 2 regularly scheduled airlines and 41 airports and airfields (18 commercial and municipal, 1 military, and 22 private).

Communications media (1955) included 13 AM radio stations and 1 operating television outlet; 10 daily newspapers (circulation, 93,252) and 34 other newspapers; and (Jan. 1, 1955) 27,640 business and 76,169 residential telephones.

Principal Events, 1955.—The Vermont General Assembly broke previous records when it adjourned on June 11 after 158 days. An acrimonious struggle over the election of the president pro tempore of the Senate required the vote of then Lieut. Gov. Joseph B. Johnson to break a tie. This inauspicious start did not prevent final adoption of most of incoming Governor Johnson's legislative program. (See above, *Legislature*.)

After 164 years the University of Vermont became an "instrumentality" of the state with a promise of continued financial support and lower tuition for Vermont residents. The Legislature ratified the interstate compact for the New England Board of Higher Education, by which the land-grant colleges mutually agree to support educational programs and grant reciprocal privileges to nonresident students, thus reducing the need for duplicating services such as medical schools and veterinary courses.

During the summer and fall, under newly granted authority, the Public Service Commission negotiated a contract with the New York State Power Authority for the delivery of 100,000 kilowatts of St. Lawrence Seaway power to the border of Vermont, where the existing utilities of the state will take over the transmission. Lower power rates and increased industrial activity are expected from the agreement.

The unexpected Democratic strength in the 1954 Vermont elections sparked an unusual

amount of off-year political activity in 1955. President Eisenhower stopped off in Rutland on June 22 to address a public session of the Dairy-men's Association, and then spent the night in a mountaintop inn where party leaders visited him. Significantly, Secretary of the Interior Douglas McKay talked to a Chittenden County rally in November, and Gov. Averell Harriman of New York appeared in Burlington on December 14.

Legislature and Principal Events by:

ANDREW E. NUQUIST,

Professor of Political Science, University of Vermont.

VETERANS ADMINISTRATION. An independent agency of the United States government, the Veterans Administration is responsible for administering benefits provided by law for veterans and their dependents.*

In October 1955, the nation's population of living veterans reached 22,000,000. Eighty per cent, or more than 15,400,000, had served in World War II. More than 4,000,000 had seen service during the Korean War period between June 27, 1950, and Jan. 31, 1955. The remainder had served in earlier American wars and during time of peace.

To bring benefits to the veteran and his family, the VA maintains offices, hospitals, and homes in all parts of the United States. Offices have also been established in Alaska, Hawaii, the Canal Zone, Puerto Rico, and the Philippines, to handle benefits available in those areas.

Following are the major benefits administered by the VA for veterans:

Medical and Hospital Benefits.—As of Sept. 1, 1955, the VA was operating a network of 173 hospitals for the treatment of ill and disabled veterans. In addition, some beds were available for veterans in non-VA hospitals, on a contract basis. During August 1955, the VA's average daily patient load was more than 110,000 veterans, both in VA and non-VA hospitals. More than half were being treated for mental illnesses.

Veterans of all wars, including those who served during the Korean War period, are entitled to VA hospital care under the following priority system:

First, veterans suffering from injuries or disabilities that resulted from, or were aggravated by, their wartime military service.

Second, veterans with injuries or diseases not connected with service in the armed forces. These veterans must state under oath that they are unable to pay for private hospitalization; must submit a financial statement listing their liabilities and assets; and must wait until a bed becomes available.

During 1955, the VA stepped up its many-sided attack on the growing problem of providing aging veterans with the type of medical care that will enable them to lead useful lives in spite of age and disability. While only 600,000 veterans now are 65 years old or more, the number is expected to increase ten times over during the next half-century.

Among the steps taken have been the following: (1) testing a new program of caring for chronically ill veterans in special intermediate beds, where they receive medical service of a nature between that required by the more acutely

ill and that furnished in domiciliary homes; (2) researching the use of drugs, such as nicotinic acid, which may overcome a common mental malady of the aged; conducting psychological studies on the characteristics and needs of the aged; (3) placing eligible aged veteran-patients in convalescent homes or in private homes within their own communities, since it is generally recognized that elderly patients respond better to treatment either at home or in institutions near home; and (4) planning individual "programs of living" for veterans in domiciliary homes, to add new dignity and meaning to their lives.

Korean GI Bill.—A Korean GI bill, enacted in July 1952 for veterans who served during the Korean War, includes five benefits designed to help them in their return to civilian life: education and training; guaranteed or insured loans for homes, farms, and businesses; unemployment compensation; mustering-out pay; and job-finding assistance. The GI education and GI loan programs are the only ones administered by the VA.

Education and Training.—Under the Korean GI training program, a veteran may be entitled to 1½ days of training for each day spent in service during the Korean War period. The maximum is 36 months. While in training, he will receive an education and training allowance from the government. This is the only payment made. Tuition, fees, books, and the like must come out of the monthly allowance.

Rates for veterans in full-time training in schools and colleges are \$110 a month if they have no dependents; \$135 if they have one dependent; and \$160 if they have more than one dependent. Those in training less than full time, as well as those in on-the-job and on-the-farm training, will receive lower monthly rates.

By Sept. 1, 1955, more than 1,000,000 Korea veterans—or one out of every four who served during the Korean conflict period—had taken some form of Korean GI training during the three years the law has been in effect. More than 50% had gone to college; another 34% enrolled in schools below the college level; 12% had taken on-the-job training; and 4% trained on-the-farm.

A VA survey, conducted in 1955, revealed that Korea veterans stayed away from "easy" courses and gravitated toward courses requiring a high degree of skills and training. Business administration courses were most popular, followed by engineering, high-skilled mechanics, crafts, radio and television, medicine, teaching, and science.

GI Loans.—The Korean GI bill contains a loan program that operates under the same conditions that apply to GI loans for World War II veterans. Loans may be used to buy, build, or improve a home; buy a farm, farmland, or farm equipment; or go into business.

As in the case of World War II veterans, GI home loans are guaranteed for up to 60% of the loan, but the guaranteed portion may not exceed \$7,500. Other real estate loans may be guaranteed up to 50%, with a \$4,000 maximum guarantee. Non-real-estate loans, such as business loans, may be guaranteed up to 50%, with a \$2,000 guarantee ceiling.

By Sept. 1, 1955, nearly 200,000 Korea veterans had obtained GI loans. About 90% purchased homes. Loans totaled nearly \$2 billion, of which the VA had guaranteed \$1.1 billion.

Unemployment Pay.—For Korea veterans, unemployment compensation of \$26 a week for a maximum of 26 weeks is handled through the states by the U.S. Department of Labor.

* The agency was created by a presidential executive order on July 21, 1930, under authority of a law passed on July 3 of that year. Its purpose was to bring under one roof the three agencies—Bureau of Pensions, Veterans Bureau, and National Home for Disabled Volunteer Soldiers—which then were administering benefits for veterans.

Mustering-Out Pay.—The mustering-out program, administered by the armed forces, provides veterans with the following payments at time of discharge: \$300 for those with at least 60 days' service, who were on active duty outside the United States; \$200 for those with 60 or more days' service, who were not outside the United States; and \$100 for those who spent less than 60 days on active duty.

Job-Finding Help.—The Korean GI bill's job-finding assistance consists of job counseling and employment placement services, offered by the U.S. Employment Service.

World War II GI Bill.—The World War II GI Bill originally contained three major benefits: GI loans, a program still in full operation; GI training, a program nearing its expiration date; and GI unemployment pay, a program that ended in 1949.

Education and Training.—The cut-off date for starting training under the World War II GI Bill came for nearly all veterans in July 1951. Veterans actually in training at that time were permitted to continue afterwards until they completed their courses, but the training had to be continuous except for interruptions beyond their control, such as summer vacations and recall to military duty. The end of the program for nearly all veterans occurs on July 25, 1956.

By Sept. 1, 1954, more than 7,800,000 World War II veterans—or more than half of all who served during the war—received GI training at some time or another during the 11 years of the program. Of these, 2,200,000 attended colleges and universities; 3,500,000 went to schools below the college level; 1,400,000 took on-the-job training; and 700,000 enrolled in institutional on-farm training (a combination of classroom work and practical experience).

Total cost of the program has been \$14.5 billion. Eighty per cent of the money went directly to the veterans in the form of subsistence allowances. Nearly all the rest was spent for tuition and other training costs. Less than 5 cents out of every dollar went for administration of the program.

GI Loans.—The GI loan program for World War II veterans is similar to that in effect for Korea veterans. By Sept. 1, 1955, more than 4,000,000 World War II veterans had obtained GI loans for an amount totaling more than \$28 billion. Of this sum, the VA had guaranteed or insured more than \$15 billion. More than 90% of the loans were for homes. The remainder were for farms and businesses.

Veterans have made an excellent record of meeting their GI loan obligations. By Sept. 1, 1955, more than 900,000 GI loans amounting to \$4.4 billion had been repaid in full. By the same date, the VA had paid claims on only 37,000 defaulted loans, or less than 1% of the total number. Some of the money the VA has had to pay to lenders is subject to further recovery through the liquidation of assets.

In July 1955, moderate credit restrictions were placed on GI loans, calling for a down payment of at least 2% and a maximum repayment period of 25 years. The reason for this action was to help protect prospective GI home-buyers against increased prices of homes, overextension of credit, and financial risks.

Vocational Training for the Disabled.—Two separate laws provide vocational rehabilitation training for disabled veterans. One, Public Law 16, applies to veterans disabled in World War II; the other, Public Law 894, is for veterans dis-

abled since the start of the war in Korea. Both laws operate in the same manner. Eligible veterans in need of vocational training to overcome their handicaps may train in school, on-the-job, or on-the-farm.

Before a disabled veteran begins training, he is interviewed by a VA counselor, and also may be given a series of tests to determine his aptitudes and abilities. In this way, the VA can help the veteran decide on the type of training he should receive.

While in training, and for two months afterward, the veteran will get a monthly subsistence allowance in addition to his disability compensation payments and also in addition to his training costs—tuition fees and the like—which the VA pays directly to his school. Maximum subsistence rates for veterans in school are \$75 a month, without dependents; \$105 with one dependent; and \$120 with more than one dependent. Additional allowances may be provided, depending on the veteran's degree of disability and the number of his dependents.

Most disabled World War II veterans must have begun Public Law 16 training in time to complete it by July 25, 1956. Disabled Korea veterans discharged before Aug. 20, 1954, must finish by Aug. 20, 1963. Those discharged after Aug. 20, 1954, must complete their training within nine years from separation or from Jan. 31, 1954, whichever comes first. The law allows certain "hardship" cases an additional four years in which to complete their training.

By Sept. 1, 1955, more than 609,000 disabled World War II veterans had received Public Law 16 training during the past 12 years. Another 30,000 veterans, disabled since Korea, also have been trained.

Compensation and Pensions.—Veterans with service-connected disabilities received either during wartime or peacetime service may qualify for monthly compensation payments from the VA. Pensions may be paid to veterans of World War I, World War II, and Korea, for total and permanent disabilities not related to their military service, provided their annual incomes fall below \$1,400 if they are single, or \$2,700 if they are married or have a minor child.

Compensation rates range from \$17 a month for a disability rated at 10% to \$181 for a disability with a 100% rating. Additional statutory awards are payable to veterans with certain severe disabilities, such as blindness and amputations. Peacetime rates are 80% of the wartime scale.

Pension rates are \$66.15 a month, increased to \$78.75 after 10 years or when the veteran reaches age 65. Veterans who need constant aid and attendance may get \$135.45 a month.

On Sept. 1, 1955, more than 2,600,000 veterans were on the VA's disability compensation and pension rolls. Included were 155,000 veterans disabled since hostilities in Korea.

Insurance.—The VA administers three systems of insurance: U.S. Government Life, for World War I veterans; National Service Life, for World War II veterans; and the Indemnity and Insurance Acts of 1951, for Korea veterans.

On Sept. 1, 1955, nearly 5,700,000 World War II veterans held GI insurance policies having a total value of \$37.7 billion; 400,000 World War I veterans had policies valued at nearly \$5 billion; and 339,000 Korea veterans had Korean GI term insurance totaling \$3 billion.

Other Benefits.—The VA administers a number of other benefits for veterans and their depend-

ents. Among these are programs providing cars for the seriously disabled; "wheelchair housing" grants for other disabled veterans; and a guardianship service.

HARVEY V. HIGLEY,
Administrator, Veterans Affairs.

VETERANS ORGANIZATIONS. See specific names of organizations under SOCIETIES AND ORGANIZATIONS.

VETERINARY SCIENCE. Livestock die from ravages of diseases and parasites. Death losses, however, are insignificant when compared with the insidious or hidden losses which result directly from sublethal attacks of many diseases and a myriad of parasites. These are losses due to interference with normal body function. They range from failure of females to reproduce normally, through abortion and infertility, to retarded growth and lowered quality of meat food.

Growers can see and count death losses. They cannot accurately measure losses caused by subclinical infections which sap individual or herd vitality. Apparently healthy animals whose normal body functions are retarded by agents of disease or by parasites cost livestock growers millions of dollars annually, limiting profits from livestock operations. They also add to cost of meat food protein.

Many examples of occult infection or parasitism may be cited to illustrate the importance of microscopic life whose hosts are domestic animals. A small area of mange on a hide may look innocent, but when multiplied by the number of animals on which infestation by tiny mites is unnoticed, losses may be computed in millions of dollars, because of retarded growth and the extra feed for satisfactory finish. In like fashion many other creatures visible only by microscopic study are a drag, limiting results that might be expected from otherwise good management and feeding practices.

Meat foods are, of course, derived from healthy animals. Safeguards to assure consumers wholesome meat cuts, clean milk, and safe nutritious poultry and poultry products are adequate. Inspection services at the municipal, state, and federal levels constitute informed, efficient, and effective forces.

Advancement in veterinary science has been directed toward control or prevention of disease rather than to treatment of ailing animals. Through research, the nature of the relationship of parasitic life to the host animal has been revealed. Human needs have been the continuous motive stimulating inquiry.

The task of bringing meat food supply to an adequate level by 1975 involves the production of 46% more meat on a reduced number of acres. The magnitude of the task of so increasing meat food production has been fully emphasized in many quarters. For example, the former director general of the U.N. Food and Agriculture Organization, Lord Boyd Orr, has claimed that: "It is not the atomic bomb, but the food crisis, that may destroy us. Veterinary medicine is one of the few branches of science in which knowledge can be increased and applied without the danger of doing more harm than good." (See also AGRICULTURAL RESEARCH SERVICE; ZOOLOGY.)

ROBERT L. ANDERES,
Editor, "Veterinary Medicine."

VIET-NAM. See INDOCHINA.

VIRGIN ISLANDS, British. See LEEWARD ISLANDS.

VIRGIN ISLANDS OF THE UNITED STATES. Lying east of Puerto Rico, this West Indian insular possession of the United States forms part of the chain of islands which extends between the Caribbean Sea and the Atlantic Ocean. The islands were purchased from Denmark for \$25 million in 1916, and were proclaimed a United States possession on Jan. 25, 1917.

Area and Population.—Land and inland water area: 132 square miles, comprising three main islands (St. Thomas, with a land area of 32 square miles; St. Croix, 80; and St. John, 20), and approximately 50 small islets and cays (mostly uninhabited), included statistically with the larger islands. Estimated 1954 populations (with 1950 census figures in parentheses): St. Thomas, 15,202 (13,813); St. Croix, 13,065 (12,103); and St. John, 786 (749), for a total of 29,053 (26,665). Charlotte Amalie (1950 pop., 11,469) on St. Thomas is the capital and chief port; on St. Croix are the cities of Christiansted (4,112) and Frederiksted (1,961).

Government.—A new Organic Act of the Virgin Islands (Public Law 517) went into effect on July 22, 1954. Pursuant to its provisions, the executive power of the Virgin Islands is vested in a governor and is exercised under the supervision of the secretary of the interior of the United States. On Aug. 10, 1955, Gov. Archibald A. Alexander resigned effective August 31. On August 19, President Eisenhower appointed as the new governor, Walter A. Gordon, who took the oath of office at Charlotte Amalie on Oct. 17, 1955. Other ranking officials include the government secretary, Charles K. Claunch; the administrative assistant to the governor, George W. Hamilton; the United States attorney, Leon Miller; and the judge of the District Court of the Virgin Islands, Herman E. Moore.

Under the Organic Act, nine executive departments, each headed by a commissioner, replaced 100 bureaus and committees. The new departments are those of Agriculture and Labor, Education, Finance, Health, Insular Affairs, Public Safety, Public Works, Social Welfare, and Tourism and Trade.

Legislative power is vested in the Legislature of the Virgin Islands, with 11 senators elected to two-year terms as follows: two from St. Thomas, two from St. Croix, one from St. John, and six elected at large.

Finances.—With passage of the new Organic Act, the pattern of government financing was changed. Government operations are now financed jointly from revenue collected locally and from Federal Matching Funds from the United States, which are obtained under provisions of the internal revenue laws of the United States on articles produced in the Virgin Islands and transported to the mainland. Separate federal grants-in-aid are made for emergency purposes and essential public projects only. Subsequent to the new Organic Act, a single treasury of the Virgin Islands was created, replacing the system of two separate municipal treasuries; and the Department of Finance was reorganized into tax, treasury, and accounting divisions.

Revenue for the fiscal year ending June 30, 1955, from real property and income taxes, matching funds, and grants-in-aid, totaled \$6,678,196.

Banking.—There are two banks: the Virgin Islands National Bank, with assets (June 30, 1955) of \$10,649,578.13, and the West Indies Bank and Trust Company, with assets of \$3,301,648.48.

Education.—School attendance is compulsory for all between the ages of 5½ and 15. On the three major islands there were in 1955, 32 public schools, comprising 7 kindergartens, 15 rural schools, 7 city elementary schools, one junior high school, and two junior-senior high schools. Their enrollment in 1954-55 was 5,639, and their budget totaled \$716,381. The per pupil cost of \$217 in 1954-55 represented an increase of \$32 over the previous year. Additional enrollment in June 1954 at eight parochial and five private schools was 1,922 and 278, respectively.

Social Welfare.—The Department of Social Welfare administered \$254,701.01 in public assistance expenditures for 1954-55, including \$136,564.37 for old-age assistance, \$65,325.17 for dependent children, and \$19,570.63 for the disabled. Three homes are maintained for the aged and indigent, and there is a school for delinquent boys which in 1954 was transferred from St. Thomas to St. Croix. Some \$1,014,257 was available in 1953-54 for use by the Department of Health for all hospitals.

Agriculture, Industry, and Trade.—There are 755 farms in the Virgin Islands which, according to the 1950 federal census of agriculture, covered 63,753 acres, of which 16,461 had been in cropland harvested the previous year. The value of land and buildings totaled \$6,492,720. Agricultural activities center around the raising of sugarcane (almost 5,000 acres are devoted to its cultivation) and the breeding of livestock.

While much of the revenue of St. Croix is obtained from agriculture, that of St. Thomas is derived largely from the manufacture of rum, handicrafts, tourist expenditures, trade, and shipping. During the year ending June 30, 1955, income from tourists was estimated at \$6 million, representing an increase of 10 per cent over the previous year. Thirty-six hotels and guest houses, mostly located on St. Thomas, had accommodations in 1955 for 1,351 tourists.

During the first 11 months of the 1954-55 fiscal year, exports were valued at \$3,713,886; imports totaled \$11,786,060.

Communications and Transportation.—Daily air-mail and passenger service is provided between St. Thomas and St. Croix, and daily boat mail and passenger service, between St. Thomas and St. John. Caribbean-Atlantic Airlines, Inc., and Pan American World Airways, Inc., added many extra flights in 1955, and British West Indian Airways, Ltd., inaugurated two weekly flights. Thirty-five cruise ships, carrying 13,000 passengers, made St. Thomas a port of call. There are four daily newspapers with a combined circulation of 3,000.

Statistics in the accompanying table are for the year 1954.

	St. Thomas & St. John		St. Croix	
	No.	Mileage	No.	Mileage
Highways.....		90		150
Motor vehicles.....	1,738		1,309	
Airports.....	1		1	
Airlines.....	3		2	
Telephones.....	1,360		627	
Telegraph lines.....		29.5		2.5
Cable offices.....	1		1	
Radio stations.....	1		1	

GEORGE W. HAMILTON,

Administrative Assistant to the Governor.

VIRGINIA. South Atlantic state, United States; one of the original 13 states. The "Old Dominion State" ranks 35th in area and 15th in population (1955) among the 48 states.

Area and Population.—Area: 40,815 square miles (land, 39,893; inland water, 922), divided into 98 counties and 32 independent cities (as of November 1955). Population: (1950) 3,318,680; (est., July 1, 1955) 3,421,000. Urban places with 1954 populations (as estimated by the Research Department of the Virginia State Chamber of Commerce) above 10,000 are as follows:

Alexandria.....	85,100	Norfolk.....	242,600
Bristol.....	16,800	Petersburg.....	36,600
Charlottesville.....	25,600	Portsmouth.....	93,200
Danville.....	36,400	Richmond ¹	241,000
Fredericksburg.....	13,100	Riverview ¹	14,215 ²
Hampton.....	69,600	Roanoke.....	97,000
Harrisonburg.....	11,400	South Norfolk.....	23,200
Hopewell.....	22,500	Staunton.....	21,900
Lynchburg.....	49,600	Suffolk.....	12,900
Martinsville.....	18,900	Warwick.....	53,000
Newport News.....	44,000	Waynesboro.....	14,000
Neswome Park-Hilton Park ¹	14,960 ²	Winchester.....	14,700

¹ Unincorporated. ² 1950 federal census figure. ³ Capital.

Executive.—Chief state officers in 1955:

Governor: Thomas B. Stanley (Democrat)
Lieutenant Governor: A. E. S. Stephens
Secretary of the Commonwealth: Martha Bell Conway
Treasurer: Jesse W. Dillon
Attorney General: J. Lindsay Almond, Jr.
Supt. of Public Instruction: Dowell J. Howard

Constitution and Judiciary.—The present constitution went into effect in 1902. The highest tribunal, the Supreme Court of Appeals, comprises seven justices; chief justice in 1955 was Edward W. Hudgins.

Legislature.—The General Assembly (Senate, 40 members; House of Delegates, 100) meets in even-numbered years commencing the second Wednesday in January. (See below, *Principal Events, 1955.*)

Finances.—State treasury receipts (1954-55 fiscal year), \$570,035,528.14; expenditures, \$570,615,868.56; treasury balance, \$70,964,424.38; long-term indebtedness, \$10,431,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$205,765,000, including \$90,141,000 from selective sales and gross receipts taxes (the state has no general sales tax); \$33,912,000 from licensing; \$42,216,000 from individual income taxes; \$20,916,000 from corporate income taxes; and \$10,263,000 from property taxes. Virginia imposes a poll tax of \$1.50 per person.

Banking.—As of June 30, 1955, the state's 132 national banks had \$1,551,662,000 in assets, \$945,559,000 in demand deposits, and \$475,271,000 in time deposits; the state's 185 other banks had \$1,171,439,000 in assets, \$641,432,000 in demand deposits, and \$424,103,000 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$123,250,951.46 (\$188.75 per pupil) for public elementary and secondary schools in the 1954-55 school year comprised \$63,428,624.53 from local school districts, \$51,358,731.66 from the state, and \$8,463,595.27 from the federal government. Outlays for construction and improvements amounted to \$18,570,020.79. Teachers' salaries averaged \$3,123 (elementary school teachers, \$3,011; high school teachers, \$3,257).

In the 1954-55 school year there were 2,248 public elementary schools (grades 1-7) with 17,057 teachers and 540,537 students, and 488 public secondary schools with 9,170 teachers and principals and 183,938 students.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$21,284,837, including \$6,139,313 for old-age assistance, \$6,750,536 for dependent children, and \$556,464 for the needy blind; a monthly average of 38,000 persons received public assistance. Operating expenditures for training schools amounted to \$1,062,521; for correctional and penal institutions, \$6,612,114.

VIRGINIA WELFARE INSTITUTIONS

Type of institution	No.	Pop.*
Hospitals for mentally deficient and epileptic.....	3	3,392
Hospitals for the mentally ill.....	5	10,603
Sanatoriums for the tubercular (Sept. 3, 1955).....	3	985
Schools for the deaf and blind (Nov. 7, 1955).....	1	444
Training schools for delinquent boys.....	2	487
Training schools for delinquent girls.....	2	214
Prisons for men.....	1	1,556
Prison farms for men.....	2	904
Prison farms for misdemeanants.....	2	781
Prison camps.....	30	2,345
Prison farms for women.....	1	358

* As of June 30, 1955, unless otherwise indicated.

Labor Force.—Nonagricultural employment on July 15, 1955, was 897,800, and for 1954 averaged 881,600. There were 52,000 unemployed workers on Aug. 1, 1955, and the state paid \$13,682,791.31 in unemployment compensation during the year ending June 30, 1955.

Manufacturing.—Establishments in 1953 numbered 4,585. During 1954 an average of 242,000 employees received \$780,074,000 in salaries and wages. Value added by manufacture totaled \$1,646,114,000. Total capital investment in plant and equipment was \$837,846,000. Earnings of production workers in manufacturing averaged \$56.66 for an average work week of 39.9 hours in 1954, and \$59.30 for 40.9 hours in the first half of 1955.

MAJOR VIRGINIA MANUFACTURES, 1954

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
Chemicals & allied products.....	36,200	\$153,941	\$485,972
Tobacco manufactures.....	15,300	45,658	186,178
Textile mill products.....	38,200	110,093	156,288
Food & kindred products.....	25,100	70,382	155,049
Transportation equipment.....	18,700	87,181	154,210
Lumber & wood products (excluding furniture).....	25,700	55,089	87,595
Paper & allied products.....	10,600	41,197	79,321
Furniture & fixtures.....	13,500	39,480	59,559
Fabricated metal products.....	7,400	30,783	57,408
Printing & publishing.....	8,000	30,186	51,540

¹ Average per year. ² Value of products less cost of materials, supplies, fuel, electric energy, and contract work.

Mining.—Virginia normally ranks first among the states in production of kyanite, second in pyrite, third in ilmenite, and fourth in roofing slate. The state stood 21st in the value of its 1953 mineral output, with 1.06% of the United States total. In July 1955, there were an estimated 15,800 persons employed in the state's mineral industries.

VIRGINIA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	952,266	\$ 927,571
Coal.....	19,119,050	102,022,118
Coke ¹	188,033	2,851,499
Lead.....	2,016	528,192
Lime.....	477,384	4,947,418
Natural gas (1,000 cu. ft.).....	3,697,000	954,000
Sand and gravel.....	5,276,350	5,160,564
Stone ²	9,091,907	16,258,620
Zinc.....	16,676 ³	3,835,480
Other minerals.....		18,142,593
Total.....		152,776,556

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement and lime.

³ Production in 1954: 16,340 short tons (\$3,627,480). (Source: U.S. Bureau of Mines.)

Fisheries.—Commercial fisheries in 1953 engaged 8,911 fishermen whose catch comprised 222,229,000 pounds of fish valued at \$5,814,000, and 55,596,000 pounds of shellfish (\$10,181,000). Poundages and values of leading species were: oysters, 19,512,000 (\$7,652,000); blue crabs, 34,910,000 (\$2,008,000); and menhaden, 160,076,000 (\$1,685,000).

Agriculture.—Cash farm income in the first half of 1955 totaled \$170,008,000 and for the full year 1954 comprised \$256,300,000 from livestock and livestock products, \$198,230,000 from crops, and \$4,676,000 from government payments. Receipts from principal crops and livestock in 1954 included: tobacco, \$84,128,000; dairy products, \$70,681,000; cattle, \$48,918,000; broilers, \$41,384,000; eggs, \$34,650,000; hogs, \$27,845,000; and peanuts, \$21,413,000.

The state's 136,416 farms (14,685,964 acres;

VIRGINIA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	9,025	12,900	5,500
Corn (1,000 bu.).....	37,806	30,063	32,870
Cotton lint (bales).....	18,300	10,200	11,000
Hay (1,000 tons).....	1,612	1,472	1,810
Peaches (1,000 bu.).....	1,533	1,200	315
Peanuts (1,000 lb.).....	207,413	174,900	177,975
Potatoes (1,000 bu.).....	7,775	4,789	6,369
Soybeans (1,000 bu.).....	2,078	2,898	3,860
Strawberries (1,000 crates).....	250*	216	200
Sweet potatoes (1,000 bu.).....	2,560	2,800	2,045
Tobacco (1,000 lb.).....	158,699	166,458	166,735
Wheat (1,000 bu.).....	7,851	6,934	6,502

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

harvested cropland, 3,157,774) averaged 107.7 acres and \$10,821 in value of land and buildings per farm in 1954. There were 45,853 farms with telephones and 125,006 with electricity. Livestock on farms on Jan. 1, 1955, included 1,382,000 cattle, 327,000 sheep, 658,000 hogs, and 8,375,000 chickens (excluding commercial broilers). During the week of Oct. 24-30, 1954, 247,930 family and hired workers were engaged in farming.

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$101,991,676.02, and newly completed construction and reconstruction aggregated 489 miles.

Highways and roads on Dec. 31, 1955, totaled 54,827 miles (40,715 surfaced). Registered motor vehicles numbered 1,192,265 on Aug. 31, 1955, including 908,133 passenger cars. There were (1955) 30 railroads operating 4,110 line miles, and 5 regularly scheduled airlines and 107 airports and airfields (77 commercial and municipal, 17 military, 12 private, and 1 other).

Communications media (1955) included 69 AM and 18 FM radio stations and 8 operating television outlets (6 VHF and 2 UHF); 33 daily newspapers (circulation, 910,194) and 105 other newspapers (circulation, 268,471); and (Jan. 1, 1955) 269,656 business and 628,576 residential telephones.

Principal Events, 1955.—The attention of Virginia was focused on issues raised by the 1954 decision of the U.S. Supreme Court holding racial segregation in the public schools unconstitutional. After re-argument in 1955, the Supreme Court remanded the segregation cases, including the one from Prince Edward County, to the trial courts for the entry of decrees requiring compliance with the 1954 decision "with all deliberate speed." Thereupon, the Federal District Court in Richmond in July entered its decree requiring compliance, but, because of the shortness of time, permitted the county to continue its segregation policy for the year 1955-56.

In November the Governor's State Commission on Public Education, appointed in 1954, made public its plan "to prevent forced integration in the schools." The plan would empower school boards to assign pupils to schools for various reasons other than race and would authorize the use of public funds to help operate nonsectarian private schools as a possible alternative to integrated public schools. Integration would be permitted where any locality desired it.

Public opinion seemed to support the commission's plan, but there were strong minority points of view. Congressmen Watkins M. Abbitt and William M. Tuck, the latter a former governor and both from the rural Southside commonly called the black-belt, insisted on a plan which would deny state funds to racially segregated schools unless the voters of a locality approved segregation for their schools. U.S. Sen. Harry F. Byrd tentatively approved this idea without accepting it as the "final answer" to the school problem, and former Gov. John S. Battle said some sections would not appropriate money for integrated schools and that "no system short of dictatorship" could force them to do so. The governor's commission insisted that its chief purpose was to preserve the public schools. The Virginia Council on Human Relations, directed by Dr. John H. Marion of Richmond and consisting of about 280 members, urged a plan for "constructive" step-by-step compliance by appointing local groups of white and Negro leaders to work out the details and safeguard the public schools. The NAACP demanded immediate compliance with the decision.

A special session of the General Assembly, which met on November 30, authorized an early

referendum on whether a constitutional convention should be held, limited to changes necessary to permit the use of public funds for private education. The necessary legislation passed 93 to 5 in the House and 38 to 1 in the Senate, and the assembly adjourned after four days. In the referendum, held on Jan. 9, 1956, Virginians supported the proposal for a convention by a 2 to 1 majority.

The Federal District Court in Norfolk on July 7 outlawed segregation in state-owned parks, and this result was upheld in another case by the U.S. Supreme Court in November, when it held segregation illegal in public parks, playgrounds, and golf courses.

In the November elections, Republicans gained only one additional seat in the General Assembly for a total of 9 out of 140. A special effort by the Democratic organization to defeat Republican Theodore Roosevelt Dalton for the state Senate backfired. Dalton was reelected by the largest majority he had ever received.

Principal Events by: ALLEN W. MOGER,
Professor of History, Washington and Lee University.

VIRUSES. See Index entry.

VITAL STATISTICS. See Index entry.

VITAMINS. Although no new vitamins were discovered or synthesized during the last year, considerable progress has been made in the clinical evaluation and application of some of the vitamins. The year was particularly productive of results in research involving the interrelationship of certain vitamins and the response of the body in fighting disease. Heretofore, our knowledge of the chief role of the vitamins has been limited to their need in nutrition. As catalysts in the metabolism of many foodstuffs such as carbohydrates, fats, proteins, and minerals, and as functional parts of enzyme systems, the vitamins have been well evaluated.

In the last few years, much of the attention of clinicians interested in or specializing in nutrition has been directed to means of diagnosing subacute stages of nutritional deficiencies. The existence and nature of such subclinical manifestations of malnutrition have been definitely established as being associated with chronic deficiencies

of certain vitamins. Results of research during the past year have contributed further evidence regarding some newly recognized functions of the vitamins.

Ascorbic acid, or vitamin C, was found to exert an important effect on the ability of iron-deficient, anemia patients to absorb and utilize iron. This may account for the inability of chronic anemia patients on low vitamin C intake to maintain normal increases in hemoglobin and red cell count. Ascorbic acid was also found to influence the maintenance of normal blood levels of vitamin B₁₂ in monkeys, thus tending to confirm the concept that this vitamin plays an important role in absorption of certain nutrients by the blood.

Pyridoxine, or vitamin B₆, was found to reduce the toxic side effects of the new antitubercular drug, isoniazid, without interfering with its therapeutic efficacy.

Reports of research investigations, under the sponsorship of the National Vitamin Foundation during 1954-55, reveal the following: Animals on a diet deficient in pantothenic acid, pyridoxine, or folic acid lose their ability to produce antibodies to allergens and diphtheria toxoids, and their innate species resistance to infection by other microorganisms. This condition of functional impairment is not limited to animals; from the July issue of the *Journal of Clinical Investigation*, we learn that severe functional and metabolic disorders, as well as increased susceptibility to infection, can result from pantothenic acid deficiencies.

The importance of thiamine in the intermediary metabolism of heart muscle is well known; new evidence that a body deficiency of this vitamin may be associated with heart failure was reported in a recent issue of the *Journal of Clinical Investigation*. Riboflavin deficiency, as well as chronic deficiency of several of the other B-complex vitamins, has been reported in the June 1955 issue of the *New England Journal of Medicine* to be responsible for a number of oral diseases.

Some of the newer developments in the effects of vitamin B₆ and vitamin E deficiencies in human metabolism and nutrition, and the interrelationships of these two vitamins in their etiological relation to various diseases in humans, were the subject of a two-day conference at the Vanderbilt University School of Medicine in October 1955.

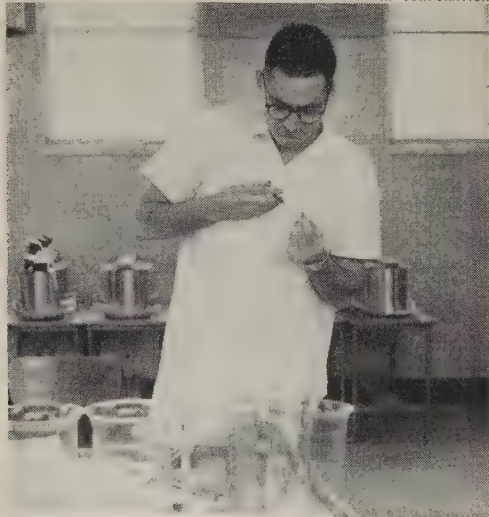
The year 1955 has also been prolific in continuation of investigations furthering our scientific and medical knowledge of vitamin B₁₂. In the previous years this vitamin was definitely recognized as the anti-pernicious anemia factor, and, in 1954, its use orally with intrinsic factor was firmly established as the treatment of choice in this disease. In 1954 its use with folic acid was further recognized as the curative measure in the anemias of sprue and pregnancy.

This last year's reports of research with vitamin B₁₂ have added the following to our increasing knowledge of this vitamin:

- (1) In diabetics, its administration tends to stabilize the disease and gives the patients an increased sense of well-being.
- (2) Vitamin B₁₂, in divided doses, given more frequently, is better utilized than the same total dose given at one time.
- (3) Persons on an absolute vegetarian diet develop low serum levels of vitamin B₁₂ deficiency after several years on such diets.
- (4) The human fetus draws vitamin B₁₂ from the mother's stores, indicating an increased need by the mother for this vitamin.

Research on vitamin B₁₂ continued in 1955. Mice are injected with the vitamin to determine effect on growth.

U. S. VITAMIN CORPORATION



The year 1955 has also seen the achievement of the development of techniques for growing mammalian cells in tissue culture in a synthetic medium. This work, reported by scientists in the U.S. Public Health Service in the Sept. 16, 1955, issue of *Science*, indicates that 7 vitamins, in addition to 13 amino acids, were found to be essential for the growth and reproduction of two types of cells. The vitamins include folic acid, nicotinamide, pantothenic acid, pyridoxine, riboflavin, thiamine, and choline. This reported work seems to re-emphasize the fundamental relationship of these vitamins to life processes.

(See also NUTRITION and the Index entry, *Vitamins*.)

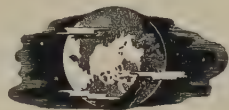
LOUIS FREEDMAN,
Vice President in Charge of Research,
U.S. Vitamin Corporation.

VOCATIONAL GUIDANCE. See Index entry.

VOCATIONAL REHABILITATION. See the Index entry, *Vocational Guidance*.

VOICE OF AMERICA. See UNITED STATES INFORMATION AGENCY.

VOLLEYBALL. See SPORTS, GAMES, AND SHOWS.



WAGE AND HOUR AND PUBLIC CONTRACTS DIVISIONS. These divisions administer the Fair Labor Standards Act of 1938, as amended, and the Walsh-Healey Public Contracts Act of 1936.

The divisions are headed by an administrator, who is appointed by the president with the consent of the Senate.

Fair Labor Standards Act.—This law contains minimum wage, overtime pay, and child-labor provisions. It applies to employees who are engaged in interstate commerce or in the production of goods for interstate commerce, except those who are specifically exempt.

Beginning March 1, 1956, the present minimum wage of 75 cents an hour is to be increased to \$1, as provided by the Fair Labor Standards Amendments of 1955. It is estimated the new minimum will mean direct pay increases for 2,100,000 of the 24 million workers now protected by the law. The other changes effected by the amendments concern the procedure by which minimum wages are set for Puerto Rico and the Virgin Islands.

The overtime pay provisions remain unchanged. In general, one and one-half times the employee's regular rate of pay is required for all hours worked over 40 during a workweek.

Also unchanged are the law's child-labor provisions. These set 16 years as the minimum age for employment in most jobs, with 18 as the minimum for occupations which have been designated hazardous by the secretary of labor. Employment of 14- and 15-year-old children is permitted outside school hours in a few kinds of jobs, under strict limits on hours and working conditions. Children under 16 may be employed in agriculture only outside of school hours as set by the school district where they live while working.

The act authorizes the administrator to issue certificates permitting the employment of learners, handicapped workers, and apprentices at subminimum rates, to the extent necessary to prevent curtailment of employment opportunities. On June 30, 1955, 1,128 certificates were in effect permitting the employment of about 20,000 learners at subminimum rates. Certificates were granted for the employment at subminimum rates of 1,865 handicapped workers in industry and of more than 15,000 handicapped clients of sheltered workshops.

Minimum rates for industries in Puerto Rico

and the Virgin Islands are set by wage orders based on the recommendations of special industry committees. The committees are charged by the act to recommend the highest minimum rate (which may be at or below the statutory minimum) which will neither result in substantial curtailment of employment in island industry nor give it a competitive advantage over mainland industry. The committees are composed equally of employer, employee, and public representatives. Their membership includes residents of both the mainland and the islands.

The 1955 amendments will accelerate the industry committee program. They provide that minimum wage recommendations, made by an industry committee after its hearing, shall be published in the *Federal Register* by the secretary of labor and shall take effect 15 days after publication. There will no longer be a separate administrative hearing on the recommendations. The amendments also require a review of all wage orders once a year, beginning July 1, 1956.

During the fiscal year 1955, higher minimum wage rates were approved for seven industries or industry divisions in Puerto Rico. Among industries for which new minimum rates were set are a group of needle trades, which employ about half the workers covered by the law in Puerto Rico. Increases over the former rates for this group average about 40%.

Employees can sue in their own behalf for wages owed under the act and for liquidated damages. The secretary of labor may institute suit in behalf of employees, under certain circumstances; and the administrator may supervise the payment of back wages. There is a two-year statute of limitations on employee claims. Under certain conditions employers have a "good-faith" defense. (See also LABOR.)

Public Contracts Act.—This act applies to government contracts in excess of \$10,000 for the manufacture or furnishing of materials, supplies, articles, or equipment. It requires that covered employees be paid not less than the minimum wages which the secretary of labor has determined to be prevailing in the industry.

During the fiscal year 1955 the labor secretary issued a minimum wage determination for the metal business furniture and storage equipment industry. The determination finds the prevailing minimum wage to be \$1.10 an hour, with a beginner minimum of \$1.00.

The Public Contracts Act also requires pay-

ment of one and one-half times the employee's basic rate for all hours worked over 8 a day or 40 a week; prohibits the employment of boys under 16 years of age and girls under 18; contains safety and health provisions; and prohibits the employment of convicts.

Enforcement.—During the 1955 fiscal year, 39,330 nonagricultural establishments were investigated by the divisions; 55% were found to be violating one or more of the basic provisions of either or both acts. Violations of the minimum wage provisions were found in 12% of the investigated establishments, violations of the overtime pay provisions in 46%, and child-labor violations in 9%. In addition, special child-labor investigations in agriculture disclosed that 59% of the 3,218 farms visited had employed 4,151 children in violation of the law.

Of the establishments found in violation of the minimum wage or overtime provisions of the Fair Labor Standards Act, 79% agreed or were ordered to pay restitution of \$6,165,117 to 81,330 underpaid employees during the fiscal year.

Of the 2,396 establishments investigated for compliance with the Public Contracts Act, 2% had violated that act's child-labor provisions. Safety and health investigations made in 2,151 establishments under the Public Contracts Act disclosed violations in 43% of the firms.

NEWELL BROWN,
Administrator.

WAGES AND HOURS. See Index entry.

WAGNER, Honus (real name JOHN PETER WAGNER), American baseball player: b. Carnegie, Pa., Feb. 24, 1874; d. Dec. 6, 1955. One of the immortals of baseball, and almost universally regarded as the greatest shortstop of all time, Honus Wagner played 21 consecutive seasons in the National League (1897-1917). He established a number of records which still stand, and his lifetime batting average was .329.

Beginning on the sandlots, he broke into professional baseball in 1895 with the Steubenville (Ohio) team of the Tri-State League. In the following year he joined the Paterson (N.J.) club of the Atlantic League, from which he was purchased in 1897 by Barney Dreyfuss, owner of the Louisville Colonels, then in the National League. In 1900, when the National League was reduced from twelve to eight teams, the Colonels' owner obtained the Pittsburgh franchise and took the valuable shortstop with him. Wagner remained with the Pirates as an active player until 1917.

During his fabulous major league career the "Flying Dutchman," a nickname Wagner earned for his tremendous speed on the base paths, came to be recognized as one of the most dangerous batsmen in the game. A right-handed batter, he was not a slugger, but he could hit to all fields. He hit over .300 in 17 consecutive seasons and won the National League batting championship 8 times (1900, 1903, 1904, 1906, 1907, 1908, 1909, and 1911), both league records. At various times in his career he also led the circuit in two-base hits, three-base hits, runs scored, total hits, runs batted in, total bases, and stolen bases. National League lifetime records he still holds include: most runs scored, 1,740; most base hits, 3,430; most total bases, 4,888; and most games played, 2,785. He was equally outstanding as a defensive shortstop, recording a lifetime fielding average of .945 (14,794 chances, 799 errors) and leading the league in this department in 1912, 1914, and 1915.

In 1933, after a number of years on the periphery of the sport, Wagner returned to major league baseball as a coach for his old team, the Pittsburgh Pirates. Although his duties were only nominal, he remained with the club until 1952. Named to baseball's Hall of Fame in 1936, the great shortstop was further honored on April 30, 1955, when a bronze statue of him was dedicated in Schenley Park Plaza, at Forbes Field, Pittsburgh.

WAKE ISLAND. A coral atoll and three islets (Wake, Wilkes, and Peale) in the mid-Pacific, 2,100 miles west of Honolulu, Hawaii. Area, 3 square miles; population (1950 census) 349. Wake serves as a transpacific airlines stop, and is under the jurisdiction of the U.S. Navy.

WALES. A British principality since 1284, Wales comprises 13 counties (including Monmouthshire), forming a wide peninsula west of England and facing the Irish Sea (area, 8,006 square miles; pop., 2,596,986 in 1951). Principal cities (with populations as of June 1954) are Cardiff (248,000), Swansea (161,500), Rhondda (108,730), Newport (104,600), and Merthyr Tydfil (59,700). Thirty-six members represent Wales in the House of Commons; Gwilym Lloyd-George is minister of Welsh affairs in the British cabinet.

Coal, iron, and slate mining, and steel and textile manufacturing are the principal industries; cereals and other food crops are grown (arable acres, 945,000 in 1954), and stock raising is important (permanent pasture, 1,646,000 acres). Four colleges of the University of Wales had 4,290 students in 1954-55 (Cardiff, 1,527; Aberystwyth, 1,091; Bangor, 853; Swansea, 819). (See also GREAT BRITAIN.)

WALLACE, Robert Charles, Canadian educator and public official: b. Orkney Islands, Scotland, June 15, 1881; d. Kingston, Ont., Jan. 29, 1955. One of Canada's foremost educators, Dr. Wallace, who was both a scientist and humanist, was former president of the University of Alberta and principal and vice-chancellor of Queen's University in Kingston, Ont.

After receiving his M.A. and B.S. degrees from the University of Edinburgh in 1901 and 1907, respectively, Wallace continued his studies at Göttingen University, taking his Ph.D. degree in 1909. Returning to Edinburgh to specialize in geology, he earned his doctorate in science in 1912. He also attended St. Andrews University in 1909-10 as a research student and demonstrator in crystallography.

In 1910 he left Scotland to fill a position as lecturer in geology and mineralogy at the University of Manitoba in Canada. Promoted to full professor and appointed chairman of the department of geology and mineralogy in 1912, he continued to teach there until 1928. During this period he was appointed commissioner of North Manitoba (1918-21), and commissioner of mines and natural resources for Manitoba (1926-28).

With the retirement of Dr. Henry M. Tory in 1928, Dr. Wallace was appointed the second president of the University of Alberta, a position he held until 1936. During his administration the young institution expanded its facilities to include a new school of nursing, a summer school of fine arts (at Banff), and expansion of university extension work throughout Alberta.

In 1936, Dr. Wallace succeeded W. Hamilton Fyfe as principal and vice-chancellor of Queen's University, one of Canada's leading educational

institutions. In his 15 years as principal he guided the university in a program of expansion which included the establishing of schools of nursing, physical and health education, and fine arts, a department of industrial relations, an institute of local government, and a biological research center. He retired from Queen's in 1951, but continued his educational activities in the capacity of adviser on university matters to the Ontario Department of Education.

Besides his activities at Queen's, Dr. Wallace performed valuable work for the Canadian government during and after World War II. In 1943 he was named chairman of the subcommittee under the Committee on Reconstruction which brought out the vital information on conservation and development of natural resources known as the Wallace Report. In addition to serving as a member of the Defense Research Board during the war, he was one of the three Canadian delegates who later participated in the London conference that formed the United Nations Educational, Scientific and Cultural Organization (UNESCO). A member of the Arctic Institute of North America in Montreal from the time of its founding in 1945, he was made its executive director on his retirement from Queen's in 1951. He also served as Canadian advisory editor for *THE ENCYCLOPEDIA AMERICANA* from 1940, and was the recipient of honorary degrees from 20 Canadian, American, and British universities.

His publications include *A Study in Isomorphism* (1912); *Dolomitization Processes* (1913); *The Resources of Manitoba and Their Development* (1914); *Mining and Mineral Prospects in Northern Manitoba* (1919); *A Liberal Education in a Modern World* (1932); and *Religion, Science and the Modern World* (1952).

WALNUTS. See NUTS.

WARREN, Earl, American public official and jurist: b. Los Angeles, Calif., March 19, 1891. Three times governor of California (1942-53), he was appointed chief justice of the United States by President Eisenhower on Sept. 30, 1953, and was sworn in on the following October 5.

After his graduation from the University of California (B.L., 1912; J.D., 1914), Warren worked in a San Francisco law office until 1917, when he was drafted into the army. On his return to civilian life in 1919, he became a clerk on the judiciary committee of the California legislature. In 1925 he was elected district attorney for Alameda County; and in 1938, attorney general of California. He became Republican governor of California in 1942, and was re-elected in 1946 and again in 1950. In 1944 he was the unsuccessful Republican vice presidential candidate on the ticket with Thomas E. Dewey, and in July 1952 he was a candidate for the presidential nomination at the Republican national convention.

At the time of his appointment to the Supreme Court, the press, although noting the governor's lack of judicial experience, praised his character and abilities. The most important ruling of the court since he became chief justice was the decision against segregation in the public schools, handed down on May 17, 1954.

In April 1955, Warren announced that he would not accept a presidential nomination in the future because with his appointment to the court he had left politics permanently. He has stated his conception of the nature of the court in the following terms: "I conceive of this Court as the balance wheel of this government. Its function is to keep us from swinging too violently to one extreme or another."

WASHINGTON. City, District of Columbia. See DISTRICT OF COLUMBIA.

WASHINGTON. Northwestern coastal state, United States; admitted to the Union, Nov. 11, 1889. The "Evergreen State" ranks 19th in area and 24th in population (1955) among the 48 states.

Area and Population.—Area: 68,192 square miles (land, 66,786; inland water, 1,406), divided into 39 counties. Population: (1950) 2,378,963; (est., July 1, 1955) 2,497,000. Urban places with 1950 populations above 10,000 are as follows:

Aberdeen.....	19,653	Puyallup.....	10,010
Bellingham.....	34,112	Renton.....	16,039
Bremerton.....	27,678	Richland ²	21,869
Everett.....	33,849	Seattle.....	467,591
Hoquiam.....	11,123	Spokane.....	161,721
Kennewick.....	10,106	Tacoma.....	143,673
Longview.....	20,339	Vancouver.....	41,664
Olympia ¹	15,819	Walla Walla.....	24,102
Pasco.....	10,228	Wenatchee.....	13,072
Port Angeles.....	11,233	Yakima.....	38,486
Pullman.....	12,022		

¹ Capital. ² Unincorporated.

Executive.—Chief state officers in 1955:

Governor: Arthur B. Langlie (Republican)

Lieutenant Governor: Emmett T. Anderson

Secretary of State: Earl Coe

Treasurer: Charles R. Maybury

Attorney General: Don Eastvold

Supt. of Public Instruction: Pearl A. Wanamaker

Constitution and Judiciary.—The present constitution went into effect in 1889. The Supreme Court comprises nine justices; chief justice in 1955 was Frederick G. Hamley.

Legislature.—The legislature (Senate, 46 members; House of Representatives, 99) meets in odd-numbered years commencing the second Monday in January.

In 1955 the legislature passed 396 bills at its regular session (January 10 to March 10) and 16 bills at its extraordinary session (March 11 to 24). Approximately \$799.8 million was appropriated for the 1955-57 biennium, of which \$233.2 million (an increase of \$51.8 million over the previous biennium) was to be spent for public schools. Tax revisions included the revaluation of taxable property, an increase in the Business and Occupational Surtax to 60% of the base tax, and a rise in the Sales and Use Tax to 3½%. In education, the teachers' retirement program was expanded, school district reorganization laws were revised, and provision was made for a special issue of \$30 million in bonds for state aid and school building construction. A Department of Public Institutions was established, parole legislation was revised, and prison security laws were tightened. Other legislation provided for the identification of sources of campaign literature, safe abandonment of ice boxes, consolidation of funds into the general state fund, and an increase of unemployment benefits to \$35 per week. The Washington Agricultural Enabling Act, relating to the marketing of commodities, was adopted; and the Communist Party was outlawed. Authorization was given for toll-road construction and for the development of a \$350 million multipurpose hydroelectric project at Priest Rapids on the Columbia River.

Finances.—State treasury receipts (1954-55 fiscal year), \$520,975,134.78; expenditures, \$561,875,685.74; treasury balance, \$74,223,409.96; long-term indebtedness, \$193,860,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$293,483,000, including \$241,600,000 from a 3% general sales tax and selective sales and gross receipts taxes; \$26,040,000 from licensing; and \$20,037,000 from property taxes. The state has no individual income, corporate income or poll tax.

Banking.—As of June 30, 1955, the state's 31 national banks had \$2,168,318,000 in assets, \$1,432,204,000 in demand deposits, and \$575,081,000 in time deposits; the state's 82 other banks had \$628,728,483.38 in assets and \$543,042,258.36 in total deposits.

Education.—School attendance is compulsory for all between the ages of 8 and 15, inclusive. Operating expenditures for public elementary and secondary education in the 1954-55 school year were an estimated \$133,797,000 (\$304 per pupil). Estimated income comprised \$70,200,000 from local school districts, \$93,800,000 from the state, and \$11,700,000 from the federal government. Outlays for construction and improvements approximated \$43,000,000. Teachers' salaries averaged near \$4,310 (elementary school teachers, \$4,195; high school teachers, \$4,585).

WASHINGTON

WASHINGTON SCHOOL STATISTICS, 1953-54

Type of school	No.	Teachers	Students
Public elementary (1-8).....	1,107	10,118	325,707
Public junior high (7-9).....	94	2,028	58,038
Public senior high (9-12).....	277	3,605	94,961
Junior colleges.....	11	238	11,444
State teachers colleges.....	3	522	10,584*
State colleges and universities..	2	998	20,373*

* 1954-55 figures.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$71,902,806, including \$45,439,389 for old-age assistance, \$10,965,645 for dependent children, and \$733,153 for the needy blind; a monthly average of 121,409 persons received public assistance.

WASHINGTON WELFARE INSTITUTIONS (As of Sept. 1, 1955, unless otherwise indicated)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic.	2	3,137
Hospitals for the mentally ill.....	3	7,287
Sanatoriums for the tubercular (June 1954).....	10	1,193
Schools for the blind (June 1, 1955).....	1	87
Schools for the deaf (June 1, 1955).....	1	226
Veterans homes (Sept. 30, 1955).....	2	692
Training schools for delinquent boys.....	1	165
Training schools for delinquent girls.....	1	82
Reformatories for males.....	1	661
Prisons.....	1	1,738
Youth forestry camps.....	1	23

Labor Force.—The labor force in July 1955 numbered 1,054,600, including 141,500 agricultural workers. Nonagricultural employment was 884,800, and for the year ending July 1955 averaged 852,400. There were 27,300 unemployed workers in July 1955, and the state paid \$35,290,000 in unemployment compensation during the year ending July 2, 1955.

Manufacturing.—Establishments numbering 5,586 in 1954 employed 189,973 workers who received \$863,493,000 in salaries and wages. Value added by manufacture was \$1,550,000,000, and investment in new plant and equipment (1953) amounted to \$125,083,000. Earnings of production workers in manufacturing averaged \$81.31 for an average work week of 39 hours, and \$84.96 for 39.3 hours in the first half of 1955.

MAJOR WASHINGTON MANUFACTURES, 1954

Product or industry	No. of employees ¹	Salaries and wages (thousands of dollars)	Value added by mfr. ² (thousands of dollars)
Aircraft and aircraft parts.....	36,989	\$175,728.4	\$235,500
Pulp, paper, paperboard.....	14,535	70,552.4	203,900
Sawmill & planing mill products.....	23,040	98,908.7	163,200
Millwork, plywood, prefabrication.....	12,276	59,331.2	98,400
Industrial inorganic chemicals.	9,131	35,034.8	87,000
Primary & secondary non-ferrous metals.....	5,995	28,945.0	75,300
Logging.....	9,756	43,305.2	71,500
Canned & preserved foods.....	9,625	31,778.2	69,900
Rolled, drawn, alloyed non-ferrous metals.....	3,075	16,367.0	42,600
Newspaper publishing.....	5,164	23,614.6	39,900
Bakery products.....	3,463	14,749.4	32,400
Ship & boat building & repair..	4,888	23,535.8	31,500

¹ Average per year. ² Estimated value of products less cost of materials, supplies, fuel, electric energy, and contract work.

Mining.—Washington normally ranks first among the states in production of magnesite and peat. In 1953 it stood 31st in the overall value of its mineral output, with 0.38% of the United States total. Employees in the mining and quarrying industries in 1954 (average of the four quarters) numbered 2,325.

WASHINGTON MINERAL PRODUCTION, 1955¹ (In short tons, except as noted)

Mineral	Quantity	Value
Aluminum.....	451,000	\$195,300,000
Clays.....	280,000	340,000 ²
Coal.....	610,000	4,200,000
Copper.....	3,953	2,925,220
Gold (fine ounces).....	76,280	2,669,800
Lead.....	10,415	3,103,670
Sand and gravel.....	15,500,000	13,000,000
Silver (fine ounces).....	422,350	382,248
Stone.....	5,000,000	8,750,000
Zinc.....	39,591	7,279,386
Other minerals.....	...	19,322,300 ²

¹ Preliminary, excluding uranium. ² The value of clay and limestone used in cement and lime is included in "Other minerals." (Source: U.S. Bureau of Mines.)

Fisheries.—The commercial fish and shellfish catch in 1954 was 153,221,000 pounds, valued at \$24,161,552 to the state's 5,963 commercial fishermen, and having a wholesale value of \$45,180,000. Normally the state is a leading producer of salmon and halibut. Poundages and values of principal species in 1954 were: salmon, 39,420,800 (\$15,294,382); halibut, 17,666,386 (\$3,179,949); Dungeness crabs, 8,314,400 (\$1,122,444); and oysters, 10,524,683 (\$1,683,949).

Agriculture.—Cash farm income for the first half of 1955 totaled \$199,733,000, and for the full year 1954 comprised \$181,575,000 from livestock and livestock products, \$384,140,000 from crops, and \$4,459,000 from government payments. Receipts from principal crops and livestock in 1954 included: wheat, \$148,525,000; apples, \$79,687,000; dairy products, \$68,608,000; cattle, \$50,639,000; eggs, \$26,375,000; and barley, \$14,970,000.

The state's 65,175 farms (17,641,429 acres; harvested cropland, 4,342,833) averaged 270.7 acres and \$29,006 in value of land and buildings per farm in 1954. There were 48,164 farms with telephones and 63,355 with electricity. Livestock on farms on Jan. 1, 1955, included 1,138,000 cattle and 4,981,000 chickens (excluding commercial broilers).

WASHINGTON CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	28,367	23,160	28,600
Apricots (tons).....	18,000	11,300	21,000
Barley (1,000 bu.).....	4,396	21,600	18,300
Beans, dry edible (1,000 bags).....	139	777	778
Cherries (tons).....	26,870	25,100	27,700
Cranberries (bbl.).....	43,330	61,500	45,400
Grapes (tons).....	24,510	31,100	50,000
Hay (1,000 tons).....	1,564	1,545	1,586
Hops (1,000 lb.).....	22,057	23,074	20,800
Oats (1,000 bu.).....	6,780	7,708	7,636
Peaches (1,000 bu.).....	1,875	1,500	2,400
Pears (1,000 bu.).....	6,853	5,620	7,210
Peas, dry (1,000 bags).....	2,259	1,664	1,193
Potatoes (1,000 bu.).....	10,595	13,200	15,265
Prunes (tons).....	21,250	13,200	21,600
Strawberries (1,000 crates).....	920*	1,275	1,148
Sugar beets (1,000 short tons).....	375	761	671
Wheat (1,000 bu.).....	71,692	72,444	55,240

* Average, 1949-53. (Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways between Feb. 1, 1954, and Jan. 31, 1955, totaled \$87,647,905, and newly completed construction and reconstruction aggregated 1,573 miles.

Highways and roads on Dec. 31, 1954, totaled 45,703 miles (38,785 surfaced). Registered motor vehicles numbered 848,776 on June 30, 1955. There were 18 railroads (1954) operating 5,937.3 track miles, and (1955) 9 regularly scheduled airlines and 202 airports and airfields (105 commercial and municipal, 12 military, 57 private, and 7 others, and 21 seaplane bases). Communications media (1955) included 53 AM

and 7 FM radio stations and 6 operating television outlets; 24 daily newspapers (circulation, 891,156) and 176 other newspapers (circulation, 510,030); and (Jan. 1, 1955) 259,241 business and 634,308 residential telephones.

Principal Events, 1955.—Budget problems required an extended legislative session to balance a biennial budget exceeding \$1 billion; new revenue measures included a retail sales tax increase to 3½% per cent, highest in the nation. (See also above, *Legislature*.) Attempts by school forces to reinstate state support of kindergartens met a gubernatorial veto.

On August 18 the first three generators at federally constructed Chief Joseph Dam added 192,000 kilowatts to the region's power supply, representing the largest one-day power increment in the history of hydroelectric generation. (See also DAMS.) Construction of pipelines to bring natural gas to the state from Canada and New Mexico was begun during the year.

On October 16, Boeing's jet transport prototype, the Boeing 707, flew nonstop from Seattle to Washington, D.C., in a record 3 hours 58 minutes, returning the same day in 4 hours 8 minutes. First sales by the Boeing Airplane Company of Seattle of 20 of these planes for commercial airline use went to Pan American World Airways on October 13, and 30 were sold to American Airlines on November 8. Deliveries were scheduled to begin in 1958. (See also AERONAUTICS.)

In September the total number of people at work in the state surpassed the 1-million mark for the first time. Cold spring weather and severe frosts in early November reduced some crop yields and damaged orchards and other horticulture.

Results of Gov. Arthur Langlie's year-long safe-driving campaign showed tight law enforcement to be effective in drastically reducing accidents. The campaign brought nationwide acclaim.

Controversy boiled at the University of Washington in March when President Henry Schmitz declined a faculty request that Dr. J. Robert Oppenheimer, noted American physicist, be invited to the university as a visiting lecturer. The president rejected the request on grounds of Oppenheimer's alleged personal unfitness.

Defending motorboat champion *Slo-mo-shun V* and its sister boat, *Slo-mo-shun IV*, trophy holders since 1950, met defeat at the hands of *Gale V* in the Gold Cup races on Lake Washington on August 7.

Principal Events by: DELBERT C. HASTINGS,
Industrial Analyst, Bureau of Business
Research, University of Washington.

WATCHMAKING. Of the 10 million jeweled lever watches (total retail sales value, \$500 million) sold annually through 32,000 retail jewelry stores in the United States, 75% are imported, primarily from Switzerland. The Swiss, however, have claimed an 18% decline in watch exports to the United States since the mid-1954 tariff increase of 50%, and because of the subsequent government antitrust suit against Swiss manufacturers and domestic importing firms.

Watches with over 17 jewels constitute nearly half the domestic production, but less than 1% of the imports. The tariff on imported watches containing more than 17 jewels is \$10.75, which is more than twice the average tariff on watches with 17 jewels.

Newest designs in watches place style stress on a slimmer, flatter look. The current market is notable for keen selling practices and the incred-

ible variety of new models. Electronic watches, powered by miniature batteries, were still under test in 1955 and had yet to make their first commercial appearance.

Among watch repairmen in the United States, a 1955 survey by a horological association revealed, employed noncertified watchmakers earned an average of \$78 per week, as compared with a certified employed watchmaker's earnings of \$92 per week. In the self-employed category, noncertified men earned \$93 per week, and certified craftsmen, \$129. Watch repair business continued fair to good throughout the country in 1955.

ORVILLE R. HAGANS,
Editor and Publisher, "American Horologist
and Jeweler."

WATER SPORTS. See SPORTS, GAMES, AND SHOWS.

WATER SUPPLY. See Index entry *Water*.

WEALTH. See INCOME.

WEAPONS. See Index entry.

WEATHER. See METEOROLOGY.

WEEKS, Sinclair, U.S. secretary of commerce; b. West Newton, Mass., June 15, 1893. A business executive and lifelong Republican, Sinclair Weeks became secretary of commerce in President Eisenhower's cabinet on Jan. 21, 1953.

The son of John W. Weeks, secretary of war in the Harding administration, Sinclair Weeks was graduated from Harvard College in 1914. In that year he began his business career in banking, continuing in that field (except for his service with the artillery in World War I) until 1923, when he became associated with the United-Carr Fastener Corporation of Cambridge, Mass. In 1942 he was appointed chairman of the board, and in 1945 he assumed the same position in the Reed and Barton Corporation, silversmiths of Taunton, Mass.

Active in Republican politics from before World War I, he was appointed in 1944 to complete the unexpired term of Henry Cabot Lodge, Jr., in the U.S. Senate. Because of his skill as a fund raiser for the Republican Party on both a state and national level, Weeks was named chairman of the Republican National Finance Committee in September 1949, which position placed him in the inner circle of the party and close to the presidential candidate, Dwight D. Eisenhower.

As secretary of commerce, Sinclair Weeks is a staunch supporter of the American system of free enterprise. In March 1953 he went on record as opposing price and wage curbs, and in the following year he differed with Secretary of Labor James P. Mitchell on the Commerce Department's plans to end the labor unions' immunity under the antitrust laws. In the field of international commerce, he has been an ardent supporter of the reciprocal trade agreements program.

WEIGHTLIFTING. See SPORTS, GAMES, AND SHOWS.

WELFARE. See CHILD WELFARE; SOCIAL WELFARE.

WEST AFRICA, British. See BRITISH WEST AFRICA.

WEST INDIES. An archipelago extending some 2,500 miles from Florida to the coast of Venezuela, composed of the following three island groups: Greater Antilles (Cuba, Hispaniola, Jamaica, and Puerto Rico); Lesser Antilles or Caribbees (Virgin Islands, Windward Islands, Lee-

ward Islands, Netherlands Antilles, and the islands in the south Caribbean Sea); and Bahama Islands. Politically the West Indies comprise three republics: Cuba, the Dominican Republic, and Haiti; two United States possessions: Puerto Rico (since July 25, 1952, a self-governing commonwealth in close association with the United States) and the Virgin Islands; six British colonies: the Bahamas, Barbados, Jamaica, Trinidad and Tobago, the Leeward Islands, and the Windward Islands, forming the British Caribbean Federation (see BRITISH WEST INDIES); two French departments: Guadeloupe and Martinique; and the Netherlands Antilles. In addition, Margarita Island and several smaller offshore islets are owned by Venezuela. The sixth biennial West Indian Conference (an auxiliary of the Caribbean Commission, q.v.), convened in San Juan, Puerto Rico, on May 10, 1955, attended by representatives of 14 West Indian governments. (See separate articles on the political components of the archipelago.)

WEST VIRGINIA. South Atlantic state, United States; admitted to the Union, June 20, 1863. The "Panhandle State" ranks 40th in area and 30th in population (1955) among the 48 states.

Area and Population.—Area: 24,181 square miles (land, 24,080; inland water, 101), divided into 55 counties. Population: (1950) 2,005,552; (est., July 1, 1955) 2,001,000. Urban places with 1950 populations above 10,000 are as follows:

Beckley.....	19,397	Morgantown.....	25,525
Bluefield.....	21,506	Moundsville.....	14,772
Charleston ¹	73,501	Parkersburg.....	29,684
Clarksburg.....	32,014	South Charleston.....	16,686
Fairmont.....	29,346	South Parkersburg ²	10,808
Huntington.....	86,353	Weirton.....	24,005
Martinsburg.....	15,621	Wheeling.....	58,891

¹ Capital. ² Unincorporated.

Executive.—Chief state officers in 1955:

Governor: William C. Marland (Democrat)
 Executive Assistant: Arden Curry
 Secretary of State: D. Pitt O'Brien
 Treasurer: William H. Ansel
 Attorney General: John C. Fox
 Superintendent of Schools: W. W. Trent

Constitution and Judiciary.—The present constitution went into effect in 1872. The highest tribunal, the Supreme Court of Appeals, comprises five justices; president in 1955 was William T. Lovins.

Legislature.—The legislature (Senate, 32 members; House of Delegates, 100) meets annually commencing the second Wednesday in January.

The 1955 legislative session appropriated approximately \$91.2 million for the 1955-56 fiscal year. Taxes were increased on gasoline and special fuels by 1 cent per gallon and on parimutuel pools by 1%, and the deduction allowed from net assessment on gross salaries and transportation allowances was reduced to 5%. Municipalities were authorized to levy business and occupational sales taxes. Salaries of the governor and Supreme Court justices were increased to \$17,500. Police personnel with five years' service were given a \$120 annual raise for the next five years. A Division of Civil Defense was created; the school for Negro deaf and blind was abolished; authority was given for the creation of forestry camps for wayward juveniles and for establishment of a license-making plant at the state prison. A \$2.5 million expansion plan was approved for five state parks, as were funds for a yearly statewide inspection of vehicles.

At a special session held from May 9 to 13, 1955, state aid to schools was set on the basis of local property evaluations for tax purposes reaching 50% of true value within five years, and motor vehicle registration and title laws were amended.

Finances.—State treasury receipts (1954-55 fiscal year), \$363,640,301.67; expenditures, \$370,605,795.57; treasury cash balance, \$44,440,522.71; trust fund investments, \$156,899,116.37; long-term indebtedness, \$140,861,000.

Taxation.—State tax revenue (1954-55 fiscal year): \$128,076,465, including \$66,558,659 from a general sales tax (1% on purchases of from 6 to 50 cents and 2% on purchases from 51 cents to \$1) and selective sales and gross receipts taxes; and \$17,445,505 from licensing. The state has no individual or corporate income taxes but does have a poll tax of \$2 per male person.

Banking.—As of June 30, 1955, the state's 75 national banks had \$642,533,000 in assets, \$415,532,000 in demand deposits, and \$168,190,000 in time deposits;

the state's 107 other banks had \$554,603,262.04 in assets, \$268,541,072.99 in demand deposits, and \$153,117,545.22 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures for public elementary and secondary schools in the 1954-55 school year totaled \$73,089,615 (\$176 per pupil). Income comprised \$31,399,109 from local school districts, \$48,115,813 from the state, and \$1,991,349 from the federal government. Outlays for construction and improvements amounted to \$14,418,360. Teachers' salaries average \$3,057.

WEST VIRGINIA SCHOOL STATISTICS, 1954-55

Type of school	No.	Teachers	Students
Public elementary (1-8).....	3,234	10,322	298,148
Public junior high (7-10).....	121		40,399
Public senior high (7-12).....	262	6,245	119,201
Private and parochial elementary and secondary.....	81	457	12,406
Junior colleges.....	4	84	1,110
State universities.....	1	900	5,204
Colleges and universities.....	15	481	11,670

Social Welfare.—Public assistance expenditures from federal and state funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$32,900,006, including \$8,741,909 for old-age assistance, \$16,784,275 for dependent children, and \$484,417 for the needy blind; a monthly average of 112,872 persons received public assistance. Operating expenditures for health and welfare institutions amounted to \$7,368,575; for correctional and penal institutions, \$1,765,696.

WEST VIRGINIA WELFARE INSTITUTIONS (As of Sept. 8, 1955)

Type of institution	No.	Pop.
Hospitals for the mentally deficient.....	1	160
Hospitals for the mentally ill.....	5	5,660
Sanatoriums for the tubercular.....	3	833
Emergency hospitals.....	2	124
Schools for the blind and deaf (Oct. 31, 1955).....	1	339
Homes for dependent children.....	2	94
Homes for the aged.....	2	478
Training schools for delinquent boys.....	2	316
Training schools for delinquent girls.....	2	195
Prisons for males.....	2	2,419
Prisons for females.....	1	68

Labor Force.—Nonagricultural employment numbered 472,200 in July 1955, and averaged 464,700 during 1954. There were 31,564 insured unemployed workers on July 31, 1955, and the state paid \$26,734,187 in unemployment compensation during the year ending June 30, 1955.

Manufacturing.—In 1953, 133,923 persons received \$522,965,000 in salaries and wages; value added by manufacture was \$1,105,374,000, and investment in new plant and equipment totaled \$113,776,000. Earnings of production workers in manufacturing averaged \$70.64 for an average work week of 38.6 hours in 1954, and \$74.67 for 39.3 hours in the first six months of 1955.

MAJOR WEST VIRGINIA MANUFACTURES, 1954

	Persons engaged	Payroll & profit income (millions of dollars)	Value of output (millions of dollars)
All manufactures.....	130,000	\$690	\$1,640
Chemicals.....	27,000	196	536
Primary metals.....	26,000	165	321
Stone-clay-glass products.....	26,000	128	237
Machinery.....	9,000	45	90
Petroleum & coal products.....	2,000	15	67
Fabricated metals.....	7,000	26	51
Lumber.....	8,000	18	42
Transportation equipment.....		14	29
Apparel.....	5,000	9	24
Printing.....	3,000	14	22

(Source: Blue Book of Southern Progress, 1955.)

Mining.—West Virginia normally ranks first among the states in the production of bituminous coal, and 4th in bromine output. The state stood 5th in the value of its mineral production in 1953, with 5.49% of the United States total.

WEST VIRGINIA MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	968,838	\$ 2,488,938
Coal.....	134,105,310	693,593,645
Coke ¹	4,476,780	53,486,868
Natural gas (1,000 cu. ft.).....	186,477,000	44,009,000
Natural gasoline (bbl.).....	1,056,000	3,245,000
Petroleum (bbl.).....	3,038,000	11,570,000
Petroleum gases (bbl.).....	3,645,000	6,743,000
Salt.....	419,907	1,490,592
Sand and gravel.....	3,162,776	6,070,847
Stone ²	5,501,148	8,924,411
Other minerals.....	...	11,974,948
Total.....	...	790,110,381

¹ Values for processed materials are not included in the total. ² Excluding that used in making cement and lime. (Source: U.S. Bureau of Mines.)

Agriculture.—Cash farm income for the first half of 1955 totaled \$48,866,000, and for the full year 1954 comprised \$94,030,000 from livestock and livestock products, \$28,783,000 from crops, and \$1,332,000 from government payments. Receipts from principal crops and livestock in 1954 included: dairy products, \$23,518,000; broilers, \$18,638,000; cattle, \$18,475,000; eggs, \$14,545,000; and tobacco, \$3,421,000.

The state's 68,583 farms (7,351,874 acres; harvested cropland, 1,073,216) averaged 107.2 acres and \$7,074 in value of land and buildings per farm in 1954. There were 21,751 farms with telephones and 63,264 with electricity. Livestock on farms on Jan. 1, 1955, included 611,000 cattle, 311,000 sheep, and 3,575,000 chickens (excluding commercial broilers). During the week of Oct. 24-30, 1954, 97,674 family and hired workers were engaged in farming.

WEST VIRGINIA CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples (1,000 bu.).....	3,642	5,600	3,700
Corn (1,000 bu.).....	9,925	9,045	7,293
Hay (1,000 tons).....	997	1,056	1,065
Oats (1,000 bu.).....	1,693	1,898	2,080
Peaches (1,000 bu.).....	546	682	315
Potatoes (1,000 bu.).....	2,086	1,680	1,755
Tobacco (1,000 lb.).....	3,912	4,960	4,160
Wheat (1,000 bu.).....	1,388	1,176	874

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1953-54 fiscal year totaled \$53,361,013.90, and newly completed construction and reconstruction aggregated 748 miles.

Highways and roads on Jan. 1, 1955, totaled 35,889 miles (20,070 surfaced). Registered motor vehicles included 393,397 passenger cars on June 30, 1955. There were 21 **railroads** (1955) operating, in 1953, 3,690 track miles, and (1955) 6 regularly scheduled **airlines** and 31 **airports and airfields** (14 municipal, 1 state, 2 intermediate, and 14 private).

Communications media (1955) included 43 AM and 11 FM **radio stations** and 7 operating **television outlets**; 31 daily **newspapers** (circulation, 574,574) and 91 other newspapers; and (Jan. 1, 1955) 106,572 business and 306,826 residential **telephones**.

Principal Events, 1955.—During a large part of 1955, public interest centered in the proceedings of the first regular session of the West Virginia 52d Legislature, which was stalemated by differences among the governor (William C. Marland), the Senate, and the House of Delegates regarding proposed revenue measures and a state road reorganization program. The results left

state revenues short of funds for increases in teachers' salaries, and an increase in the gasoline tax from 5 to 6 cents a gallon did not meet the road construction and maintenance requirements. The governor vetoed a bill vesting administration of the state road program in a commission of ten members removable only for cause, thus leaving administration of the program in a single executive-appointed commissioner functioning with the advice of an executive-appointed commission of five members, including the commissioner himself. An extra session (May 9-13) failed to compromise the differences regarding teachers' salaries.

Generally, the public was sympathetically interested in Governor Marland's self-imposed campaign "to sell West Virginia," far and wide, to nonresident industrialists, but it was perhaps more interested in reports to the effect that the West Virginia coal industry had made a 20% recovery in 1955. Except in nonunionized strip mining coal operations and in the field of bus transportation, there was little labor unrest in 1955.

Among other interests of the public was the program of continued educational desegregation, to comply with the decision of the U.S. Supreme Court of May 17, 1954. By late 1955, without friction or notable incidents, all the institutions of higher learning were desegregated; 12 county units of the public schools were completely desegregated, 13 were partly integrated, 18 waited for more definite instructions, and 11 had no Negro pupils; and one rescinded a protested integration order. In an effort to accelerate desegregation, suits were brought against three county boards in 1955.

J. Blaine McLaughlin, state commissioner of agriculture since March 4, 1933, and an elective member of the state executive department, died on Nov. 20, 1955. He was succeeded in office on December 15 by John T. Johnson, an executive appointee.

*Principal Events by: C. H. AMBLER,
Professor Emeritus, West Virginia University.*

WESTERN EUROPEAN UNION (WEU). An international organization for the regulation and coordination of military forces and arms production, established by protocols signed at Paris on Oct. 23, 1954. WEU members are Great Britain, France, the Netherlands, Belgium, Luxembourg (members of the original Brussels Treaty Organization formed in 1948), the German Federal Republic, and Italy. Chief organs are the WEU Council, the Agency for the Control of Armaments (responsible to the council), and the WEU Assembly (composed of the representatives of the WEU nations to the Consultative Assembly of the Council of Europe).

The problem of arms standardization was discussed at intermittent meetings of working representatives of WEU from January to May 1955. France proposed the creation of a centralized armaments pool with supranational powers, but the other nations, particularly West Germany and Britain, were opposed to such an agency. A WEU interim commission also met in London in early May on problems subsequently taken up by the WEU Council.

The Western European Union formally came into being on May 7, 1955, when the WEU Council held its first session in Paris, attended by the foreign ministers of the seven member nations. The council elected Louis Goffin of Belgium as secretary general of the WEU's permanent secretariat, which was established in London. Admiral

Emilio Ferreri of Italy was appointed director of the Agency for the Control of Armaments. Instead of the centralized agency favored by France, the council established a standing Arms Committee, which would seek cooperation on arms standardization and work closely with the North Atlantic Treaty Organization (NATO). Charles Christofini of France was chosen to head the committee. On May 11 the council accepted responsibility for the Saar, as provided in the Europeanization statute formulated by France and Germany in 1954. The council reached agreement on the powers of the prospective commissioner for the Saar, set forth regulations concerning the Saar referendum, and constituted an international commission to supervise the voting. The Europeanization statute, however, was rejected by the Saarlanders on Oct. 23, 1955. (See also FRANCE; GERMANY; SAAR.)

WESTERN NEW GUINEA. See NETHERLANDS NEW GUINEA.

WESTERN PACIFIC ISLANDS, British. These island groups are administered by the high commissioner for the Western Pacific, John Gutch, whose jurisdiction extends over all British islands in the Western Pacific Ocean not administered by Australia, New Zealand, or the governor of Fiji. Principal territories (totaling 17,575 square miles; pop., 188,350) are the Gilbert and Ellice Islands Colony, the British Solomon Islands Protectorate, and the New Hebrides condominium. Starbuck, Malden, Flint, Caroline, and the Vo-stock islands are also under the jurisdiction of the high commissioner, whose headquarters are at Honiara, British Solomon Islands Protectorate.

BRITISH WESTERN PACIFIC ISLANDS

Territory	Area (sq. miles)	Popu- lation	Capital
British Solomon Islands Protectorate.....	11,500	100,297 ¹	Honiara
Gilbert and Ellice Islands Colony.....	375	37,832 ²	Tarawa
New Hebrides (condo- minium).....	5,700	50,221 ²	Vila
Total.....	17,575	188,350	

¹ 1954 est. ² 1952 est.

British Solomon Islands Protectorate.—This protectorate comprises the southern Solomon Islands. (The northern Solomon Islands lie within the Territory of New Guinea; see PAPUA AND NEW GUINEA, TERRITORY OF). The protectorate includes Guadalcanal, on which is Honiara, the capital and seat of government; Malaita; Florida; Tulagi; San Cristobal; Rennell; the New Georgia group; the Santa Cruz group; and the northern islands (Santa Isabel, Choiseul, Ontong Java group, and others). The high commissioner is assisted by a 14-member Advisory Council, including 5 nonofficial whites and 5 natives. Estimated revenue in 1955 was £890,041, comprising local revenue, £A514,017; grant in aid and surplus balances, £A197,007; and Colonial Development and Welfare grants and associated receipts, £A179,017. Estimated expenditure amounted to £A711,024, excluding £A179,017 for Colonial Development and Welfare projects. Education is provided chiefly by mission schools, which receive an administrative subsidy; by a government school at Auki, Malaita; and by government elementary schools at Santa Anna and Honiara.

The chief cash crop was coconuts 22,000 tons of copra having been exported in 1954. Also exported were Kauri pine (from the Santa Cruz group), and trochus shell, from which pearl buttons are made. Gold mining was carried on near Honiara, and manganese ore was mined on Hanesavo Island, near Tulagi. Total exports in 1954 were valued at £A1,893,934; imports, at £A1,203,368. Qantas Empire Airways links Honiara with Sydney, Australia.

Gilbert and Ellice Islands Colony.—Extending over one million nautical square miles, the colony comprises the Gilbert Islands (Abaiang, Abemama, Aranuka, Beru, Makin or Butaritari, Little Makin, Kuria, Tarawa—headquarters of the colony and district—Maiana, Marakei, Nonouti, Nukunau, Onotoa, Tabiteuea, Tamana, and Arorae); the Ellice Islands (Funafuti—headquarters of

the district—Nanumanga, Nanumea, Niutao, Nurakita, Nui, Nukufetau, Nukulaelae, and Vaitupu); the Phoenix group (Birnie, Canton, Enderbury, Gardner, Hull, McKean, Phoenix, and Sydney); and the Line Islands (Christmas, q.v., Fanning—headquarters of the district—Ocean, and Washington islands). Canton, administrative headquarters of the Phoenix group, and neighboring Enderbury, constitute an Anglo-American condominium, joint control for aviation and communications purposes having been established by the two powers in 1939 for a period of 50 years. Estimated revenue for 1955, comprising ordinary revenue of £A394,411 and Colonial Development and Welfare grants and associated receipts of £A34,017, was balanced at £A428,428 against estimated general expenditures of £A390,485 and £A37,697 for Colonial Development and Welfare projects.

Ten primary schools were maintained from colonial and local government funds, and 253 mission schools were aided by grants. Technical training was given to boys preparing for work in the phosphate industry conducted by the British Phosphate Commission on Ocean Island. Coconut products are the major export (10,490 tons of copra produced in 1954); pandanus fruit is also exported. Travel in the colony is mainly by boat, although there are 200 miles of roads (40 miles all-weather).

New Hebrides.—This 37-island group constitutes a Franco-British condominium. Vila (pop., 1,200), the capital, is on Efate (Vaté), an island 300 miles north-east of Noumea, capital of New Caledonia (q.v.). Resident British and French commissioners are responsible respectively to the British high commissioner for the Western Pacific Islands and to the French high commissioner, the governor of New Caledonia. Revenue (in sterling) in 1954 was £278,000; expenditure, £304,000. There were also special French and British national budgets. Of the 40 schools, 22 were British mission schools and 15 were French mission schools.

Exports (in sterling), totaling £1,660,558, included copra, £1,302,551; cocoa, £185,839; and coffee, £38,581. Imports, totaling £1,143,841, were principally from Australia (£672,242), the United Kingdom (£189,078), and France (£151,041).

WESTERN SAMOA. See SAMOA.

WHALING. Participating in the 1954-55 Antarctic whaling season, which opened on Jan. 7, 1955, and closed on March 19, were 19 factory ships of 7 nations (Norway, 9; Great Britain, 3; Japan, 3; and the Soviet Union, the Netherlands, and Panama, 1 each). According to the *Norwegian Whaling Gazette* for August 1955, the total number of whales caught was 37,654, of which 2,176 were blues, 28,624 were finbacks, 569 were seis, 495 were humpbacks, and 5,790 were sperms. Total production of whale and sperm oil during the 1954-55 season was about 362,690 and 52,830 short tons, respectively. This represented a decrease of nearly 10% in whale oil production when compared with the 1953-54 figure of 399,665 tons.

WHALE AND SPERM OIL PRODUCTION, BY
MAJOR COUNTRIES, 1954-55
(In thousands of short tons)

Country	Whale oil		Sperm oil	
	1954 ¹	1955 ²	1954 ¹	1955 ²
Norway.....	188	138	9	26
Great Britain.....	90	77	7	11
Japan.....	58	69	15	16
Netherlands.....	17	11	1	1
Panama.....	31	27	10	3
Union of South Africa.....	31	21	4	6
Soviet Union.....	32	33	15	15
Australia.....	19	17	..	..
Argentina.....	10	9	3	3
Chile.....	3	3	3	3
Portugal ³	7	10	4	4
Others.....	7	10	7	3
World total.....	455	415	75	85

¹ Preliminary. ² Forecast. ³ Less than 500 short tons.
⁴ Production of Azores and Madeira islands. (Source: U.S. Department of Agriculture.)

RAYMOND M. GILMORE,
U.S. Fish and Wildlife Service.

WHEAT. See AGRICULTURE; GRAINS.

WHITE, SIR (William) Thomas, Canadian public official and financier: b. Bronte, Ont., Nov. 13,

1866; d. Toronto, Feb. 11, 1955. As minister of finance during World War I, he directed the difficult task of financing the Canadian war effort.

While attending the University of Toronto, Thomas White worked as a reporter for the *Toronto Telegram*. He received his B.A. degree in 1895, then studied law at Osgoode Hall, was admitted to the bar in 1899, and became general manager of the National Trust Company in Toronto (1900-11).

Sir Thomas' political career began in 1911, when, bolting the Liberal Party leadership of Sir Wilfrid Laurier, he was elected in a by-election as a Conservative to the House of Commons from Leeds, Ont. In the same year he was appointed minister of finance in the new Conservative cabinet of Sir Robert Borden. In this post he fulfilled the great responsibility of meeting the immense fiscal demands laid on the government by World War I. Through his efforts during the war, Canada acted as a clearing house for the financial transactions between the governments of Great Britain and France and the merchants and manufacturers of the United States. In the general elections of 1917 he was re-elected to the House of Commons.

Sir Thomas resigned his portfolio in August 1919, after serving as acting prime minister of Canada while Sir Robert Borden attended the Paris Peace Conference. In the following year, when Sir Robert retired as prime minister, Sir Thomas was asked to form a new government. He resolutely declined, and in 1921 retired from politics to devote his time to banking. He was chairman of the board of directors of the Canadian Bank of Commerce (1938-44), vice president of the National Trust Company, and director of the Canada Life Assurance Company and the Steel Company of Canada.

Appointed to the Privy Council in 1911, he was the senior member at the time of his death. He was made Knight Commander of the Order of St. Michael and St. George in 1916, and Knight Grand Cross of the same order in 1935.

WHITE, Walter (Francis), American Negro social worker and author; b. Atlanta, Ga., July 1, 1893; d. New York, N.Y., March 21, 1955. As executive secretary of the National Association for the Advancement of Colored People (NAACP), he fought vigorously and unceasingly for political and social equality among Negroes and whites in the United States.

Walter White, who was only partially Negro, was blue-eyed, blond-haired, and light-skinned, and could easily have "passed" into white ranks. Nevertheless, he chose to identify himself with the Negro race because in his youth he had been a sensitive witness to frequent exhibitions of racial prejudice and persecution in the deep South. On graduation from Atlanta University in 1916, he became active in the local chapter of NAACP. He was soon recognized as a potential leader by James Weldon Johnson, then executive secretary of the national organization, who appointed him assistant secretary in 1918. In this capacity White courageously and successfully investigated many cases involving racial violence, the most notorious of which were the sharecropping riots in Elaine, Ark., and the Chicago race riots of 1919.

In 1929, on the retirement of Johnson, White became acting secretary of the association, and in 1931, secretary. As unofficial spokesman for America's Negroes, he wielded considerable, if

indirect, influence in civil rights legislation. In 1930 he was influential in preventing senatorial confirmation of President Hoover's appointment to the U.S. Supreme Court of John J. Parker, an avowed segregationist from North Carolina. In April 1935, largely because of his efforts, the Costigan-Wagner anti-lynching bill was brought up for a vote in the Senate, only to be displaced from the calendar by a seven-day filibuster by Southern senators. In 1937 he successfully exerted pressure to have the Gavan anti-lynching bill passed by the House of Representatives, but his efforts were negated by a seven-week Senate filibuster which ended in February 1938.

During World War II, White carried on his crusade against discrimination in war industries and in the armed forces. His career reached its climax on May 17, 1954, when the Supreme Court in a historic decision ruled against segregation in the public schools of the United States. Meanwhile, White had served in 1945 as a consultant at the organizing conference of the United Nations in San Francisco, and in 1948 as a consultant to the United States delegation at the U.N. General Assembly meeting in Paris.

During his years as an investigator for NAACP, White wrote numerous magazine and newspaper articles and several provocative books, including the novels, *Fire in the Flint* (1924) and *Flight* (1926), and a study of lynch psychology, *Rope and Faggot; a Biography of Judge Lynch* (1929). He was also the author of *A Rising Wind: A report on the Negro Soldier in the European Theatre of War* (1945); an autobiography, *A Man Called White* (1948); and the posthumously published *How Far the Promised Land?* (1955). During World War II (1943-45) he visited every theater of operations as a war correspondent for the *New York Post*.

WHITE HOUSE CONFERENCE ON EDUCATION.

See EDUCATION.

WHOLESALE SELLING. Sales by all wholesalers in the United States during the first half of 1955 were at a seasonally adjusted annual rate of almost \$116 billion, or 7% above the first half of 1954 and about 2% above the previous peak in 1951. The overall average of wholesale prices in early 1955 was little changed from that of the preceding year, and about 4% lower than the average for 1951.

The greatly improved movement of goods through wholesale channels mirrored the rapid recovery of economic activity in general during the winter and spring of 1954-55. By June 1955, employment, industrial activity, investment, and national income had all moved up sharply from previous-year rates, with most overall economic indicators achieving new all-time highs. The pervasiveness of the recovery is indicated in the accompanying table. Wholesalers' sales in almost every major type of business were showing gains in the first half of 1955, as compared with the first half of 1954, the only exceptions being in areas where a further moderate weakening in farm prices held sales at approximately previous-year rates.

Within wholesale trade, sales by establishments dealing primarily in durable goods registered relatively greater rates of gain during the first half of 1955 than did wholesalers of non-durable goods. This was a reversal of the experience encountered during the downturn in wholesale sales between mid-1953 and mid-1954. By June 1955, sales of durable and nondurable goods had each returned to rates prevailing in June 1953.

Durable-goods wholesalers' sales in the first six months of 1955 were at a seasonally adjusted annual rate of over \$38 billion, or 12% higher

U.S. WHOLESALERS' SALES, 1952-55

Category	1952 (In millions of dollars)	1953	1954	% change, 1st half 1954 to 1st half 1955
<i>All wholesale trade</i>	112,325	111,936	109,994	7
Durable goods.....	35,974	37,141	34,794	12
Nondurable goods.....	76,351	74,795	74,500	5
<i>Merchant wholesalers</i>	94,783	95,257	92,646	9
Automotive.....	5,187	5,610	4,954	15
Electrical goods.....	5,981	6,326	6,133	8
House furnishings.....	1,683	1,759	1,724	14
Hardware, lumber and construction ma- terials.....	9,997	9,975	10,073	..
Machinery and metals	12,327	12,718	11,237	..
Food.....	21,717	21,685	21,759	..
Beer, wine, distilled spirits.....	4,635	4,783	4,739	5
Tobacco.....	2,888	2,930	2,936	5
Apparel and dry goods.....	5,436	5,421	5,281	7
Paper and products...	2,461	2,596	2,681	9
All other.....	22,471	21,454	21,128	..

(Source: U.S. Department of Commerce, Bureau of the Census and Office of Business Economics.)

than in the corresponding period of 1954. Among these trades the largest relative increases from 1954 were reported by merchant wholesalers handling lumber and construction materials, and metals and metalwork, reflecting the high rate of construction activity and output of metal fabricators. Sales in the first six months of 1955 by wholesalers of automotive products and of furniture and home furnishings were each about 15% above the opening months of 1954, while sales gains by dealers in electrical goods, hardware, and machinery and equipment ranged from 8% to 11% above 1954.

Sales by wholesalers of nondurable goods in the first half of 1955, at a seasonally adjusted annual rate of \$77 billion, were about 5% higher than those for the same period of 1954. All major trades contributed to this increase, with the exception of the grocery, confectionery, and meat and the inedible farm products groups, which were about 1% off their previous year's levels.

Larger-than-average sales increases (about 9%) over the first half of 1954 were reported by merchant wholesalers of paper products and of drugs, chemicals, and allied products. Trading in tobacco, beer, wines, and liquors in early 1955 was about 5% above their rates in the first half of 1954, while sales by apparel and dry goods wholesalers were 7% higher.

LAWRENCE BRIDGE,
Office of Business Economics, U.S.
Department of Commerce.

WILDLIFE. See FISH AND WILDLIFE SERVICE.

WILLIAMS, Tennessee (real name THOMAS LANIER WILLIAMS), American playwright: b. Columbus, Miss., March 26, 1914. Continuing in his plays to demonstrate a keen insight into human psychology and emotions through vivid and imaginative theater, Williams in 1955 was awarded his second Pulitzer Prize in drama for *Cat on a Hot Tin Roof*.

Reared in an atmosphere of decaying Southern gentility, Williams often reflects in his plays the austere and fractious moral standards of his early environment. *The Glass Menagerie*, first produced in 1944, has its basis in Williams' family relationships and the boredom of tenement living in St. Louis, Mo., where he and his family moved while the playwright was still in his teens. Although he attended the universities of Mis-

souri (1931-33); Washington, in St. Louis (1936-37); and Iowa (B.A. 1938), Williams gained his penetrating insight into human nature through his travels and the variety of jobs he held during and after his college career. A *Street-car Named Desire* (produced in 1947; Pulitzer Prize and Drama Critics Circle Award in 1948) grew out of the author's experiences in New Orleans. *Summer and Smoke* (1948) and the one-act play, *27 Wagons Full of Cotton* (1955), both demonstrate Williams' preoccupation with the theme of Southern decadence.

In 1940, after winning a Group Theatre prize the preceding year for four one-act plays entitled *American Blues*, the Theatre Guild produced his *Battle of Angels*, which failed before reaching Broadway. Two Rockefeller fellowships enabled him to continue writing, and in 1943 he was engaged by Metro-Goldwyn Mayer for a few months as a script writer in Hollywood, where he wrote *The Glass Menagerie*.

Like most of Williams' plays, *Cat on a Hot Tin Roof* proved to be controversial. Although united in their judgment that the play (about a neurotic Southern plantation family) is a tribute to the author's dramatic genius, critics felt that it demonstrates both Williams' virtues and weaknesses as a playwright in that it incorporates poetic intensity, dramatic sense, and a penetrating analysis of human emotion, but at the same time is often verbose, overly theatrical, and obsessed with abnormal states of mind.

In addition to the plays mentioned above, Williams is also the author of *You Touched Me* (written in collaboration with Donald Windham, produced in 1946); *Rose Tattoo* (1950); *Camino Real* (1953); and a novel, *The Roman Spring of Mrs. Stone* (1950).

WILSON, Charles Erwin, U.S. secretary of defense: b. Minerva, Ohio, July 18, 1890. For many years a leader in the automobile industry, he became secretary of defense on Jan. 28, 1953, after agreeing to dispose of his stock holdings in the General Motors Corporation.

Wilson obtained his E.E. degree from Carnegie Institute of Technology in 1909, and subsequently worked as an electrical engineer for Westinghouse Electric and Manufacturing Company before joining General Motors in 1919 as chief engineer and sales manager for the subsidiary Remy Electrical Company automobile division. From 1941 until his appointment to the Defense Department post he was president of General Motors Corporation.

Noted for the frankness with which he often expresses his views on public issues, Wilson has been a vigorous supporter of President Eisenhower's defense policies, from the controversy in 1953 over the \$5 billion reduction in the air force budget to the debate over the defense program of 1955-56. In the summer of 1955 he took issue with retiring Chief of Staff Gen. Matthew B. Ridgway's contention that United States military policy was sacrificing ground forces for greater air power. Throughout the year he urged that there be no letdown in United States military strength as a result of the apparently friendlier spirit shown by the USSR at the Geneva Conference (q.v.). He announced on September 29 that defense expenditures for the fiscal year 1956 would be increased by about \$285 million, bringing the total to approximately \$34½ billion, and that defense spending should not be reduced solely for the purpose of helping to balance the budget. However, he ordered all Defense Depart-

ment heads to try to effect maximum economies in the fiscal years 1956 and 1957 without sacrificing military strength.

In March 1955, Wilson issued an order requiring all military and civilian personnel of the Defense Department to submit all speeches and publications for clearance. Later in the year he set up a committee to draft a new code of conduct governing the behavior of American military personnel when taken prisoner of war. (See also NATIONAL SECURITY.)

WINDWARD ISLANDS. Forming the southern chain of the Lesser Antilles, these British West Indies islands (area, with dependent islets, 821 square miles; 1953-54 est. pop., 299,957, of whom more than 90% are Negroes) comprise four colonies under a single governor (C. M. Deverell, appointed June 23, 1955), whose headquarters are at St. George's, Grenada:

Colony	Area (sq. miles)	Population	Capital
Grenada ¹	133	83,000 ²	St. George's
St. Vincent.....	150	72,300 ²	Kingstown
St. Lucia.....	233	85,520 ²	Castries
Dominica.....	305	59,137 ²	Roseau
Total.....	821	299,957	

¹ The Grenadines are administered in part by Grenada, in part by St. Vincent. Carriacou (13 square miles; pop., 7,113 in 1949), largest island of the Grenadines, is administered by Grenada. ² Mid-1953 est. ³ Mid-1954 est.

In each of the colonies, the administrator is president of the 14-member Legislative Council, including 3 nominated and 8 elected nonofficials. Each colony also has an 8-member Executive Council, including 3 nonofficials elected by the Legislative Council from its own elected members and 1 nominated nonofficial from the Legislative Council. The Windwards have adopted the plan for a British Caribbean Federation (see BRITISH WEST INDIES), with provision for new constitutions, including ministerial systems, in Grenada, St. Lucia, and St. Vincent. The British Treasury has allocated £ 6,607,000 to the Windward Islands toward the cost of development and welfare programs.

Excepting Grenada, school enrollment totaled 60,300 primary and 3,000 secondary pupils in 1953. The currency is the British West Indian dollar (BWI\$1 = U.S.\$0.58).

Exports from the Windwards were valued at £ 4,090,000 in 1954 (£ 3,400,000 in 1953); imports, £ 4,450,000 (£ 4,290,000 in 1953).

Grenada.—Revenue in 1954 was BWI\$4,827,079; expenditure, BWI\$4,427,999. There are 11 government and 42 state-aided primary schools, and 5 secondary schools.

Agricultural production includes cocoa, nutmeg, lime oil, bananas, coconuts, cotton, and sugarcane. Rum is manufactured. In 1954, exports were valued at BWI\$8,510,288 (cocoa, BWI\$4,959,403; nutmeg, BWI\$1,939,203; lime oil, BWI\$64,084; and copra, BWI\$80,228); imports totaled BWI\$8,108,669. There are 478 miles of roads (220 miles surfaced). British West Indian Airways links the colony with Trinidad.

St. Vincent.—Chief islands of the Grenadines administered by St. Vincent are Union, Mustique, Canouan, and Bequia. In 1954 the 42 primary schools (government, 20; state-aided, 22) had 16,249 pupils; and 4 secondary schools (government, 2; subsidized, 1; private, 1), 670 pupils.

Most of the world's supply of arrowroot is derived from St. Vincent (44,538 barrels, or 9,976,512 pounds, from 4,500 acres in 1954), and the colony's Sea Island cotton (178,000 pounds of cotton lint from 1,628 acres in 1954) is the best in the British Commonwealth. Other cultivation includes coconuts (4,720,151 pounds of copra from 5,000 acres in 1954), and sugarcane (3,852 tons of sugar from 1,732 acres). Exports, valued in 1954 at BWI\$4,261,900, included arrowroot, BWI\$2,579,918; copra, BWI\$460,034; cotton, BWI\$227,030; sugar, BWI\$296,530; and bananas, BWI\$56,601. Imports were valued in 1954 at BWI\$5,456,000. Roads totaled 410½ miles (oiled, 63½ miles; metaled, 37 miles; and earthen, 310 miles).

St. Lucia.—Including the Colonial Development and Welfare grant-in-aid, revenue in 1954 was BWI\$3,961,960; expenditure, BWI\$3,683,483. Primary schools in 1954 totaled 49 (government 1; state-aided 48), with 15,240 pupils; 2 secondary schools (state-aided) had 633 pupils.

Sugarcane is the major crop (1954 production, 8,771 long tons). Bananas, cocoa, and coconuts are cultivated; and rum, molasses, edible oil, lime juice, lime oil, and bay oil are processed or manufactured. Exports in 1954 had an aggregate value of BWI\$3,542,092, including sugar, BWI\$1,309,899; copra, BWI\$389,396; cocoa, BWI\$321,903; bananas, BWI\$506,421; and coconut oil, BWI\$578,605. Imports were valued at BWI\$4,826,429. Highways totaling 557 miles link Castries with all main centers. Vigie, near Castries, is the principal airport; commercial traffic uses Beane Field at Vieux Fort on the United States-leased base (reactivated from Sept. 16, 1954).

Dominica.—Under a constitution adopted in 1951, government comprises an administrator (H. L. Lindo); a Legislative Council with an elected majority; and an Executive Council, including 3 of the elected members of the Legislative Council. In connection with the British Caribbean Federation plan, the colonial secretary announced on Feb. 2, 1955, that proposals for new constitutions for Grenada, St. Lucia, and St. Vincent would be applied also to Dominica when requested. Government revenue in 1953 was BWI\$2,813,525; expenditure, BWI\$2,606,781. There are 47 primary and 4 secondary schools.

Exports in 1953 included copra, 1,804,769 pounds (BWI\$241,649); cocoa, 446,307 pounds (BWI\$219,937); and bananas, 1,137,437 stems (BWI\$1,792,858). (See also BRITISH WEST INDIES.)

DONOVAN ROWSE,
Author and Publicist.

WINE. United States Production.—A bigger than average 1955 grape crop and a wine production that promised to be the largest in four years were indicated in California by mid-December. The 1955 vintage, although a week to two weeks later than the year before in some California districts, was beyond its peak at that time. The California grape crop, in the December forecast by the U.S. Crop Reporting Board, was estimated at 2,947,000 tons, 27.00% over the 1954 harvest and 9.61% above the five-year (1950-54) average. The outlook for the entire United States was a grape crop of 3,173,700 tons, 24.00% above the previous year and 9.35% higher than the five-year average.

The 1955 grape crush in California reached its high point the third week of October, but there were still large tonnages of grapes going to wineries in the early part of November. Grapes crushed by wineries reporting to the Federal-State Market News Service totaled 1,476,539 tons by December 17, compared with 1,082,864 tons on approximately the same date the year before, an increase of 36.36%. Indications were that wine production per ton of grapes would be less for some varieties than in 1954, with a total 1955 crush approximating slightly over 1,500,000 tons and a gross wine production of around 145,000,000 gallons. A 1955 production of this size would exceed the 1954 vintage in California by 22.05%. It would be California's largest vintage since 1951, when gross wine production was 163,569,000 gallons.

In 1954, California's gross wine production totaled 118,807,000 gallons from a grape crush of 1,102,959 tons. Production included 19,314,000 gallons of red table wine, 11,868,000 gallons of white table wine, and 87,625,000 gallons of dessert wine.

The latest net wine production figures available are for 1953. In that year, California's net wine production of 100,075,000 gallons included 21,650,000 gallons of table wine, 76,736,000 gallons of dessert wine, 1,082,000 gallons of vermouth, and 607,000 gallons of sparkling wine. Production in other states consisted of 12,975,000

gallons of table wine, 1,477,000 gallons of dessert wine, 2,343,000 gallons of vermouth, and 904,000 gallons of sparkling wine. California's 1953 wine production was 84.97% of the total production of 117,774,000 gallons.

California wine shipments of 108,366,961 gallons through November 1955 (1.42% under the 1954 period) compared with a 1954 total of 117,110,872 gallons. California table and sparkling wine shipments in the first 11 months of 1955 were higher by 4.01% and 43.91%, respectively, while dessert wine shipments were 0.46% higher. United States wine distribution of 142,156,000 gallons in 1954 set a new record. Inventories of aging wines in California wineries on Oct. 31, 1955, were 164,918,210 gallons, 6.98% less than on the same date in 1954.

World Production.—World wine production in 1953 was estimated at 5,626,821,000 gallons, 14.88% above the five-year (1948-52) average, by the U.N. Food and Agriculture Organization in its May 1955 *Bulletin of Agricultural Economics and Statistics*. Production figures (in thousands of gallons) for the countries and regions shown were: France, 1,561,509; Italy, 1,330,096; Spain, 619,743; Portugal, 310,136; Greece, 101,970; Yugoslavia, 99,328; West Germany, 59,702; other European countries, 54,155; Eastern Europe, 246,999; and Algeria, 483,167.

DON W. MCCOLLY,
*President, Wine Institute,
San Francisco, Calif.*

WINNIPEG. The capital of Manitoba, Winnipeg is the fourth most populous city in Canada. The city proper has 235,710 residents (1951 census); the metropolitan area of Greater Winnipeg, 354,100. The city area includes 15,535 acres of land and 465 acres of waterways. At an altitude of 760 feet above sea level, Winnipeg is located at the confluence of the Red and the Assiniboine rivers.

The city government is carried on under a special provincial charter of incorporation granted in 1873 and revised and consolidated in 1918 and 1940. The City Council comprises a mayor (elected at large) and 18 aldermen (3 elected annually from each of the 3 city wards), all serving 2-year terms. The 5-man Greater Winnipeg Investigating Committee, appointed by the premier of Manitoba, has been authorized to recommend what municipal services should be the responsibility of the metropolitan council. The committee was to study the feasibility of establishing a single governmental unit for Winnipeg and neighboring municipalities. The Winnipeg civic elections were held on Oct. 26, 1955.

Greater Winnipeg is the industrial center of the prairie provinces of Canada. Winnipeg's manufactures are varied and include flour milling and other food processing, printing and publishing, and the output of railway rolling stock, clothes, malt products, furniture, jute, cotton and fur goods. Winnipeg has numerous wholesale houses serving as distributing centers; it is the largest grain market in the world; and it holds annual fur auctions which draw buyers from all over the continent. The estimated number of industries in Winnipeg in 1955 was 1,138; the number of new industries, 38; and the estimated value of production, \$480 million.

Winnipeg is served by the Canadian Pacific Railways which have western headquarters in the city; by the Soo Line, Great Northern, and Northern Pacific railroads, which connect with the United States; and by Trans-Canada Air Lines.

Among new constructions in 1955 were 4 new schools, costing about \$3,300,000, and a new post office, the cornerstone of which was laid on July 5, 1955. The new \$2 million Winnipeg Arena was opened in October; the old Amphitheatre, former home of hockey for 40 seasons, was to be demolished.

The new \$2 million Midtown Bridge across the Assiniboine was officially opened on Sept. 15, 1955. It has four lanes of traffic and completed the first link of an expressway into downtown

Winnipeg from the south of the city and from Highway No. 75 between Canada and the United States. The last streetcars in Winnipeg were replaced by diesel buses on Sept. 18, 1955.

MARJORIE MORLEY,
Manitoba Provincial Librarian.

WISCONSIN. North Central state, United States; admitted to the Union, May 29, 1848. The "Badger State" ranks 25th in area and 13th in population (1955) among the 48 states.

Area and Population.—Area: 56,154 square miles (land, 54,705; inland water, 1,449), divided into 71 counties. Population: (1950) 3,434,575; (est., July 1, 1955) 3,691,000. Towns (defining civil divisions) and urban places with 1950 populations above 10,000 are as follows:

Appleton.....	34,010	Milwaukee.....	637,392
Ashland.....	10,640	Mt. Pleasant town..	11,339
Beaver Dam.....	11,867	Neenah.....	12,437
Beloit.....	29,590	Oshkosh.....	41,084
Chippewa Falls.....	11,088	Racine.....	71,193
Cudahy.....	12,182	Sheboygan.....	42,365
Eau Claire.....	36,058	Shorewood village..	16,199
Fond du Lac.....	29,936	South Milwaukee...	12,855
Granville town.....	11,784	Stevens Point.....	16,564
Green Bay.....	52,735	Superior.....	35,325
Greenfield town.....	20,907	Two Rivers.....	10,243
Janesville.....	24,899	Watertown.....	12,417
Kenosha.....	54,368	Waukesha.....	21,233
La Crosse.....	47,535	Wausau.....	30,414
Lake town.....	18,956	Wauwatosa city.....	33,324
Madison (capital)...	96,056	Wauwatosa town.....	23,941
Manitowoc.....	27,598	West Allis.....	42,959
Marinette.....	14,178	Whitefish Bay	
Marshfield.....	12,394	village.....	14,665
Menasha.....	12,385	Wisconsin Rapids...	13,496

Executive.—Chief state officers in 1955:

Governor: Walter J. Kohler (Republican)
Lieutenant Governor: Warren P. Knowles
Secretary of State: Mrs. Glenn R. Wise
Treasurer: Warren R. Smith
Attorney General: Vernon W. Thomson
Supt. of Public Instruction: George E. Watson

Constitution and Judiciary.—The present constitution went into effect in 1848. The Supreme Court comprises seven justices; chief justice in 1955, Edward T. Fairchild.

Legislature.—The Legislature (Senate, 33 members; Assembly, 100) meets in odd-numbered years commencing the second Wednesday in January.

The 1955 session of the legislature produced several pieces of major legislation, notably a highway safety program, including an increased gasoline tax to finance an accelerated highway building program, a state drivers' licensing system, and an enlarged state traffic patrol. It also effected a compromise act coordinating the state's tax-supported institutions of higher education; revised the Children's Code and the Criminal Code; created a Claims Commission and a joint legislative committee to review administrative rules; adopted a cost of living bonus of \$100 a month for legislators required to live in Madison; prohibited labor unions from contributing to political campaigns (see below, *Principal Events, 1955*); and ratified the Great Lakes Basin compact.

Finances.—Gross General Fund receipts (1954-55 fiscal year), \$620,777,258; gross expenditures, \$620,916,712; General Fund balance (June 30, 1955), \$66,190; par value of state investments, \$403,035,588.

Taxation.—Total tax revenue of state and local governments (1954-55 fiscal year): \$580,289,011, of which \$133,594,211 was retained by the state. The general property tax yielded slightly more than half of all taxes received; individual and corporate income taxes account for about 21%. The state has neither a general sales nor a poll tax.

Banking.—On June 30, 1955, the state's 95 national banks had \$1,766,898,000 in assets, \$1,096,273,000 in demand deposits, and \$542,795,000 in time deposits; on Dec. 31, 1954, the state's 463 other banks, including 5 trust companies and 4 savings banks, had \$1,971,260,369 in deposits, \$728,615,025 in loans, and \$1,021,990,004 in investments; the state's 154 savings and loan associations had assets of \$799,276,619; and its 668 credit unions had assets of \$102,598,430.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive, except for certain handicapped children and those attending vocational high schools. Expenditures for elementary and secondary public education in the 1953-54 school year totaled \$181,233,002 (\$270.26 per pupil); overall expenditures for public education, including higher education, to-

taled \$235,985,588. Public school teachers' salaries averaged \$3,458 for elementary and \$4,106 for secondary teachers.

WISCONSIN SCHOOL STATISTICS

Type of school	No.	Teachers	Students
Public elementary (1953-54) . . .	5,292	15,813	415,404
Public secondary (1953-54) . . .	445	7,422	157,393
County teachers' colleges (1954-fall) . . .	22	...	1,178
State colleges (1954-55) . . .	9	680	8,914
Evening schools ¹ (1954-55) . . .	...	1,634	77,724
Vocational and adult education schools (1954-55) . . .	...	1,002	39,931

¹ State supervised.

In the fall of 1954 there were 50,399 students in 63 institutions of higher education, including 22 county teachers colleges, 29 private colleges, 9 state colleges, the University of Wisconsin, Stout Institute, and Wisconsin Institute of Technology.

Social Welfare.—Public assistance expenditures in the 1954-55 fiscal year totaled \$52,439,935, including \$32,549,870 for old-age assistance, \$13,396,519 for dependent children, \$911,726 for the needy blind, and \$1,224,675 for the disabled; a monthly average of 104,954 persons received public assistance, including 27,695 who received local funds only. The state spent \$14,-452,551.73 for public welfare, correctional, and penal institutions.

WISCONSIN WELFARE INSTITUTIONS, 1955

Type of institution	No.	Pop. ¹
Hospitals for the mentally ill . . .	3	2,356
Colonies for the mentally deficient . . .	2	3,208
County hospitals for the mentally ill . . .	38	12,642
Homes for dependent and neglected children . . .	1	87
Correctional schools for boys . . .	1	257
Correctional schools for girls . . .	1	146
Reformatories for men . . .	1	685
Prisons for men . . .	1	1,439
Prisons for women . . .	1	147

¹ Daily average in September 1955.

Labor Force.—The civilian labor force in September 1955 numbered 1,562,000 persons, of whom 34,100 were unemployed and 3,000 were involved in labor-management disputes. There were 1,027,000 nonfarm wage and salary employees; 227,900 persons in all other types of nonfarm employment (including self-employed, unpaid family, government, and domestic workers); and 270,000 agricultural workers.

Manufacturing.—Establishments numbering 7,-500 in 1954 had an estimated 329,500 production workers whose wages totaled \$1,281,451,000. Earnings of production workers in manufacturing averaged \$74.79 for an average work week of 40.8 hours in 1954, and for the first six months of 1955 averaged \$80.35 for 41.9 hours.

PRINCIPAL WISCONSIN MANUFACTURES

Industry	Production workers (est. 1954)	Ave. wage per week (est. 1954)	Value added by mfr. ¹ (1953)
Nonelectrical machinery . . .	60,400	\$82.83	\$764,869,000
Food and kindred products . . .	44,600	69.13	519,249,000
Transportation equipment . . .	25,200	83.90	317,084,000
Electrical machinery . . .	29,300	77.50	309,387,000
Paper and allied products . . .	28,800	77.38	301,273,000
Fabricated metal products . . .	25,000	74.44	285,463,000

¹ Value of products less cost of materials, supplies, fuel, electric energy, and contract work.

Mining.—Primary mineral output in 1953 was valued at \$55,212,000, ranking Wisconsin approximately 32d among the states.

WISCONSIN MINERAL PRODUCTION, 1953

(In short tons, except as noted)

Mineral	Quantity	Value
Iron ore (long tons) . . .	1,655,331 ¹	\$ 548,628
Lead . . .	2,094	1,566,085
Lime . . .	123,997	16,173,302
Sand and gravel . . .	23,656,086	15,979,756
Stone ² . . .	7,450,396	3,870,900
Zinc . . .	16,830	17,073,329
Other minerals . . .	...	...

¹ 1954 preliminary figures: 1,591,000 gross tons. ² Value included in "Other minerals." ³ Excluding that used in making cement and lime.

Fisheries.—The commercial fish catch in 1954 was valued at \$2,157,083.81 for 20,869,147 pounds. Principal species landed were chubs (\$834,211.14), herring (\$450,319.06), whitefish (\$272,068.58), trout (\$229,285.75), and perch (\$177,193.80).

Agriculture.—Cash farm income in the first half of 1955 totaled \$488,404,000, and for the full year 1954 comprised \$878,616,000 from livestock and livestock products, \$124,076,000 from crops, and \$5,556,000 from government payments.

Receipts from principal crops and livestock in 1954 were dairy products (including 219,906,-000 pounds of creamery butter and 480,979,000 pounds of American cheese), \$501,798,000; hogs, \$140,162,000; cattle, \$115,481,000; eggs, \$56,-301,000; corn, \$19,118,000; and greenhouse and nursery products, \$12,775,000.

The state's 153,558 farms (22,507,288 acres; harvested cropland, 9,849,700) averaged 146.6 acres and \$14,801 in value of land and buildings per farm in 1954. Livestock on farms on Jan. 1, 1955, included 4,318,000 cattle (2,656,000 milch cows), 1,850,000 swine, 112,000 horses, and 13,-714,000 chickens (not including commercial broilers). During the week of Sept. 26—Oct. 2, 1954, there were 320,198 family and hired workers engaged in farming; 103,139 farms had telephones, 148,648 had electricity.

WISCONSIN CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Apples, commercial (1,000 bu.) . . .	1,040	1,000	1,200
Barley (1,000 bu.) . . .	5,497	2,844	2,236
Cabbage (tons) . . .	99,200 ¹	89,200	66,000
Corn (1,000 bu.) . . .	120,618	154,445	139,650
Corn for canning (tons) . . .	245,600	311,200	230,000
Cranberries (bbl.) . . .	185,700	250,000	315,000
Flax (1,000 bu.) . . .	146	62	65
Hay, tame (1,000 tons) . . .	7,001	7,867	8,212
Lima beans for canning (1,000 lb.) . . .	7,480	16,120	8,440
Oats (1,000 bu.) . . .	130,128	127,336	140,382
Peas for canning (1,000 lb.) . . .	266,340	230,200	275,000
Potatoes (1,000 bu.) . . .	12,358	11,610	11,265
Snap beans for canning (tons) . . .	17,000	25,600	21,000
Tobacco (1,000 lb.) . . .	30,178	22,680	22,430

¹ 1949-53 average.

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1954-55 fiscal year totaled \$50,685,536.93, and county and local funds amounted to \$4,593,-659.50. State aid to counties and municipalities for roads totaled \$33,181,271.60.

Highways and roads on Jan. 1, 1955, totaled 95,425 miles, including 57,101 miles of local roads, 19,198 miles of county trunk highways, and 10,877 miles of state trunk highway system. Registered *motor vehicles* numbered 1,386,423 (1954-55), including 1,108,484 passenger cars. In 1955 the state's *railroads* covered 6,266 miles; and there were 7 commercial *airlines* and 127

airports and airfields (65 municipal and 54 private fields and 8 seaplane bases).

Communications media in 1955 included 70 AM and 22 FM radio stations and 16 operating television outlets; 44 daily newspapers (circulation, 1,061,001) and 291 weekly newspapers; and (Jan. 1, 1955) 303,815 business, 690,783 residential, and 155,204 rural telephones.

Principal Events, 1955.—On the political front, the most controversial issue in 1955 was the passage of two acts by the Wisconsin Legislature. The first of these, the so-called Catlin bill, prohibited labor unions from contributing to political campaigns. This act received nationwide attention, particularly in the labor press, with opponents of the bill seeing in it an attempt to check the increasing importance in Wisconsin of the Democratic Party, which stood to gain most from labor union funds.

The second measure, which also received national publicity, sought to redistrict parts of the 4th and 5th congressional districts. Proposed by the Republicans, it brought charges of gerrymandering from the Democrats since its effect was to place certain heavily populated Democratic wards of Milwaukee in the already strongly Democratic 4th District, and the Republican city of Wauwatosa in a Democratic district with greater Republican opposition, thus increasing Republican chances of success in the latter district at the 1956 elections. On November 26, Governor Kohler vetoed the measure because he felt that it ignored the larger and more urgent problem of statewide redistricting.

The centennial of the birth of former Sen. Robert M. La Follette, progressive Republican leader, was held in June at Madison. U.S. Chief Justice Earl Warren was the principal speaker.

On July 22, a new air terminal at Milwaukee was dedicated. The \$3,200,000 glass and aluminum building was described by architect Frank Lloyd Wright as "one of the finest in the country."

ANTON JACOBSON, JR.,
Wisconsin Legislative Reference Library.

WOLFRAM. See TUNGSTEN.

WOOD, Robert Williams, American physicist: b. Concord, Mass., May 2, 1868; d. Amityville, Long Island, N.Y., Aug. 11, 1955. One of the world's foremost authorities on spectrum research, Robert Wood was educated at Harvard University (B.A. 1891), Johns Hopkins University (1891-92), and the universities of Chicago (1892-94) and Berlin (1894-96). In 1897 he was appointed to the faculty of the University of Wisconsin, where in 1898 he developed the widely used method of thawing frozen street mains by passing a current of electricity through them. From 1901 to 1938, with the exception of the years 1917-19, when he served as a major in the Army Signal Corps, he was professor of experimental physics at Johns Hopkins University. He retired in 1938, but was named research professor, a post he held until 1951.

Dr. Wood was one of the first scientists to explore thoroughly the properties of ultraviolet and infrared radiation. With Alfred L. Loomis, he pioneered in the investigation of the physical and biological effects of high-frequency sound waves. In 1936 he announced his discovery of a new method for measuring spectroscopy lines accurately, and, with Loomis, succeeded in producing sounds of as high as 300,000 to 500,000 vibrations per second.

During World War II, Dr. Wood served as

consultant to the U.S. Army and Navy and to the Manhattan Project, in which he assisted in the development of the atomic bomb by utilizing his researches into the production of spontaneous incandescence of metals in cold atomic hydrogen. Other important work included his research on resonance radiation and fluorescence, critical temperatures for deposition of metal vapors as homogeneous films, destruction of polarization of resonance radiation by weak magnetic fields, and diffraction gratings for astrophysical research.

In addition to numerous scientific papers on optics, spectroscopy, atomic and molecular radiation, and astronomy, Dr. Wood was the author of *Physical Optics* (1905; rev. ed., 1934) and *Researches in Physical Optics* (2 vols., 1913-19).

WOOD. See LUMBER and the Index entry, *Wood Research*.

WOOL. World wool consumption is limited by available supplies. Postwar gains in wool production reflect efforts of major producing countries to meet growing world needs. During the 1955-56 season, world wool production was expected to reach a new peak of 4,560 million pounds, greasy basis, or 23% above the low 1945-46 clip.

Although the United States ranks fifth as a producer of wool, it must import about half its apparel wool and all its carpet wool requirements. Its production of 304 million pounds in 1955 was 40% below the 1942 peak level. The government has tried to encourage greater wool production through various price-support programs. Beginning with 1955 a new program permits growers to sell at market prices which may be below a predetermined average price for an entire season's clip. The growers will receive government payments computed on their sales prices by applying the percentage difference between an established "incentive" price and the lower average market price of the entire wool clip.

WORLD PRODUCTION OF VIRGIN WOOL

(In millions of pounds, greasy basis)

Country and type	Average 1934-38	Low year 1945-46	1954-55	1955-56 forecast
Major exporting countries:				
Australia.....	995	936	1,294	1,331
Argentina.....	376	467	364	348
New Zealand.....	300	365	455	475
South Africa.....	261	208	306	306
Uruguay.....	114	175	198	200
Total above.....	2,046	2,151	2,617	2,660
United States.....	470	436	308	304
Other countries.....	1,294	1,146	1,571	1,596
Grand total.....	3,810	3,733	4,496	4,560
Of which:				
Merino (fine).....	1,491	1,243	1,592	1,615
Crossbred (medium).....	1,528	1,728	1,953	1,985
Total apparel-type.....	3,019	2,971	3,545	3,600
Carpet-type.....	791	762	951	960

(Source: Commonwealth Economic Committee.)

The United States is outranked by only the United Kingdom as a consumer of wool. During the United States textile recession of 1954, raw wool consumption fell to 389 million pounds, clean basis, from 504 million in 1953. The 1954 level was over 15% of total world consumption.

In 1954, imports of 206 million pounds, clean basis, constituted 15% of total world imports. Apparel wool (dutiable) imports of 104 million pounds comprised: 69%, fine to medium-fine; 15%, medium to low-medium; and 16%, low grades. Australia, New Zealand, and South Africa supplied 70%, and Argentina and Uruguay pro-

vided 25%. Argentina supplies about half the carpet wool imports (duty-free), which totaled 102 million pounds in 1954. Other important suppliers are India, Pakistan, and New Zealand.

Both consumption and imports rose during 1955. For the first ten months, apparel wool consumption was 5% higher, and carpet wool consumption was 14% higher than during the corresponding 1954 period. Imports of apparel wool during the first eight months were 11% higher than during the corresponding 1954 period, and carpet wool imports were 32% higher.

RUTH JACKENDOFF,
Economist, The Wool Bureau, Inc.

WORLD BANK. See INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.

WORLD COURT. See Index entry, *International Court of Justice.*

WORLD HEALTH ORGANIZATION. A permanent agency of the United Nations, the World Health Organization (WHO) in 1955 comprised 81 full members and 4 associate members.*

The Eighth World Health Assembly met in Mexico City, May 10-27, 1955, and was attended by delegates from 76 member countries, as well as observers from international and national agencies and associations.

Dr. Ignacio Morones Prieto, minister of health and welfare of Mexico, was elected president of the assembly, succeeding Dr. Joseph Nagbe Togba, director general of the National Health Services of Liberia. In the course of its session, the assembly approved a \$10,203,084 budget for WHO in 1956, an increase of \$700,000 over the 1955 budget. The 1956 budget will finance more than 300 health programs to be assisted by WHO.

During its meetings the assembly adopted 47 resolutions dealing with vital health subjects, among them the establishment of a world fund to assist countries in malaria eradication campaigns. The assembly also defined, for the first time, WHO's role in the development of atomic energy in the field of medicine and public health. It was also decided to enlarge the basic network of polio laboratories which WHO has set up to study the various strains of polio virus.

During 1955, WHO continued its technical and advisory services. The central technical services are mainly carried out by WHO headquarters in Geneva, and include the drawing up and adoption of the International Sanitary Regulations; the provision of an epidemiological intelligence service; international health legislation for uniform registration of diseases and deaths in all countries; standardization of drugs; publication of the *Pharmacopoeia Internationalis*; participation in work for international control of drug addiction; and research on narcotics, alcohol, and related subjects. WHO provides a complete range of documentation on health, and issues several different types of publications on important developments in public health and medicine.

Regional activities in 1955, in assistance to governments, often carried out with the aid of United Nations Children's Fund (UNICEF) supplies, are highlighted in the following paragraphs.

Africa.—Activities directed toward control of the tsetse fly were in progress in Bechuanaland. Maternal

* Albania, the Belorussian SSR, Bulgaria, Czechoslovakia, Hungary, Poland, Rumania, the Ukrainian SSR, and the USSR earlier notified WHO of their withdrawal. Since the organization's constitution has no provision for withdrawal from membership, the Third and Fourth World Health Assemblies resolved that WHO would welcome their resumption of active membership at any time. The USSR in 1955 announced its intention to resume participation.



UNITED NATIONS

Two blind Moroccans, who live by begging alms, are among those helped by the World Health Organization. The child sleeping in the seated man's lap acts as their guide.

and child health development was carried out in Tanganyika and Uganda. Leprosy control measures were undertaken or planned in French Equatorial Africa, Gambia, and Nigeria. Malaria and tuberculosis control measures were under way or planned in the Gold Coast, in Kenya, and in Liberia. A number of fellowships in various fields were awarded to countries of the region, and assistance was given to several training institutes. A malaria conference and a yaws symposium were held, as were a seminar on environmental sanitation and a training course on malaria.

The Americas.—The Pan American Sanitary Bureau, which serves also as WHO's regional office for the Americas, continued its wide program of collaboration with the governments of the Western Hemisphere. The bureau continued to stimulate national and hemispheric programs aiming at the eradication of communicable diseases, as well as those designed to strengthen national health departments.

One of the high lights of the work of the bureau during 1955 was the increasing emphasis given to programs to eradicate malaria from the Americas, under the mandates given by the 14th Pan American Sanitary Conference (1954) and the 8th World Health Assembly (1955). In addition, practically all the countries in the hemisphere have now joined in the program sponsored by the bureau for the eradication of the *Aedes aegypti* mosquito, the urban vector of yellow fever. In several areas of the tropical Caribbean, campaigns to eradicate the disfiguring treponematous disease known as yaws were continued.

Several government-operated projects—particularly BCG vaccination and maternal and child health programs—were undertaken with the joint sponsorship of the bureau and UNICEF. In the important field of environmental sanitation, the governments of the hemisphere took advantage of the 1955 World Health Day theme, "Clean Water Means Better Health," to stimulate interest in the development of adequate supplies of safe water.

Southeast Asia.—Malaria and insect control activities were in progress in Afghanistan, Burma, Indonesia, and Nepal. Tuberculosis control measures were carried out in Afghanistan, Burma, Ceylon, India, Indonesia, and Thailand. Yaws control programs were assisted in India, Indonesia, and Thailand, as were leprosy control measures in Ceylon, Indonesia, and Thailand. Other activities included plague control, mental health and dental health development, along with extensive maternal and child health work in India. Environmental sanitation projects were in force in Afghanistan, Burma, Ceylon, India, Indonesia, and Thailand. A number of conferences and seminars were held and fellowships awarded in a wide variety of health fields.

Europe.—The anesthesiology centers in Copenhagen and Paris conducted further courses. Trachoma control activities were carried out in Algeria, French Morocco, Spain, and Tunisia. Assistance was given to sera and vaccine production in Austria, to tuberculosis control in Greece, and to mental health development in Italy. Public health training programs were conducted in the Netherlands and Sweden; aid was given in dental health to Switzerland and in maternal and child health to Turkey. A public health program was in progress in Yugoslavia.

Eastern Mediterranean.—Tuberculosis control activities were carried out in Egypt, Iran, Iraq, Israel, the Anglo-Egyptian Sudan, and Syria. Assistance was given in control of venereal disease in Ethiopia, Pakistan, and Saudi Arabia. A mental health development program was aided in Jordan, as was microfilm production in Lebanon. Maternal and child health development continued to be assisted in Iran, Iraq, Libya, Jordan, Pakistan, and Syria. Aid was given to public health administration in Yemen, nursing education in Cyprus, and malaria control in Iran, Iraq, Saudi Arabia, and Syria. Seminars were held on public health, environmental sanitation, meat hygiene, and maternal and child health.

Western Pacific.—Aid in malaria control was given to Cambodia, China (Taiwan), Netherlands New Guinea, North Borneo, the Philippines, and Sarawak. Maternal and child health demonstration work continued in Cambodia, China (Taiwan), Hong Kong, and Viet-Nam; while nursing education programs were under way in Cambodia, China (Taiwan), the Federation of Malaya, Japan, North Borneo, and Singapore. Tuberculosis control measures continued in Cambodia, China (Taiwan), the Philippines, and Viet-Nam. Further work was carried out on the Philippines Pilot Project for Schistosomiasis Control. Venereal disease control measures were assisted in China (Taiwan), as were yaws control activities in the Federation of Malaya, Fiji, Netherlands New Guinea, the Philippines, and Western Samoa. Environmental sanitation work was in progress in Japan, North Borneo, and the Philippines. (See also CHILD WELFARE.)

R. L. COIGNY,
Director, Liaison Office with United Nations,
New York.

WORLD POLITICS. See list of references under the Index entry, *World Politics*.

WRESTLING. See SPORTS, GAMES, AND SHOWS.

WYOMING. Western state, United States; admitted to the Union, July 10, 1890. The "Equality State" ranks 8th in area and 47th in population (1955) among the 48 states.

Area and Population.—Area: 97,914 square miles (land, 97,506; inland water, 408), divided into 23 counties. Population: (1950) 290,529 (est., July 1, 1955) 295,000. Urban places with 1950 populations above 7,500 are: Casper, 23,673; Cheyenne, the capital, 31,935; Laramie, 15,581; Rock Springs, 10,857; and Sheridan, 11,500.

Executive.—Chief state officers in 1955:

Governor: Milward L. Simpson
Secretary of State: Everett T. Copenhaver
Treasurer: Charles B. Morgan
Attorney General: George F. Guy
Supt. of Public Instruction: Velma Linford

Constitution and Judiciary.—The present constitution went into effect in 1890. The Supreme Court comprises three justices; chief justice in 1955 was William A. Riner, who died on Nov. 21, 1955.

Legislature.—The legislature (Senate, 27 members; House of Representatives, 56) meets in odd-numbered years commencing the second Tuesday in January.

The 1955 legislative session changed the opening date of the fiscal biennium from April 1 to July 1, and appropriated nearly \$2 million to cover the interim period during the changeover. Major legislation created the office of state fire marshal; set up a commission to provide an annotated compilation of state statutes; repealed a statute setting up separate schools for Negro children in districts having 15 or more Negro children; increased drivers' and chauffeurs' license fees by \$1; authorized blood tests for the presence of alcohol in persons at the time of their arrest in connection with automobile accidents; established a State Board of Nursing; set the state minimum wage at 75 cents an hour; and required the registration of Communists and Communist-front organization members who have been in the state for five consecutive days. (See also below, *Principal Events, 1955*.)

Finances.—State treasury receipts (1954-55 fiscal year), \$65,815,112; expenditures, \$47,699,626; treasury balance, \$82,475,832. The state had no general obligation bonds outstanding on June 30, 1955.

Taxation.—State tax revenue (1954-55 fiscal year): \$30,787,000, including \$18,218,000 from a 2% general sales tax and selective sales and gross receipts taxes; \$5,993,000 from licensing; and \$6,339,000 from property

taxes. The state has no individual or corporate income taxes but does have a \$2 poll tax per person.

Banking.—As of June 30, 1955, the state's 25 national banks had \$241,462,000 in assets, \$258,694,000 in demand deposits, and \$54,915,000 in time deposits; the state's 28 other banks had \$91,363,648 in assets, \$51,850,661 in demand deposits, and \$19,788,739 in time deposits.

Education.—School attendance is compulsory for all between the ages of 7 and 16, inclusive. Operating expenditures of \$18,644,703 (\$328.25 per pupil) for public elementary and secondary schools in the 1953-54 fiscal year comprised \$9,655,487 from local school districts, \$8,659,520 from the state, and \$329,696 from the federal government. Outlays for construction and improvements amounted to \$2,106,713. Teachers' salaries (1954-55) averaged \$3,542 (rural school teachers, \$2,622; elementary school teachers, \$3,560; high school teachers, \$4,008).

There were (1953-54) 620 public elementary schools which in the 1954-55 school year had 1,969 teachers and 62,678 pupils, 10,185 of whom were in junior high grades (7-8). Secondary schools (1953-54) numbered 107 and in 1954-55 had 1,059 teachers and 15,708 pupils. The University of Wyoming had 6,399 students in 1954-55.

Social Welfare.—Public assistance expenditures from state and federal funds (excluding institutional costs) in the 1954-55 fiscal year totaled \$5,092,198, including \$2,846,521 for old-age assistance, \$703,542 for dependent children, and \$52,341 for the needy blind; a monthly average of 5,791 persons received public assistance.

WYOMING WELFARE INSTITUTIONS

(As of Sept. 1, 1954)

Type of institution	No.	Pop.
Hospitals for mentally deficient and epileptic....	1	475
Hospitals for the mentally ill.....	1	700
Sanatoriums for the tubercular.....	1	35
Homes for dependent children.....	1	60
Homes for the aged.....	1	64
Soldiers and sailors homes.....	1	32
Training schools for delinquent boys.....	1	45
Training schools for delinquent girls.....	1	43
Prisons.....	1	245
Prison farms.....	1	30

Labor Force.—The employed labor force on July 1, 1955, numbered 131,000 persons, including 27,000 agricultural workers. Nonagricultural employment totaled 104,000, and for the 12 previous months averaged 91,000. There were 3,000 unemployed workers on July 1, 1955, and the state paid \$2,657,631 in unemployment compensation in the year ending July 1, 1955.

Manufacturing.—Manufacturing employees numbering 7,213 in 1953 received \$33,601,000 in salaries and wages. Value added by manufacture totaled \$54,099,000, and investments in new plant and equipment amounted to \$14,423,000. Leading manufactures include petroleum and coal products and stone, clay, and glass products. Earnings of production workers in manufacturing averaged \$84.03 for an average work week of 40.4 hours in 1954, and \$83.23 for 40.8 hours in the first six months of 1955.

Mining.—Wyoming normally ranks 16th among the states in the value of its mineral products, and accounted for 1.78% of the United States total in 1953. The value of its mineral output in 1955, which exceeded \$300 million, was approximately 6% higher than in 1954.

Agriculture.—Cash farm income for the first half of 1955 totaled \$35,139,000, and for the full year 1954 comprised \$105,439,000 from live-stock and livestock products, \$28,318,000 from

WYOMING MINERAL PRODUCTION, 1955¹

(In short tons, except as noted)

Mineral	Quantity	Value
Clays.....	990,000	\$ 9,753,000
Coal.....	2,610,000	11,745,000
Iron ore (long tons).....	748,000	4,857,600
Natural gas (million cu. ft.).....	70,000	5,880,000
Natural gasoline (1,000 bbl.).....	1,400	4,312,000
Petroleum (1,000 bbl.).....	100,000	245,000,000
Petroleum gases (1,000 bbl.).....	1,200	2,496,000
Sand and gravel.....	4,500,000	3,000,000
Stone.....	1,800,000	1,900,000
Sulfur, from natural gas (long tons).....	120,000	3,600,000
Other minerals.....		10,656,400 ²
Total.....		303,200,000 ²

¹ Preliminary. ² Excluding uranium. (Source: U.S. Bureau of Mines.)

crops, and \$3,293,000 from government payments. Receipts from principal crops and livestock in 1954 included: cattle, \$67,595,000; sheep, \$15,392,000; wool, \$9,288,000; wheat, \$8,604,000; and dairy products, \$6,462,000.

The state's 11,392 farms (35,251,410 acres; harvested cropland, 1,552,006) averaged 3,094.4 acres and \$45,327 in value of land and buildings per farm in 1954. There were 5,887 farms with telephones and 10,168 with electricity. Livestock on farms on Jan. 1, 1955, included 1,072,000 cattle and 2,132,000 sheep. During the week of Sept. 26-Oct. 2, 1954, 25,274 family and hired workers were engaged in farming.

WYOMING CROP STATISTICS

Crop (and unit of production)	Average 1944-53	1954	Est. 1955
Barley (1,000 bu.).....	4,176	3,360	3,612
Beans, dry (1,000 bags).....	986	811	589
Hay (1,000 tons).....	1,231	1,097	1,365
Oats (1,000 bu.).....	4,602	3,120	4,205
Peas, dry (1,000 bags).....	45	87	63
Potatoes (1,000 bu.).....	1,784	1,536	1,495
Sugar beets (1,000 short tons).....	411	475	424
Wheat (1,000 bu.).....	6,075	2,946	5,200

(Source: U.S. Dept. of Agriculture.)

Transportation and Communications.—State and federal funds disbursed for roads and highways in the 1953-54 fiscal year totaled \$23,178,405.-65, and newly completed construction and reconstruction aggregated 622.4 miles.

Highways and roads in 1954 totaled 30,115.6 miles (5,468 surfaced). Registered motor vehicles in 1955 numbered 109,000. There were (1955) 3 railroads operating 2,000 track miles, and 3 regularly scheduled airlines and 34 airports and airfields (32 commercial and municipal and 2 military).

Communications media (1955) included 16 AM

radio stations and 1 operating television outlet; 9 daily newspapers (circulation, 200,000) and 20 other newspapers; and (Jan. 1, 1955) 30,725 business and 64,890 residential telephones.

Principal Events, 1955.—The Wyoming Legislature, meeting in January and February, enacted virtually all of Gov. Milward L. Simpson's program (see above, *Legislature*). The most controversial action of the Legislature was the elimination of various property tax exemptions, including a \$500 homestead exemption and a \$2,000 veteran's exemption. In response to a last-minute appeal from the governor, the Legislature established a commission to study the feasibility of purchase by the state of tourist facilities held by private concessionaires in Yellowstone National Park. There was criticism of this "socialistic" proposal from outside the state, but it received strong support within Wyoming. Negotiations with the concessionaires failed to reach agreement on price, and by year's end there appeared to be little chance that the state would take over active management or supervision of the facilities.

Convicts rioted in the state's penitentiary at Rawlins on July 16-17. Promises of an investigation of prison conditions ended the riot with little damage.

Drought conditions persisted for the third straight year in several counties, adding to the distress of farmers and ranchers already suffering from declining prices. The booming oil industry, however, buttressed the state's economy.

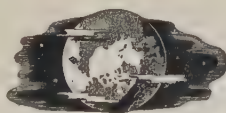
A United Air Lines plane crashed into 12,005-foot Medicine Bow Peak near Laramie, October 6, killing all 66 passengers and crewmen. It was the worst air tragedy in American civil aviation history.

The opening of 46,440 acres of public land in the Pumpkin Buttes area to uranium development was postponed from May to November when an outbreak of violence threatened between prospectors and ranchers who already held grazing rights. No violence occurred when 500 prospectors rushed in to file claims when the area was finally opened on November 17.

William A. Riner, chief justice of the Wyoming Supreme Court died November 21. He had served on the Supreme Court bench since 1928.

(See also NATIONAL PARKS; RECLAMATION.)

Principal Events by: T. A. LARSON, Head, Department of History, University of Wyoming; Author, "Wyoming's War Years: 1941-1945" (1954).



-RAY. Progress during 1955 in all branches of X-ray science has been steady and fruitful. The appearance of the 4th edition of the writer's book, *Applied X-Rays* (McGraw-Hill Book Company), after an interval of 15 years has focused attention on these advances on the 60th anniversary of the discovery on Nov. 8, 1895, of roentgen or X-rays.

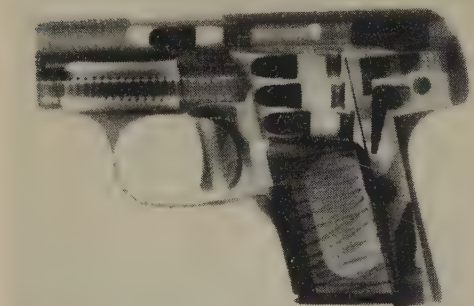
High-Voltage Radiation.—The unremitting demand for X-rays with higher energies and shorter wavelengths continues to be met with spectacular engineering improvements, especially in particle accelerators, specifically for electrons. The Van

de Graaf generator, an example of a statatron in which a static electric field is maintained, has produced up to 4 million volts in 1955, and a 12-million-volt unit is being completed. Not only do many hospitals now use such equipment with growing success for deep therapy of resistant cancers, but many industries are installing 3-million-volt units for radiography of thick specimens and for study of chemical effects of radiation on petroleum products, foods, metals, and other materials as steps toward understanding the effects of atomic bomb radiation. There are in operation several billion-volt synchotrons in which electrons travel at approximately the ve-

locity of light. Construction at Brookhaven, N.Y., of a 35-Bev. (billion electron volt) generator is under way.

Medical Diagnosis.—Most marked in 1955 was the advance in intensifying X-ray images electronically, especially on fluoroscopic screens. Notable progress in this direction has been made at the RCA research laboratories. With very weak radiation, safe for both patient and radiologist, brilliant, sharp images produced by intensification permit diagnostic observations never before possible.

Industrial Radiography.—A brilliant chapter has been added in this field with the complete testing,



BY PERMISSION, GENERAL ELECTRIC CO.

Radiograph of an automatic pistol, produced by X-rays generated in a 10 million electron volt betatron.

by means of a new 260-kv. portable Triplett and Barton X-ray unit, of every detail of construction of the nuclear-powered submarine, U.S.S. *Nautilus*. Without these X-ray tests, completion of the submarine would have been impossible.

Microradiography (Historadiography).—There have been spectacular developments in techniques and applications of this method of testing. Heretofore the radiographic image of a small specimen (metallurgical, mineral, biological, etc.) was registered on fine-grained photographic film and then enlarged to a maximum of 200–300 diameters before graininess interfered with clarity of the picture. The search for grainless sensitive media with which much greater enlargements could be made has been rewarding. A new metal-diazonium light-sensitive surface, developed at the Philips Laboratory in the Netherlands, greatly surpasses the usual emulsions, which are capable of resolving lines spaced 1 micron apart. Still more remarkable is the fact that the face of an ammonium dichromate crystal or a sheet of plastic have been found to be radiation-sensitive, and varying exposures to radiation cause corresponding changes in their solubility. Thus, by solvent etching, a microradiographic image on these materials can be brought into relief. A replica can be made, shadow-cast, and photographed in the electron microscope up to 150,000 diameters.

Radiobiology.—A flood of papers and many books, catalyzed by research on atomic bomb effects, continues to appear on the biological effects

of X- and γ -rays. The journal, *Radiation Research*, now in its second year, has become the best source of new information on this subject.

Radiogenetics.—A tremendous upsurge is noted in practical experiments aimed at effecting genetic changes in organisms of all types. Much of this work is noncritical and perhaps nonreliable, but in a few instances excellent agricultural advantages from mutations seem to be evident, such as the prevention of seed shattering, which is a common property of wild plants but undesirable in domestic crops. (See also GENETICS.)

Dosimetry.—The year has witnessed the general acceptance of the recommended new international terminology for the unit of absorbed X-ray dose—the rad, or 100 ergs per gram. Gradually the confusion in usage of the terms roentgen, rep, rem, and rad, all signifying units of dose, will be dispelled.

Chemical Analysis.—The most rapidly developing branch of X-ray science seems to be chemical analysis by fluorescent X-ray spectra. The development of tubes designed to produce more intense primary radiation, in order to excite characteristic fluorescent rays in the unknown sample; the use of a variety of crystals for analysis of the beam; and the use of vacuum and helium tunnels for transmitting reflected beams to improved Geiger, proportional, or scintillation counter detectors, in order to avoid absorption of soft rays from elements of low atomic number, have resulted in quantitative analyses in almost trace amounts of all elements down to carbon (atomic number 6) and nitrogen (7), whereas the limit a year ago was potassium (19).

Absorption methods have also advanced. In one of the large petroleum laboratories, routine analyses are made of sulfur in hydrocarbons by K-capture spectroscopy, using radioactive iron-55, from which characteristic X-rays of manganese-55 are emitted. (Hughes and Wilezowski, *Anal. Chem.*, 26:1,889, 1954). Analysis by X-ray absorption of gas-fluidized solid systems, of greatest importance in modern chemical industry, has been found by General Electric to be most effective.

Crystal Structure.—Progress in utilizing X-ray diffraction for determining crystalline and molecular structures has been extensive. In the advanced mathematical phases of interpretation of X-ray data, progress has been continuous, and more and more difficult questions of structure and bonds have been answered. For example, the boron hydrides, long an enigma in chemistry, have been analyzed; and bond structures, depending on hydrogen bridges, have been logically deduced by Lipscomb at the University of Minnesota, opening the way for an understanding of many other structures such as those of alloy intermetallic systems. Chlorophyll has been successfully crystallized for the first time in the writer's laboratory, leading to analysis of its structure and relation to the more common chlorophyllides.

(For further references, see the Index entry, X-Ray.)

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YACHTING. See SPORTS, GAMES, AND SHOWS.

YALTA PAPERS. The Yalta Conference (as the Crimea Conference of Feb. 4-11, 1954, is generally known), when viewed with hindsight—the truest sight for judgment—represents, to many historians, an unfortunate episode in American diplomacy, and records the unsatisfactory consequences of the process wherein major executive commitments are made without approval by the Senate.

A substantially complete documentary record of this conference and of the pre-conference discussions at Malta¹ was released on March 16, 1955, by the State Department in the form of galley prints of a volume entitled *The Conferences at Malta and Yalta 1945*. Release of the documents created a public stir in the United States, as well as considerable critical comment abroad, but was strongly defended by the State Department as a proper move in the public interest, opportunely timed to avoid approximation to a domestic election period. The better to understand the Yalta Papers, one must briefly recall the Crimea Conference and the agreements there concluded in 1945.

Background: The Yalta Conference.—As the light of prospective victory over Hitler's Germany began to dawn in Europe in the last months of 1944, the Allies seemed to be drifting apart in their views of final peace terms. The Soviet Union was most interested in nailing down the victory in terms of control of expansive new Slav states, allied and revolutionized on the Soviet model and reaching deep into central Europe from the USSR's western border, plus control of Austria and Germany. Great Britain wanted to make the best possible compromise with the USSR on the new map of Europe. American diplomacy feared that Russian forces might advance across Europe to the Rhine before the American Army could occupy any of Germany, and perhaps across Manchuria and North China during the final campaign against Japan. President Roosevelt wished to include the USSR in a workable charter for a new League of Nations as the best guaranty for future peace, and took the position that disputed boundaries (there were already some 30 of them in Europe alone) could not be adjusted until the final peace settlement under the seal of a United Nations Organization.

Above all, Roosevelt, badly informed by his military intelligence on the collapsing structure of Japan's power, wanted to make absolutely sure of the Soviet Union's entry into the war of the Pacific as soon as Hitler was defeated in Europe. (Stalin had already promised this orally to U.S. Secretary of State Cordell Hull at Moscow in October 1943 and again to Roosevelt at Teheran in November 1943.)

Immediately after Roosevelt's election for a fourth term in November 1944, arrangements were completed for a conference of the Big Three chiefs of state—Roosevelt, Churchill, and Stalin—near Yalta in the Soviet Crimea in February 1945.² On the way to the meeting, Roosevelt, en-

feebled in health and accompanied by his military and naval chiefs of staff, as well as by the inexperienced Secretary of State Edward R. Stettinius, Jr., and a large diplomatic retinue, does not appear to have read the briefing book which had been carefully prepared for him in the Department of State. This is not to say, however, that he was not well posted, by Admiral William D. Leahy and other military and diplomatic advisers, on the wide-sweeping dangers of the Russian potential in western Europe and in China.

The most vital decisions reached at the conference (really of largest treaty import) were between Roosevelt and Stalin personally, or in conference with Churchill and Stalin, and were in the form of executive agreements, with secret provisions, rather than in the form of treaties. The Senate had no opportunity to discuss the documents until they were signed and announced, and even then was long kept in the dark about some of the secret articles.

The Yalta agreements, as first announced in 1945, prepared for: (1) the unconditional surrender of Germany, and military occupation of that country by the United States, the Soviet Union, Great Britain, and France in zones to be worked out by an Allied Control Commission; (2) reparations in kind by Germany to "the greatest extent possible"; (3) provisional governments in Poland and Yugoslavia (the latter under Marshal Tito, then a Soviet protégé) on a broad, democratic anti-Nazi basis, pledged to fair and free elections of more permanent governments; (4) extensive territorial compensations to Poland at Germany's expense in the north and west, in return for Russian acquisitions in the east at Poland's expense; (5) agreement to assist the liberated peoples of Europe to re-establish their states on the basis of democratic institutions of their own choice, a principle of the Atlantic Charter; and (6) a conference of the United Nations to meet at San Francisco on April 25, 1945, to draw up a charter for a new world peace organization, with agreement on the voting formula for the big powers which would be members of its Security Council.

These publicly announced articles masked secret agreements later successively revealed, among them the following: (1) repatriation of citizens of the United States and the USSR (with no exception for doomed political dissidents of the latter); (2) a total of \$20 billion (50 per cent to the USSR) agreed on as a "basis of discussion" for German reparations, to be paid in forced labor and in kind, and to be fixed by an interallied commission sitting in Moscow; (3) membership of the U.N. General Assembly, and the voting formula in the Security Council (kept secret until cleared with China and France).³

Finally were the conditions agreed upon "unquestionably" for the entrance of the USSR into the war against Japan: (1) preservation of the status quo in Outer Mongolia, designated as the Mongolian People's Republic (already a Soviet satellite); (2) restoration to the USSR of her status in Manchuria as of the period preceding the Russian-Japanese War, with specific safeguarding of the USSR's "pre-eminent interest";

housed at Koreiz, and the British delegation at Alupka, both several miles west of Yalta.

³ On all but procedural matters, a decision of the Security Council required seven votes, including unanimity of the five permanent members—the United States, Great Britain, the USSR, China, and France. In the General Assembly the USSR could have three votes to one for the other powers, but if the U.S. Senate later objected (when it considered the final treaty of peace), the United States could also have three votes.

¹ The Malta Conference, which took place between President Franklin D. Roosevelt and Prime Minister Winston Churchill at Malta on Jan. 30–Feb. 2, 1945, attempted to coordinate American and British views on subjects which were expected to be discussed subsequently with Soviet Premier Joseph Stalin at Yalta.

² Although it is known as the Yalta Conference, the conference was not actually held in the village of Yalta. Most of the meetings were held in Livadia Palace, some two miles southwest of Yalta, where the United States delegation was housed. The Soviet delegation was



UNITED PRESS

Big Three wartime leaders at Yalta in 1945 (seated left to right): British Prime Minister Churchill, U.S. President Roosevelt, and Soviet Premier Stalin.

and (3) handing over to the USSR the southern half of the island of Sakhalin, plus the Kuril Islands. President Roosevelt agreed to obtain from Generalissimo Chiang Kai-shek the consent of the Chinese Nationalist government to these terms (the president easily procured this consent without Chinese protest), and in turn Stalin promised to support the Chinese Nationalist government. Nothing was stipulated at Yalta about the Open Door policy, the traditional policy of the United States in the Far East.

There was no definition of democratic principles at Yalta, and in the sequence of events, Soviet regimes were quickly installed in Poland, as well as in Rumania, Bulgaria, Albania, Hungary, East Germany, and Czechoslovakia, under the name of democracy and the guise of people's republics. In China, instead of supporting the Nationalist government of Chiang Kai-shek, the USSR assisted a Communist revolution against the Nationalist government, quickly recognized the Chinese People's Republic, and made an alliance with it.

Defenders of Yalta generally evade the question of constitutionality, or else they argue (as Roosevelt maintained) that the agreements made there were only military agreements not dependent on the treaty-making power of the Senate. They suggest that if no such agreements had been made, there was nothing to have stopped the USSR from doing what she did later to violate them in both the East and the West—and more too. But no noteworthy American voice defends the agreements as of today (1955), or maintains that the United States should do the same thing over again under the same circumstances as now understood. At the time of advising and consenting to the treaty of peace with Japan (not signed by the USSR) in 1952, the Senate attached a reservation that nothing in the said treaty, or in the Senate's advice and consent to its ratification, implied recognition on the part of the United States of the provisions in favor of the Soviet Union contained in the "so-called Yalta agreement" regarding Japan.

Publication of the Papers.—The American press, as well as the general public, was almost unanimous in its approval of the Yalta agreements when they were first announced, in an official joint communiqué on Feb. 11, 1945. Understandably, nothing was said in that announcement of the agreements about the war in the Pacific. After President Roosevelt's death, President Truman's

new secretary of state, James F. Byrnes, revealed that he did not know of the Far Eastern agreements until Sept. 2, 1945. At Mr. Byrnes' request, President Truman, when he learned about the pledges to the USSR in the Far East, had the documents transferred to the Department of State. "I wanted to know," Mr. Byrnes explained in his memoirs, "how many of these IOU's were outstanding."

The public wanted to know too. As the years wore on, and the diplomacy of the Crimea Conference was more fully revealed in the diaries and memoirs of participants, though not yet by publication of the official record, Yalta, like Munich, became a byword for diplomatic defeat. The Republican opposition to the Democratic administrations capitalized on mounting public indignation at the way in which President Roosevelt had allowed himself to be overreached by the Russians at Yalta in secret agreements that circumvented the constitutional treaty-making power of the Senate. After the Republicans came into power in 1953, the State Department planned to reduce arrears of the documentary series, *Foreign Relations of the United States*, and also to issue a special series on the Far East, as well as one on presidential conferences with Allied chiefs of state during World War II. At first the subcommittee on appropriations in the (Republican) House of Representatives balked at the mounting expense of publishing the greatly expanded volume of the regular series, not to mention a special series, but the appeals of scholars in all parts of the United States helped to arouse Congress to vote the necessary funds.

The Department of State seems to have given priority to the documentary history of the Yalta Conference in the special series planned for presidential conferences, and arrangements for its publication were cleared, under diplomatic comity, with the British government. On March 14, 1955, the State Department announced its intention to make copies of the documents available, in the form of galley prints, to six congressional committees and to individual leaders of both parties in Congress. Following Democratic protests, it appears to have been decided to release the "Malta and Yalta papers" only to the six committees. After such a release it could scarcely be expected that the papers would not reach the public anyway, perhaps in distorted form; and the day before their release, galley copies were "leaked" to the New York Times, which enjoyed a spectacular scoop (by a few hours) and, by an outstanding feat of journalism, published the major part of the galley record (notably of the Yalta papers) on March 17.⁴

The public, both in the New World and the Old, was by now conditioned for a sensational revelation—the journalistic event of the year 1955. The ensuing review of the diplomacy of Yalta and its aftermath did elicit a lively discussion both in the United States and abroad, but, notwithstanding the great volume of detailed discussions recorded in minutes, little that was significantly new came out except numerous undignified informal personal remarks on the part of the three chiefs of state at the conference, and Stalin's opposition to including France, which had "opened the gates to the enemy," on the Board of Control for future occupied Germany. In England, the aging Prime Minister Sir Winston Churchill, pressed in Parliament, asserted there were some "serious mistakes" in the pub-

⁴ See also the New York Times for March 18 and 19, 1955.

lished documents, but the Department of State described the documents as "substantially correct." What these "mistakes" were, Sir Winston did not reveal.

It is plausible to guess that the contemporary debate in the French National Assembly (beginning late in December 1954), on which depended the rearmament of West Germany and her admission to the North Atlantic Treaty Organization, may have had something to do with the extraordinary manner in which the record of *The Conferences at Malta and Yalta 1945* got printed in the newspapers. The documents may have helped carry ratification of these treaties by disillusioning France about the USSR. Certainly they would not have been so fully reproduced in the press if they had been first published in the usual form of a ponderous volume in a regular State Department series.

The documents were belatedly published in book form on Dec. 28, 1955. When it appeared, 41 documents not released in galleys in March were printed. The new material added little new important historical information to the material published in the *New York Times* in March.

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YEMEN. An independent state, Yemen lies in southwestern Arabia along the shore of the Red Sea between Aden Protectorate and Asir Province of Saudi Arabia.

Yemen has an area of 75,000 square miles and a population (1953 est.) of 4,500,000. San'a, the capital, has a population of about 50,000, and Hodeida and Mocha are the country's major seaports.

Yemen is called an imamate, and the inhabitants are Shi'ite Moslems. The ruler, an absolute monarch, is Imam Seif al-Islam Ahmed, who acceded on March 14, 1948.

Most of the state is a high, tilted plateau with terraced slopes on which are produced wheat, millet, barley, grapes, figs, apricots, walnuts, and some coffee. In 1955 the Dielman Company of Germany began drilling for oil under its concession at Saleef in Tihamah Province, and in the northeast, an American company, the Yemen Development Corporation, was granted a new concession to develop oil, with profits to be shared equally between the company and the government.

Yemen stood with Egypt and Saudi Arabia in opposing Iraq's 1955 Baghdad Pact with Turkey; and on March 26, Yemen announced that she would enter into the Arab collective security pact among Egypt, Syria, and Saudi Arabia. Difficulties with Aden Protectorate over border incidents continued into 1955, but Great Britain endeavored to avert widespread hostilities.

On April 2, 1955, the imam's brothers, Seif al-Islam Abdullah and Seif al-Islam Abbas, staged a coup d'état which was successful for five days. The imam's son, Emir Seif al-Islam al Badr Muhammad, suppressed the revolt, and six of the conspirators were subsequently beheaded. In August the imam announced the formation of a new cabinet with himself as premier, and his son, who

had been designated as crown prince, as deputy premier and minister of defense and foreign affairs.

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YOUNG, Cy (real name DENTON TRUE YOUNG), American baseball player: b. Gilmore, Ohio, March 29, 1867; d. Newcomerstown, Ohio, Nov. 4, 1955. One of baseball's greatest pitchers, he amassed an unsurpassed lifetime record of 511 wins against 313 losses (.620 average) and won 20 or more games in each of 14 consecutive seasons in his 22 years in the major leagues. In 1937 he was elected to the baseball Hall of Fame at Cooperstown, N.Y.

Denton Young, nicknamed Cy (short for "Cyclone") for his blazing fast ball, began his major league career with the Cleveland Nationals. Subsequently he played for St. Louis in the National League (1899–1900), Boston in the American League (1901–08), Cleveland in the American League (1909–11), and Boston in the National League (1911). He retired from baseball at the age of 44, after having pitched his 906th game (a major league record).

During his career Young won 20 or more victories in each of 16 seasons, in 5 of which he won over 30. He had his best year in 1892, winning 36 games against 10 defeats. In addition the great right-hander pitched 3 no-hit shutouts—on Sept. 18, 1897, against Cincinnati; on May 5, 1904, against Philadelphia; and on June 30, 1908, against New York. The second of these was a perfect game (no runner reached first base), a feat achieved only six times in the history of major league baseball. His lifetime strikeout total of 2,832 was surpassed only by Walter Johnson.

YUGOSLAVIA. Largest of the Balkan states of southeastern Europe, Yugoslavia has an area of 99,380 square miles and a population (June 31, 1955, est.) of 17,530,000. In 1953 some 15 million persons were South Slavs; among these more than 12 million in the central portion spoke Serbo-Croatian dialects, about 1,500,000 in the north spoke Slovene, and more than 700,000 in the extreme south spoke the Macedonian Slavic language. About 1 million persons (chiefly Magyars, Albanians, Rumanians, and Italians) made up the minorities.

Belgrade (Beograd), the capital, has a population of 469,998 (census of 1953). Among the few larger cities are Zagreb, 350,452; Ljubljana, 138,221; Sarajevo, 135,657; Subotica, 115,402; and Skopje, 121,551.

Constitution.—Following the seizure of power by the Communists during World War II, a constitution, modeled on that of the Soviet Union, was adopted by the Communist-controlled Constituent Assembly on Jan. 31, 1946, and was amended on Jan. 13, 1953. It provides that Yugoslavia is a federal people's republic. The bicameral National Assembly comprises a Federal Council and (in place of the previous Council of Nationalities) a Council of Producers, made up of delegates representing various sectors of the economy. A Federal Executive Council has replaced the old cabinet, and the collegial Presidium has given way to the president of the republic. On Jan. 29, 1954, Marshal Tito (Josip Broz) was unanimously re-elected president by Parliament for a term of four years. The political structure of the six constituent republics¹ is similar except that there is no position comparable to that of the president of the republic.

Political Structure.—Despite a façade reminiscent of democracy, the center of political power is to be found in the Communist Party of Yugoslavia, now called the League of Yugoslav Communists. With a membership approximating 700,000, it imposes its will through a welter of "mass organizations," the largest and most

¹ Of the total population (1953 census), the six republics have the following percentages: Serbia, 41.3; Croatia, 23.1; Bosnia-Herzegovina, 16.8; Slovenia, 8.6; Macedonia, 7.7; and Montenegro, 2.5.

far-reaching of which is the People's Front, created in World War II, and changed in 1953, to the Socialist Alliance of the Working People of Yugoslavia. The party also exercises control through the Federation of Yugoslav Trade Unions, the People's Youth Organization, and the secret police apparatus (UDBA), and through the manipulation of all public opinion media.

When the party became the League of Yugoslav Communists in November 1952, it seemed evident that the Communists were seeking to make their influence and control felt in ways less obvious and more indirect than had previously been the case. The principal function of the league was said to have shifted from ruling to that of inspiring and educating the masses. The moving forces in the dictatorship, however, have quickly put an end to concrete proposals which would move Yugoslavia toward democracy and thereby undermine their monopoly of power. Tito himself admitted, in connection with the purges of Milovan Djilas and Vladimir Dedijer in 1954, that anti-Communist forces would be victorious if political freedom were restored.

In the autumn of 1955, the Yugoslav regime introduced a change in the administrative system at the local level by abolishing 4,032 existing communities and replacing them with 1,508 larger "communes." While describing this move as an extension of "democracy," government leaders were quick to point out that the commune was an organic part of the whole and could not therefore promote local interests at the expense of national interests, nor could it lead toward a form of federation. In reality, the introduction of the commune resembled other efforts of the regime to find a workable formula for the administration of the nation's planned economy.

Religion and Education.—Historically, three religions took root among the Yugoslavs: 41.4% of the population in 1953 belonged to the Serbian Orthodox Church, 31.8% were Roman Catholic, 12.3% were Moslem, 0.9% were Protestant, and 12.3% were without religious affiliation. Initially, Marshal Tito's regime proclaimed separation of church and state, but this was followed by a systematic and persistent campaign on many fronts against all the major religious denominations and their clergy. After a temporary lull, this campaign has been intensified in recent years, indicating that religious groups continue to present problems to the Yugoslav Communists.

In 1953-54, Yugoslavia had (exclusive of similar schools provided for national minorities) 13,781 elementary schools with 1,382,843 pupils; 1,904 secondary schools with 491,282 students; 79 teacher-training colleges with 22,983 students; 1,016 technical schools with 144,480 students; 150 art, music, and dramatic schools with 16,181 students; and 108 workers' educational colleges with 5,187 students. There were 54,775 students at universities and other institutions of higher learning. Physical facilities and capable teachers, already in short supply, were further taxed by increased enrollments in 1954 and 1955. Worse still, from the regime's point of view, was the "low ideological level" which continued to prevail among the graduates despite elaborate efforts on the part of the Communists to indoctrinate the new generation in a different mode of thinking.

Agriculture.—Most Yugoslavs are engaged in farming, and individual peasant farmers and their families on small plots of their own make up about 70% of the population. Agricultural products include wheat (2,506,101 metric tons in 1953), corn (3,831,021), potatoes (2,069,353), and sugar beets (1,514,327). Although the Communists engaged in a furious drive to collectivize the peasants, they have largely failed. The regime succeeded in collectivizing about 22% of the arable land by 1951, but, because of the opposition of the peasants, the government has been in retreat since 1952. Of some 6,800 collectives existing in 1951, less than 1,000 were in operation in 1955. While not officially giving up collectives as the ultimate aim, the Tito regime has mentioned them less often in recent years.

Determined that the private peasant should not prosper, the government adopted a law (May 1953) limiting private landholdings to 10 hectares (1 hectare = 2.471 acres) instead of 35 hectares (which had been the legal limit since 1945), thereby confiscating some 300,000 hectares of land. These lands were to be made available only to groups of peasants who agreed to form collectives, and in some instances to already existing collectives or industrial enterprises.

During 1953 and 1954 the government also

sought to salvage the collectivization principle by creating a supposedly less odious type of mechanized farm cooperative, which, it was hoped, would eventually evolve into the desired collective. Both in 1954 and 1955, the government announced increased investments in agriculture.

Despite all these efforts, the government's agricultural policies have not met with success. Most significantly, agricultural production has dropped below prewar levels. The index (1935-39 = 100) for wheat and corn production in recent years, according to official Yugoslav statistics, was as follows: 1951—wheat 90, corn 90; 1952—wheat 67, corn 33; 1953—wheat 99, corn 86; and 1954—wheat 55, corn 67. The government also pointed out that this lag in production would be still worse if the increase in population were taken into account. Prices, on the other hand, have increased. Prices (1938 = 100) in 1955 were said to be as follows: wheat, 1,550; cattle and cattle products, 1,960; vegetables, 1,954; and wine, 2,773.

Of United States aid to Yugoslavia in the fiscal year 1954-55, some \$23 million was used to buy agricultural products. Additional amounts of wheat (900,000 tons) and cotton (50,000 bales) were supplied to Yugoslavia under the provisions of the Agricultural Trade Development and Assistance Act of 1954. In addition, 10,000 tons of wheat and 750 tons of butter were granted under the Danube Flood Relief Program. Despite this help, food prices continued to rise and shortages, especially in fats and sugar, were so acute at times that rations could not be met.

Industry and Trade.—Following World War II, Yugoslavia's Communist rulers nationalized all industry and trade, with virtually no compensation to the owners. Seeking to imitate the Soviet Union, they emphasized the rapid development of heavy industry. While they have continued to insist that industrial production has been rising (in 1955 it was said to be 23% above 1954), evidence of economic difficulties has been ample on every hand. These difficulties have manifested themselves in shortages (both in consumer and industrial goods), in waste and idleness in many industries (due in part to grandiose plans which did not take into account the difficulties of importing raw materials from abroad), and in an increasingly adverse balance of payments.

In 1953-54, the government was saying that the investment program in key industrial projects was being completed, and that in 1955 Yugoslavia would have a favorable balance of payments. In a mid-1955 report, however, Belgrade announced that only 33% of the government's export plan had been realized, the electrical industry, for example, having fulfilled only 12% of its export plan. In the first five months of 1955, exports (\$108 million), instead of increasing by \$6.5 million as planned, had actually decreased by \$7.33 million. (Imports for the same period amounted to \$229 million.) Following this adverse report, the government announced that centralized planning would be reintroduced in some form; that familiar Communist work norms would be brought back; and that the state trade unions would come into greater prominence.

Since 1950 Yugoslavia has received over \$500 million in Western aid (mainly from the United States and exclusive of military assistance), as well as \$350 million in long- and medium-term credits. Of American nonmilitary aid in the fiscal year 1954-55, some \$20 million was used to buy coking coal, wool, fertilizer, pharmaceuticals, fats,

and oils, and to pay for transportation costs. In September 1955, Yugoslavia asked the United States for \$40.5 million worth of economic aid in the next fiscal year.

In spite of all this aid, coal and power shortages continued to be in evidence during 1955. The consumer, already plagued by food shortages and higher prices, found that textiles, footwear and other needs were more costly. For a number of years Tito's government had insisted that the standard of living had been raised, but in 1955 it was publicly admitted that, except for unskilled workers, real wages of industrial workers and white collar employees were considerably below the 1938 level.

Yugoslav mineral production in 1954 (in metric tons) was: bituminous coal, 980,000; brown coal and lignite, 12,756,000; copper ore, 1,298,860; lead-zinc ore, 1,484,522; and bauxite, 680,597.

Principal Events, 1955.—Perhaps the most significant event since Yugoslavia's expulsion from the Cominform in June 1948 was the visit to Belgrade from May 27 to June 2, 1955, of top Soviet leaders, including Soviet Communist Party Secretary Nikita Khrushchev and Soviet Premier Nikolai Bulganin. Following a gradual improvement of relations between Moscow and Belgrade after Stalin's death, this meeting produced an agreement to develop cooperation "in all fields, which is fully in conformity with the interest of the two countries, as well as those of peace and socialism, and for which objective conditions exist today." In addition to this expression of the belief that the evolution of social and economic forces in the world is toward communism, the meeting produced a wide measure of agreement on such concrete issues as coexistence, European security, admission of Communist China to the United Nations, Communist China's claim to Formosa, German unification, and colonial problems.

On June 27, 1955, Belgrade announced that Tito had accepted an invitation to visit Moscow. In addition, there were exchanges of visits by parliamentary delegations and artists and actors, and select groups of Yugoslav physicists, teachers, journalists and air force generals made trips to Moscow.

During the summer, Tito announced that the Kremlin had cancelled a commercial debt of \$90 million and, in addition, had made a ten-year loan of \$30 million, plus \$54 million in credits. A short time later a trade pact was concluded (announced September 1) between the two countries to exchange \$70 million worth of goods each way annually.

In 1955 Yugoslavia also re-established normal relations with the countries of eastern Europe, signing new trade agreements with several of them. On Jan. 10, 1955, she established diplomatic relations with Communist China. Toward the end of the year, the Soviet Union was urging the election of Yugoslavia to the U.N. Security Council, against United States support of the Philippines. (See UNITED NATIONS.)

After the Khrushchev visit, which was followed by increasing criticism of United States policies in the Yugoslav state-controlled press, doubts as to Tito's value to the free world were being expressed in Western capitals. Nevertheless, during 1955 Yugoslavia continued to receive American military aid, including tanks, trucks, radar, minesweepers, and jet fighter aircraft, and Yugoslav military personnel were given instruction in United States service schools. On July 27, Tito declared that he would not permit United



President Tito of Yugoslavia (left) with Soviet leaders Khrushchev (center) and Bulganin (right) during the Russians' reconciliation visit to Yugoslavia in May 1955.

States supervision of military equipment granted to Yugoslavia, but in November it was announced that Belgrade had consented to an increase in the size of the American military mission from 44 to 60 persons.

On November 6, Secretary of State John F. Dulles visited Tito. At the end of the visit, he declared, with Tito's assent, that they had agreed that the eastern European countries should be independent, free to choose their own social and economic order, and free from outside interference in their internal affairs. The language was not too different from that used by Khrushchev and Tito earlier in the year. It was soon obvious, however, that the same words had somewhat different meanings for Dulles and Tito. The Soviet satellites even went so far as to suggest that since there was no mention of liberation or free elections, Mr. Dulles had in effect reversed United States policy toward them.

Also of concern to the West was the status of the Balkan alliance. Already strained by Greek-Turkish quarrels, it was further weakened by Tito's assertion in July, repeated more than once subsequently in the Yugoslav press, that the military provisions of the pact were less important than economic and cultural ties.

Among other visitors to Yugoslavia in 1955 were the king and queen of Greece and Prime Ministers Nehru of India (June 30), U Nu of Burma (June 6), and Menderes of Turkey (May 4). In December, Tito visited Ethiopia and Egypt at the invitation of those two governments. After his return to Belgrade in January 1956 he denounced the Western-sponsored defensive alliance in the Middle East, known as the Baghdad Pact (q.v.).

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YUKON TERRITORY. Created a separate territory in June 1898, the Yukon Territory is situated in the extreme northwestern part of Canada, and is bounded on the north by the Arctic Ocean, on the east by the Northwest Territories, on the south by British Columbia, and on the west by Alaska. It has an area of 207,076 square miles and a population of 10,000 (1954 est.). Whitehorse is the capital; Dawson and Mayo are the principal towns.

Government.—The territorial government consists of a commissioner (F. H. Collins, appointed June 15, 1955) and an elective Council of five members having three-year terms. The territory is represented in the Canadian Parliament by one member (J. A. Simmons, re-elected in 1953).

Finance.—Revenue for the fiscal year ending March 31, 1955, amounted to \$2,073,062.38; expenditures totaled \$1,753,660.40.

Education.—In 1954 the territory had 15 schools, enrolling 1,414 pupils and employing 51 teachers. Expenditures on education amounted to \$323,378.48.

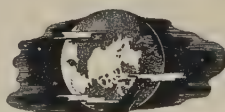
Production.—Mining is the chief industry. During the fiscal year ending March 31, 1955, gold production totaled 102,798 fine ounces; and a raw tonnage of 202,241.08 tons of silver-lead ore was produced. During 1954, 11,800 tons of coal were mined at the Tantalus-Butte coal mine. The trapping of fur-bearing animals provides a livelihood for some residents, the main furs being squirrel, muskrat, beaver, marten, and weasel. The export tax on furs amounted to \$8,180.28.

Communications.—An all-weather graveled highway connects Mayo with Whitehorse and the Alaska Highway. Ore concentrates are hauled over this road from the mines at Mayo for shipment to the smelter. An all-weather road, considerably improved and rerouted during 1955, connects Dawson with the Whitehorse-Mayo Highway at Stewart Crossing. A summer road connects Dawson with the Taylor Highway at Boundary, thus affording a connection with Fairbanks, Alaska, and points along the Alaska Highway. Main trunk roads join centers of population with adjacent mining operations. The Alaska Highway, 554 miles of which are in the Yukon Territory, provides direct communication with British Columbia, Alberta, and interior Alaska.

Some 110 miles of railroad, 58 of which lie in the Yukon Territory, connect Whitehorse with tidewater at Skagway, Alaska, where the Canadian Pacific Steamship Company operates a regular summer service from Vancouver, B.C. The Canadian Pacific Airlines operates daily service, except Sunday, from Vancouver and Edmonton to Whitehorse; biweekly mail and passenger service from Whitehorse to Mayo and Dawson; and service from Whitehorse to Fairbanks. Pan American World Airways operates daily service from Whitehorse to Juneau, Alaska, and to interior Alaskan points. Several independent air services offer scheduled and chartered trips from centers of population. Dawson and Mayo have local telephone service, and Whitehorse has outside telephone connections.

Principal Events, 1955.—The new federal building was opened in Whitehorse in November 1954, and the Duke River Bridge at Mile 1098.5 on the Alaska Highway was opened on Aug. 5, 1955. A ten-room addition to the Whitehorse Public and High School was completed for the 1955 school term. Construction began in June 1955 on a water and sewer system in the Townsite of Whitehorse, and contracts were let during 1955 for the construction of bridges over the Yukon River at Whitehorse, and over the Takhini River on the Whitehorse-Mayo Highway. Work began on these projects in 1955, and will probably be completed during 1956. The exploration and development of mineral resources reached a peak during 1954-55 throughout the territory.

F. H. COLLINS,
*Commissioner,
Yukon Territory.*



ZANZIBAR. See BRITISH EAST AFRICA.



ZHUKOV, Georgi Konstantinovich, minister for defense of the USSR; b. Strelkovka, Kaluga Region, Russia, 1896. The outstanding Russian military leader of World War II, he was appointed Soviet minister for defense on Feb. 9, 1955.

In 1915 Zhukov was drafted into the czar's army, serving with distinction in the 10th Regiment of the Novgorod Dragoons during the early phases of World War I. After the November Revolution of 1917, he joined the Red Army and fought in the civil war as a cavalry officer. In 1919 he joined the Communist Party. During the 1920's he served as a division commander in General Semyon Budyonny's First Horse Army, but with the obsolescence of the horse in warfare, he was sent to Germany to study armor. In 1932 he undertook an intensive course in mechanized warfare at the Frunze Military Academy in Moscow, and in 1936 he went to Spain to observe actual tank combat in the civil war.

Surviving Stalin's bloody army purge of 1937, Zhukov successfully commanded the Soviet tank forces against the Japanese troops invading Outer Mongolia in 1939. After serving on the staff of Semyon Timoshenko in the 1939-40 campaign against Finland, he was named commander of the important Kiev Military District in May 1940,

and in June was promoted to the rank of general.

In February 1941, shortly before Germany invaded the USSR, Zhukov was named chief of staff. Eight months later, when the Wehrmacht was pounding at the gates of Moscow, he replaced Timoshenko as field commander of the Soviet troops defending the city. In December he counterattacked, stalled the German drive, and saved the capital. Later he engineered the great victory at Stalingrad in late 1942, having been appointed vice commissar of defense in August of that year. In January 1943 he broke the siege of Leningrad. For his remarkable victories he was named marshal of the Soviet Union.

In a series of battles from the Arctic to the Black Sea, Zhukov succeeded in putting the German Army on the defensive in 1944. His troops took Warsaw in January 1945 and Berlin in April. On May 8 he signed the German surrender document for the USSR. During the remainder of 1945, he served as Soviet military administrator and representative on the Allied Control Commission in Germany.

In March 1946 Marshal Zhukov was recalled to Moscow to assume command of all Soviet ground forces. In May he was suddenly sent by Stalin to command the insignificant Odessa Military District and there he remained in obscurity until Stalin's death on March 5, 1953, when he was immediately appointed first deputy minister

for defense in the government of Georgi Malenkov, the new premier. Shortly after the arrest of Lavrenti P. Beria, head of the secret police, in June 1953, he took over the latter's seat in the Central Committee of the Communist Party. On Feb. 9, 1955, a day after Nikita S. Khrushchev had apparently emerged as the top political figure and Bulganin was elevated from defense minister to premier of the USSR, replacing Malenkov, Marshal Zhukov was named to the key post of minister for defense.

ZINC. Primary zinc metal production in the world and the United States for the past decade is given in thousands of metric tons in the accompanying table, as compiled by the U.S. Bureau of Mines.

Year	World	U.S.	% U.S.	Year	World	U.S.	% U.S.
1945....	1,291	693.6	53.8	1950....	1,970	765.2	38.8
1946....	1,386	660.7	47.7	1951....	2,100	799.8	38.1
1947....	1,595	728.0	45.6	1952....	2,200	820.5	37.3
1948....	1,698	714.6	42.1	1953....	2,320	831.1	35.8
1949....	1,811	739.2	40.8	1954....	2,400	727.9	32.9

United States.—Mine production of zinc was 465,245 short tons in 1954 (547,430 in 1953). Production for the first 10 months of 1955 was 423,711 short tons, as compared with 241,600 tons during the same period of 1954. Production of primary metal declined from 916,105 tons in 1953 to 808,000 tons in 1954, but reached 508,653 tons during the first 6 months of 1955. Consumption of slab zinc in 1954 was 875,000 tons, as compared with the record high figure of 986,000 tons in 1953. During the first 10 months of 1955, consumption reached 884,000 short tons. The metal content of ore imports dropped from 513,383 tons in 1953 to 448,706 tons in 1954. Slab zinc imports in 1954 declined greatly to 156,898 tons (234,576 in 1953). During the first 10 months of 1955, the metal content of ore imports reached 399,379 tons, and metal imports reached 157,103 tons.

Canada.—The production of recoverable zinc reached 244,337 short tons through July 1955, as compared with 206,240 tons for the same period in 1954 (376,491 for the entire year). Corresponding figures for metal output for the first seven months of 1955 were 149,342 tons, and for the first seven months of 1954, 116,597 tons (213,775 tons for the entire year 1954). The excess of mine production over metal production is due to the exportation of ore. (See MINERAL PRODUCTION for table showing output of major producing countries.)

OLIVER BOWLES, *Former Chief, Nonmetals Division, U.S. Bureau of Mines;* and BERNICE B. MITCHELL, *Foreign Minerals Staff, U.S. Bureau of Mines.*

ZOOLOGY. Ecology and Populations.—With the explosive growth of the human population, zoologists as well as other biologists have become vitally interested in the problems concerned with the abundance and distribution of animals of all sorts. Since the human organism must receive a steady supply of food, it is imperative that sufficient plants and animals be produced for use as food by humans. Essentially man must try to manipulate animal and plant populations so that the desirable kinds—the ones which man can utilize—increase in numbers, while the undesirable types—the ones which detrimentally affect the desirable kinds or man himself—are reduced in numbers.

The history of the past hundred years is replete with instances in which man's manipulation of animal and plant populations has been, from

the human point of view, ineffective and in some cases disastrous. Sometimes these adverse results have occurred because man has ignored pertinent biological data, but often they have occurred because of ignorance of fundamental biological forces which control populations. Pains-taking work by innumerable scientists has provided voluminous information on these basic factors; but the data, collected by diverse kinds of biologists, are widely scattered through many scientific publications and are not readily available even to trained scientists. Further, the problems of animal numbers are so intricate and complicated that there is ample room for disagreement on the interpretation of the underlying causal factors which are in actual operation.

Andrewartha and Birch¹ have studied and interpreted much of the available information. These authors point out that Haeckel in 1870 gave the name ecology to "the total relations of the animal to its inorganic and its organic environment." Ecological problems therefore concern animals in their natural habitat and can be solved by: (1) studying the physiology and behavior of the animal both in the laboratory and especially in the field; (2) investigating the climate, soil, and vegetation of the area in which the animal lives; and (3) determining the population density and number by careful, long-time (usually 10–15-year periods) census sampling. Having learned these things about the animal, one is then prepared to give the reasons for the distribution and numbers of animals.

Using published scientific information, as well as that derived from their own ecological studies, Andrewartha and Birch have built a general theory of the distribution and abundance of animals in nature, and also have related the relationship of ecology to the general problem of animal evolution.

Screwworms.—Screwworms, the maggots or larvae of a fly, *Callitroga hominivorax*, are serious pests of domesticated animals in many parts of the American tropics and subtropics. The adult female is attracted to any small wound or scratch on the body of an animal, such as a cow, and lays numerous eggs in the wound. When the larvae hatch, they bore into the sound flesh of the cow and thus cause severe damage to the animal, often resulting in its death. These flies were accidentally introduced into Florida in 1933 and have since caused immense losses to the livestock of that region.

In studying the life cycle and behavior of the fly, Bushland and Hopkins^{2,3,4} found that a female mated only once in her lifetime and that she would as readily mate with a male which had been rendered infertile by X-ray or gamma ray treatment as with a normal male. This seemed to present a possible way of eliminating the screwworm, since the insect can easily be reared in the laboratory and sterilized by means of gamma radiation. The theory was that if enough sterile males were released they would mate with a large number of the wild females which would then lay infertile eggs.

In order to test this method, the island of Curaçao, which had a large year-round active screwworm population, was selected for a trial experiment. Releases of sterile flies started in March 1954. After some preliminary testing of techniques, it was decided to release 400 sterile males for each square mile of the island each week. By November 1954 the screwworms were apparently eradicated, and from Oct. 1, 1954, to July 1, 1955, no cases of screwworms were found

in the domestic animals of the island. Since the complete life cycle takes only four weeks, it appears that the screwworm has been eliminated from the island. Bushland and Hopkins feel that it can also be eliminated by the same technique from the southeastern United States.

Symbiosis.—Any observant person who has lived along the warmer seashores knows that creatures such as jellyfishes and the famous Portuguese man-of-war (*Physalia*) can inflict painful wounds on swimmers. Yet it is common knowledge that certain little so-called man-of-war fish (*Nomeus*) can swim and live without injury among the tentacles of the *Physalia*. The term "symbiosis" is used to characterize intimate constant partnerships of this sort between two very different kinds of animals, or between animals and plants.

Originally symbiosis was applied mainly to partnerships in which both partners benefited. Today, however, scientists are well in agreement that three distinct subdivisions of relationships should be considered as belonging to symbiosis. These three subdivisions are: (1) *mutualism*, in which both partners are benefited; (2) *commensalism*, in which one partner receives the major benefit but the other is not injured; and (3) *parasitism*, in which one partner receives benefit and the other is injured.

Examples of these various kinds of symbiosis are numerous and widespread in nature. Further, many of them are not only fascinating but bizarre. Thus a small marine fish, *Carapus acus* (*Fierasfer*), twists its way into the posterior end of the digestive system of a sea cucumber and dwells in this odd place. In North Africa, Europe, and Australia there are certain species of orchids whose flowers look to the human eye somewhat like females of certain wasps. Male wasps apparently think that these flowers resemble their females, for they fly about attempting to mate with the flowers and in so doing pollinate the flowers.

Most of the knowledge of symbiosis is of a purely descriptive nature, and although it is known that many specific relationships of such sorts exist, little is known about the functional behavior and stimuli of the individuals involved. Here and there, however, a few workers have carefully analyzed the behavior of such symbiotic pairs. Davenport⁵ has collected and evaluated many such data and shows that in every case one or both partners show specialized behavior, the

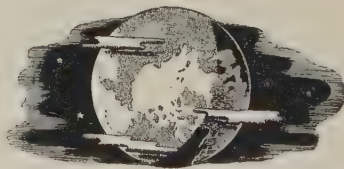
primary function of which is to effect and maintain the association. In many instances in which the exact stimuli involved are known, it can be shown that they are of a chemical rather than a physical nature. The analytical understanding of symbiotic behavior is, however, in its infancy, and it may be eventually learned that physical stimuli are also of importance.

Molluscan Evolution.—When one thinks of oysters, mussels, clams, and related bivalves, he normally visualizes soft, helpless animals enclosed in heavy, calcareous shells. Clams typically burrow in the bottom of the ocean, especially in sandy or muddy areas, whereas marine mussels usually attach themselves by means of thin, secreted threads, known as byssus threads, to rocks and other objects.

Some clamlike creatures, instead of burrowing in sand or mud, have developed the ability to burrow in rock. Such individuals, once they have constructed their cell-like burrows, can never leave the spot. Yonge⁶ has carefully studied two of these rock-boring creatures. One, *Botula*, excavates its burrow in noncalcareous rocks such as shale and uses its hard shell to cut away the rock mechanically. Another, *Lithophaga*, bores into calcareous rocks, but instead of cutting the rock by mechanical means, seems to use chemicals which it secretes. Both these creatures are shaped superficially much like some of the clams which burrow in sand and mud. Yonge, by detailed study of the anatomy and the shells, shows, however, that these rock borers are much more closely related to the byssus thread-producing mussels. This is just another example of the fact that the evolutionary history of any organism must be ascertained by careful investigation of the total animal. (See also MARINE BIOLOGY.)

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INDEX. CUMULATIVE INDEX TO THE AMERICANA ANNUAL, 1952-1956

This Index covers editions of THE AMERICANA ANNUAL from 1952 to the present volume (1956), inclusive. Cumulative indexes to all editions of THE ANNUAL, 1923 to 1932, inclusive, will be found in the 1933 ANNUAL; for the years 1933 to 1941, inclusive, in the 1942 ANNUAL, and for the years 1942 to 1945, inclusive, in the 1946 ANNUAL. Beginning with the 1950 ANNUAL, indexes are cumulative for five years, covering the current and preceding four editions.

Main article headings appear in this Index as bold-faced capitals; subjects within articles appear as lower-case entries. Most important general reference numbers appear at the beginning of each entry, and the subentries which follow them direct the reader to related topics appearing elsewhere; both the general references and the subentries should be consulted for maximum usefulness of this Index. Maps, charts, etc. are indexed herein; half-tone illustrations in this edition are indexed at the front of the volume. Figures in bold-faced type indicate the year of the volume, followed by the page number in light-faced type. Cross-references used herein are to entries in this Index.

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Arctic





THE WORLD

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ANTARCTICA

